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Valency-changing operations in Umó ho : affixation, incorporation, and syntactic constructions

Julie Marsault

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UNIVERSITÉ SORBONNE-NOUVELLE PARIS 3

ED622 - Sciences du langage

Thèse de doctorat en Sciences du langage

Présentée et soutenue par

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Le 1er juin 2021

Valency-changing operations in Umó^{n}ho^{n}: Affixation, incorporation, and syntactic constructions

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UNIVERSITÉ SORBONNE-NOUVELLE PARIS 3

ED622 - Sciences du langage

Valency-changing operations in Umóⁿhoⁿ: affixation, incorporation, and syntactic constructions

This dissertation presents a detailed study of valency-changing constructions in Umóⁿhoⁿ, a Native North American language. It contributes to a better description and understanding of this language and thereby also to the development of cross-linguistic research on argument structure, valency change, and the morphology-syntax interface. Part I includes a grammatical sketch of Umóⁿhoⁿ and a detailed description of its verbal morphology. It concludes with a general presentation of the existing valency alternations in the language, which take the form of derivations, complex predicates, and syntactic constructions. Part II presents case studies of some of these operations: the different types of causative and applicative constructions, the antipassive, and nominal incorporation. This work addresses in detail the difficult question of interpreting non-overt arguments in a language where some 3rd person arguments are never encoded. It also discusses the distinction between the morphological and the syntactic domains. The eight chapters in Parts I and II are supplemented by extensive appendices and a foreword on the socio-linguistic context of fieldwork.

Keywords: valency-change, morpho-syntax, Siouan languages, verbal morphology, complex predicates, causative, applicative, antipassive, noun incorporation

UNIVERSITÉ SORBONNE-NOUVELLE PARIS 3

ED622 - Sciences du langage

Les modifications de la valence verbale en Umóⁿhoⁿ: affixation, incorporation et constructions syntaxiques

Cette thèse propose une étude détaillée des constructions modifiant la valence verbale en Umóⁿhoⁿ, une langue amérindienne d'Amérique du Nord. Elle contribue à une meilleure description et compréhension de cette langue et, par ce biais, au développement des recherches typologiques sur la structure argumentale, le changement de valence et l'interface morphologie-syntaxe. La première partie comprend une esquisse grammaticale de l'Umóⁿhoⁿ et une description détaillée de sa morphologie verbale. Elle se termine par une présentation générale des alternances de valence existantes en Umóⁿhoⁿ, celles-ci se présentant sous la forme de dérivations, de prédicats complexes et de constructions syntaxiques. La partie II présente des études de cas de certaines de ces opérations : les différents types de constructions causatives et applicatives, l'antipassif et l'incorporation nominale. Ce travail aborde en détail le problème de l'interprétation des arguments non réalisés lorsque ceux-ci ne sont jamais codés à certaines personnes. Il examine également la distinction entre les domaines de la morphologie et de la syntaxe. Les huit chapitres des parties I et II sont complétés par d'importantes annexes et par un avant-propos sur le contexte socio-linguistique du travail de terrain.

Keywords: changement de valence, morpho-syntaxe, langues siouanes, morphologie verbale, prédicats complexes, causatif, applicatif, antipassif, incorporation nominale

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Foreword. Historic and sociolinguistic context for this research

This dissertation describes some aspects of the Umóⁿhoⁿ language (usually called "Omaha" in English), a Native language spoken by the Umóⁿhoⁿ people in North America (United States). The Umóⁿhoⁿ Nation is one of the peoples of the Great Plains; their reservation is in Northeastern Nebraska (along with a portion in Iowa), and constitutes a fraction of what their territory was in the first part of the 19th century. Since the beginning of my research on the Umóⁿhoⁿ language, I have spent nearly six months in Nebraska, on three separate trips. I have been confronted with many issues which are frequent in North America's Native communities. This experience has increased my personal interest in history and sociolinguistics, and led me to question my position as a White scholar conducting research on an Indigenous language.

In a context of ongoing settler colonialism, and of "unresolved grief" (Brave Heart-Jordan 1995), the language is of great importance to many tribal members, as it is tightly tied to their identity and culture. Although my research focuses on grammatical aspects of Umóⁿhoⁿ, it nonetheless relates to the language of a community, and as such it relates to the Umóⁿhoⁿ people and can affect them in ways that should not be underestimated (see Hamilton et al. 2019, Hill 2002).

Inadvertent harm can be done by researchers (Palosaari 2016) in ways that one cannot foresee without an understanding of the historical context and of the cultural specificities of the community. Trying to avoid inadvertent harm led me to consider the specific historical and socio-cultural context within which my research takes place. It made me aware of some cultural gaps between my Western culture (the culture in which academic research is integrated) and the Umóⁿhoⁿ culture; and caused me to think about issues of intellectual property, informed consent (Palosaari 2016), and community empowerment (Hamilton et al. 2019). In the last decades new research methodologies have emerged that seek to empower the communities involved, instead of treating them as mere objects of research.

I would like to address these issues, and to share and reflect on my own experience, before

proceeding to the subject of my dissertation.

The Umóⁿhoⁿ people[1]

The Umóⁿhoⁿ Nation of Nebraska and Iowa is a United States federally recognized tribe whose reservation is situated in Northeastern Nebraska and Eastern Iowa. They are one of the peoples of the Great Plains, and their territory in the first half of the 19th century extended over a large area of Eastern Nebraska between the Missouri River and the Platte River. Their reservation is situated around 70 miles north of the city of Omaha, named after them, which is the largest city in the state of Nebraska. Both the current reservation and the city of Omaha are situated on traditional Umóⁿhoⁿ land.

The Umóⁿhoⁿ people are related to the other tribes of the "Siouan" family[2], which were originally one tribe (or associated tribes) living in the Eastern part of the present United States, most likely in the Ohio River Valley region according to archeological evidence (Awakuni-Swetland 2003: 15). While some of the group remained in the East (see map of the Siouan Nations territories in Appendix A), most migrated westward and progressively separated, as reflected in oral histories and in archeological and linguistic evidence. The genealogical tree of the language family (App. A) mirrors the relationships between the corresponding Tribes. The Umóⁿhoⁿ Tribe is most closely related to the Paⁿka (Ponca; divided between the "Paⁿka" and the "Northern Paⁿka"), Osage, Quapaw (Quapaw) and Kaw Tribes, collectively calling themselves the Dhegiha Tribes. The Umóⁿhoⁿ and Paⁿka are particularly close, and their language is generally considered the same language, with some variations, both by the community members that I met and by linguists (e.g., Dorsey n.d.a, Koontz 1984). The Tribes, however, are clearly distinguished. Most materials that I worked on for my dissertation come from Umóⁿhoⁿ speakers (or speakers adopted by the Umóⁿhoⁿ Tribe or "counted as Umóⁿhoⁿ ", like Joseph La Flesche; see Dorsey 1890:1), and I have been in contact only with Umóⁿhoⁿ tribal members during my trips to the United States. For these reasons, the present dissertation is said to be about the Umóⁿhoⁿ language, specifically[3].

The name *Umóⁿhoⁿ* means "against the current" (as written on their flag), while the Qua-

[1]The main source for this section is Swetland's (2003) dissertation, extracts of which are also found in the introduction of the ULCC & OLIT (2018) textbook. Earlier academic descriptions of Umóⁿhoⁿ people, history, and culture include *The Omaha Tribe* co-written by Alice Fletcher & Umóⁿhoⁿ scholar Frank La Flesche (1911), and Dorsey's (1884) *Omaha Sociology*. Different resources, including books authored by tribal members and documentaries, are listed on the Title VI ULCC Center website (available at the following link: https://sites.google.com/a/unpsk-12.org/ushkon/resources. Accessed on July 7th, 2020).

[2]Gordon (2019) recounts the origins of the name "Siouan" to refer to this language family: the term "Sioux" was the name given by the French and the Algonquins (Otickwàgamì) to the Dakota. Among other authors, de Gallatin (1836) extended it metonymically to the entire family as "Great Sioux family", and the term "Siouan" was then used. See Gordon (2019: 14-6) for more detail.

[3]There is an index of the speakers on page 651, and an index of Siouan languages on p. 669.

paw tribal members are called *Ugáxpa*, for "with the current" or "downstream"[4]. These names are linked to the separation of the two tribes along a river, when during the migration from the East, the Umóⁿhoⁿ continued upstream and the Quapaw downstream. (See Fletcher & La Flesche (1911: 35) for more details of this story.) The Umóⁿhoⁿ arrived at the Missouri River by 1714, and at the mouth of Platte River in the 1840s (Awakuni-Swetland 2003: 15). The Platte River is called *Nibtháska* in Umóⁿhoⁿ, which literally means "flat (*btháska*) river/water (*ní*)", and which is the origin of the name "Nebraska" (Dorsey n.d.b).

In 1854 the Umóⁿhoⁿ signed their first treaty with the United States, establishing their reservation along the Missouri River. Many Umóⁿhoⁿ children were sent to boarding schools on and off the reservation, for example the Indian Industrial school in Genoa, Nebraska. La Flesche (1900) relates his own experience as a student in the mission boarding school, probably in the mid-1860s (see foreword to the 1963 edition). The current reservation, compared to the 19th century tribal lands, can be seen in Appendix A. In 1956, almost half of the enrolled members were living off-reservation, mostly in Omaha (NE), Lincoln (NE) and Sioux City (IA). In 1997, the Omaha Tribe reported an enrolled population of more than seven thousand, most of whom lived outside the reservation (Awakuni-Swetland 2018).

A "renewed powerful and growing Native American struggle for self-determination" (Dunbar-Ortiz 2014) has taken place since at least the 1960s. In 1989, the Umóⁿhoⁿ retrieved old artifacts and two sacred objects: the Sacred Pole and the White Buffalo Hide (Bordewich 1996, Awakuni-Swetland 2018, Ridington & Hastings 1997); a couple of years later they retrieved bones of their ancestors (see Bordewich 1996). After court battles, the Tribe recovered some lands in Iowa in the 1990s. When I first went to Nebraska in 2016, the Tribe had just won a court case against the Pender municipality. Although the allotments in and around Pender have all been sold to settlers since the early 20th century, the court stated that Pender was still within the reservation and thus under the jurisdiction of the Umóⁿhoⁿ Tribal Council.

My stays in Nebraska in 2016 and 2017

I first started to work on the Umóⁿhoⁿ language on the advice of my co-advisor, Guillaume Jacques, in 2014. During the two years of my master's thesis, I studied the Umóⁿhoⁿ verbal system (especially morphology), relying on published corpora and linguistic literature (see §2.1). I only used the corpora from the late 19th century (Dorsey 1890, 1891a), and many of the linguistic analyses made available to me were based on the same texts. During the 2015-2016 academic year, I started getting in touch with linguists and Umóⁿhoⁿ community members in order to organize my first trip, and joined the Committee of Solidarity with the American Indians (CSIA-Nitassinan)[5]. From this period onward I became increasingly aware

[4] *Ugáxpa* is the recorded Umóⁿhoⁿ name for the Quapaws, but I show in §2.2.2 that there seems to be no phonological distinction between [u] and [o] in Umóⁿhoⁿ.

[5] Comité de Solidarité avec les Indiens des Amériques, http://www.csia-nitassinan.org/.

of the issues concerning endangered language documentation and revitalization in general, minority languages, and the specific case of North America.

To date, I have visited in Nebraska three times. The first stay was in August 2016, in order to get to know community members (especially speakers and people involved in language preservation programs), and also to meet linguists working on Umó^{n}ho^{n}. The second time was from April to August 2017, when I stayed on the Wayne State College campus thanks to the resident scholar Catherine Rudin. The third time was in June and July 2019, when I stayed on the Nebraska University of Omaha (UNO) campus thanks to the resident scholar Barbara Robins.

Before my first stay, while trying to contact his uncle, I got in touch with Taylor Keen, who teaches at Creighton University (Omaha). During my first days in Nebraska, Taylor spent a lot of time with me and another young white student explaining basic things about Umó^{n}ho^{n} culture and history, and the appropriate conduct we should have with community members in general and elders in particular. He then introduced us to his mother, Octa Keen, and his aunt, Glenna Slater. I was also introduced to Vida Stabler, Title VI Indian Education /ULCC Program Director, to Pat Phillips, who worked with her, and to Wynema Morris, teacher of Umó^{n}ho^{n} history and culture at NICC college and member of the Board of Directors. I was also welcomed and accommodated by the linguists Catherine Rudin and Binah Gordon, who introduced me to several people in Macy. All of them spent considerable time discussing Umó^{n}ho^{n} history, culture and language programs with me. I was welcomed to watch the annual Hédewach^{h}i / Hethúshka (or Powwow), the Harvest celebration which takes place in August of each year, and which lasts four days.

During 2016 and 2017, I grew increasingly aware of the distrust that some tribal members feel towards white scholars – with good reason, see p. 33 – and aware that much more is at stake in "language preservation/revitalization" than simply writing a grammar and developing technical teaching materials. I sensed that strong and sound relationships could only be built in the long term and around projects benefiting the community as much as the researcher. As a result, I gave up trying to obtain recordings or elicitation sessions for research purposes, and rather tried to understand how I could find converging interests with the community. I started to work with Octa Keen on documenting the language. One of my first attempts at aligning community needs and mine was a short recording of Háwatay thi^{n}ge (Wynona Caramony) translating sentences that could be useful in a classroom into Umó^{n}ho^{n}. The recording took place at Octa's house and she invited her elder sister Háwatay for the occasion. In this way, I had a first experience at recording and transcribing, and Háwatay got an audio document and corresponding transcription that she could share with her students. (I have been told by Binah Gordon that she has actually used it in class.) The transcription of the audio file can be seen in Appendix D.1. I also thought that an audio recording could be a good way to take into account the traditional oral way of passing on the Umó^{n}ho^{n} language (although

of course, a recording still falls short of the traditional family transmission). Unfortunately, I did not consult Háwatay and Octa about the appropriateness, in the Umóⁿhoⁿ culture, of the sentences I had prepared for this recording. Shortly afterwards, I realized that "Can you repeat?" (nº 22) is probably useless for Háwatay's students, because they would not address a respected elder with words that could be interpreted as an order. I asked Octa what would be the appropriate way for students to ask Háwatay to repeat something. Octa answered me (if I correctly remember her exact words, which I did not immediately put down): *tha'éoⁿgithe, anóⁿ'oⁿ-mazhi* "Pity me, I have not heard/understood".

During both stays, too, I started to share linguistic documentation that I had with the Umóⁿhoⁿ Language Department at the Macy campus of Nebraska Indian Community College, and with the Title VI Umóⁿhoⁿ Language and Culture Center at the Umóⁿhoⁿ Nation Public School in Macy. This included my own Master thesis (Marsault 2016), and Ozbolt's Master thesis in anthropology (2004). I also got in touch with the son of Clifford Wolfe Sr. and Bertha Wolfe, and the daughter of Mary Clay, in order to give them CDs with recordings of their parents, and the corresponding transcriptions. The Wolfes and Mrs. Clay had been recorded by Catherine Rudin, and helped her transcribe most of the recordings (Rudin et al. 1989-92). In 2017, I also worked with Octa on writing down and translating some parts of the same recordings that had not been transcribed. Háwatay was also present at one of these sessions. As Háwatay preferred a kind of intuitive spelling system different from the spelling system used by the ULCC and in many linguistic materials, I created two versions of the transcriptions we did together: one with what I called "Háwatay's spelling", and one with what I called "ULCC spelling". I sent a clean copy of our work to Octa by post a few months after my return to France.

Settler colonialism in the past and in the present

In North America, Native communities have suffered what Wolfe (1999) and Dunbar-Ortiz (2014) call "settler colonialism":

> "As Patrick Wolfe [1999] has noted, the peculiarity of settler colonialism is that the goal is elimination of Indigenous populations in order to make land available to settlers. That project is not limited to government policy, but rather involves all kinds of agencies, voluntary militias, and the settlers themselves acting on their own." (Dunbar-Ortiz 2014: 10)

Settler colonialism in North America includes well-known facts like massacres, land appropriation, and forced assimilation in boarding schools[6]. The progressive loss of the culture and

[6]For instance, see Dunbar-Ortiz (2014) for a critical history of the creation and development of the United States, emphasizing the colonialist ideology; Brown (2009) for a history of the colonization of the West from 1860 to 1890; Grann (2018) about the systematized murders of Osage tribal members and appropriation of their wealth in the early 20th century; Pember (2016) for a testimony of abuses and trauma in boarding schools;

the language in itself is traumatic, and is much more deeply felt than I could imagine before meeting Umóⁿhoⁿ people. But there is more to it than that. I would like to emphasize two related points that I have realized: first, that academia has had its share in settler colonialism, and still has in several respects today. Second, that settler colonialism comes with its own negation.

Gordon (2019) relates how the Umóⁿhoⁿ and Paⁿka people (and Indian peoples in general) have been described by settlers since the beginning of the 19th century with a racist ideology, and progressively made an object of academic research. Dorsey, who wrote extensively about the languages and cultures of Umóⁿhoⁿ, Paⁿka and other related Nations, was animated by the conviction that they should be "civilized" and Christianized (Dorsey n.d.a: iii). Hamilton et al. (2019) mention a study from 1922 where Indian students were tested. The study concluded that intelligence decreases "with increasing amount of Indian blood". More recently, some research projects have been harmful to Native communities in various ways, among which lack of informed consent (Palosaari 2016). A famous and recent case is the blood samples of Havasupai people allegedly collected for genetic research on diabetes in the early 1990s, which have been additionally used in research on inbreeding, schizophrenia and the Great migration theory[7].

We scholars are carriers of the dominant culture in which academia has developed. Research in linguistics often involves scholars coming into a community, documenting the language, describing it in technical terms and publishing books not available to the community. Tsikewa (2018; cited in Gordon 2019) writes how she sought "formal linguistics training to be able to decipher the documentation created by previous non-Indigenous linguists on my language". Gordon (2019) refers to this type of research as "extraction" from the communities. This expression is iconic: once the fieldwork is done, and the academic research is published, it can be used as a primary source for other studies, and it circulates within the academy. The name "Omaha" has been famous in anthropological studies on kinship systems since Morgan's work (1871) which reproduces a list of Umóⁿhoⁿ kinship terms. Since then, the "Omaha kinship system" serves as a label for all kinship systems following the same pattern (see for example Lowie 1930, Lane & Lane 1959, Butcher 1964). In my master thesis (Marsault 2016), I wrote an introduction to the Umóⁿhoⁿ people, their history and their culture, before having been there, citing scholars whom I do not know, and whose relationships with the communities I do not know about. Academic studies are cited under the name of the linguist who wrote them,

LaDuke (1999) for an account, from a Native perspective, of various wrongs to Native peoples and the struggles for land and life that ensued; Planchou (2012) on the issue of adoption of Indian children from the 1950s to the present.

Activist Winona LaDuke (Anishinaabeg Nation) reports how the buffalo were exterminated because they were the means of subsistence of the Plain Indians and a core element of their tribal organization. After that, the government provided food supplies of beef to the Tribes on the reservations. The beef rations also served to promote cattle ranching in the west (LaDuke 1999: 142).

[7]See accounts in Hamilton et al. (2019) and online at http://genetics.ncai.org/case-study/havasupai-Tribe.cfm (consulted on August 26, 2019).

without mentioning the names of the speakers whose collaboration was crucial[8]. Sometimes, unreliable publications are used as primary documentation in subsequent works[9].

Second, there is a lack of acknowledgement that the Native Americans have been victims of intentional genocide: some historians view Native depopulation as a tragic fate due to epidemic diseases; others claim that the wars and colonization were a "conflict of civilizations" where the defeat and assimilation of Indians was the unavoidable outcome (Dunbar-Ortiz 2014)[10]. More generally, there is a lack of acknowledgment that Native communities have ever been complex and organized peoples. As an example, the "myth of pristine wilderness" denounced by Dunbar-Ortiz (2014: 45-7) denies that there were complex political systems, international trade, a web of roads, and land management prior to White settlement. At present, Native Americans seem to be absent from the public domain and not considered "normal" or full citizens of the United States. There is a total ignorance among most non-Native people of the Nations who were historically present on the land, and that *still* are present. During my stay on the UNO campus in the summer 2019, I met many young students who came from several towns in Iowa, a few hours away from Omaha. I realized that some (or most?) of them were unaware that the city of Omaha was named after an Indian people, and that this tribe had a reservation 70 miles north of Omaha.

Everything just mentioned results in what Brave Heart-Jordan (1995) calls an "unresolved grief" (cited in LaDuke 1999: 148). It also results in a trauma which is transmitted from one generation to another[11]. Pember (2016) writes: "I don't remember a time when I didn't know about the trauma my relatives endured there; although they aren't my direct experiences, their stories have always been with me." This unresolved grief and trauma weighs on contemporary indigenous communities and individuals, and it has a direct impact on my relationship with them and the way I may orient and conduct my research.

[8]Dorsey's works constitute a typical example of this. In my master thesis (Marsault 2016), following the usual practice in other works, I reproduced examples from Dorsey (1890, 1891a) with a precise reference to the page and line number. Although Dorsey clearly indicates which speaker gave him which story or letter, this information was lost in my work, making the speakers and the community invisible. By contrast, the names of speakers are systematically indicated in this dissertation.

[9]For instance, Ullrich (2018: 28) criticizes the practice of elicitation, which "makes the bilingual Native speakers produce ungrammatical constructions due to transfer from the language used during the elicitation", and early documentation of Lakhota, which "made heavy use of data from the Dakota and Lakota translations of Christian liturgical texts."

[10]Dunbar-Ortiz (2014) notes about these two positions, first that "if disease could have done the job, it is not clear why the European colonizers in America found it necessary to carry out unrelenting wars against Indigenous communities" (p.40). Second, the "exceptional one-sided colonial violence" (p.59) has been acknowledged by many historians. (As previously mentioned in the definition of "settler colonialism", colonial violence is not only carried on by the government and official Army.)

[11]Intergenerational trauma has been investigated recently by the new domain of epigenetics, finding out that "our genes can carry memories of traumas experienced by our ancestors and can influence how we react to trauma and stress" (Pember 2016).

Language preservation issues

Turning to language documentation and preservation, I noticed that there are two opposite views about what the language represents and why and how it should be preserved. In the first view, preserving the language means documenting and explaining its system (vocabulary, phonology, syntax...) in a precise and accurate way, and sharing the results by publishing dictionaries and grammars. Many technical linguistic terms can be used. Even if the documentation will only be available to people with training in linguistics, the language is "saved" for future generations[12]. In this view, the linguist is very useful as he or she possesses technical skills that can help the community. Many people whom I tell that I am writing a dissertation about the Umóⁿhoⁿ language assume that the community must be pleased to have me to help them with my linguistic skills and tools.

Conversely, many Native people see language preservation/revitalization/transmission, together with the preservation and transmission of cultural practices, as a healing process. Gordon (2019: 42) writes: "Language, as Brave Heart-Jordan [1995] indicates, is one part of a much bigger complex of healing and decolonization, and the active healing role of language has been recognized by researchers in the Native health, language and ethnographic sciences [...] as well as the settler colonial ones [...]." I witnessed this by attending a few Umóⁿhoⁿ language and culture classes as a guest. I saw that learning their heritage language, for community members, comes with a heavy emotional load, as it connects them with their identity, with their culture and traditions, with the traumatic past, and it also makes them face their "loss" (Shaw 2004; cited in Gordon 2019). So, this is not a task that can be handled so lightly and freely as I do when I learn a foreign language. This shows that a purely technical view of language teaching and revitalization is misleading in this context.

In the second view of language preservation/revitalization/transmission, the manner of conducting the research is very important, because if the linguist reproduces old colonial patterns (e.g., carrying on what one thinks to be beneficial, taking the lead, imposing one's authority as a "specialist"), it will have the opposite effect from what was intended. I have been warned against doing things too fast, not respecting the rhythm of the community in its process of language and cultural reappropriation, and against writing documentation / teaching materials aimed *for* community audiences but not made *with* the community's involvement (there is a high risk that such materials would not be used).

The view of language recovery as part of a healing process does not mean that linguistic

[12]One very good example of this is found in an interview of the Siouanist Robert Rankin, transcribed by Saul Schwartz: "You know, every 10,000 kids there's some language genius who's born, there's some kid who can just pick up languages [...]. And there'll be some little Kaw kid or some little Omaha kid who'll pick this up and just attack it hammer and tongs and actually learn it someday. [...] If the tribe needs them [the materials], if scholars need them, they'll at least be there." (Goodtracks et al. 2016: 154)

documentation is completely rejected. The website page of "Native4Linguistics"[13] says: "Regardless of the differing views, many Native Americans recognize how the discipline's tools can be tremendously helpful and illuminating. As such, the logical response is to not abandon Linguistics, but rather to improve it."

That being said, how the language should be preserved and transmitted is a subject of debate where I am not entitled to take a position. One issue concerns the link between the language and the cultural identity, summarized this way by Schwartz: "In short, while language revitalization seeks to create new opportunities for heritage language use by adapting the language to current conditions, this quest for relevance is tempered with the recognition that codes can become disassociated from the traditional values that motivate their revitalization in the first place." (in Goodtracks et al. 2016: 152-3).

I have also heard different positions concerning language writing. I have sensed some kind of rejection of the written language by several people. I have sometimes been told that this language had always been transmitted orally and that writing it somehow distorted it. Others resist standardizing the spelling for the same reason (I believe). Conversely, Jimm Goodtracks, from the Jiwere Nation, relates how he became convinced that spelling standardisation was beneficial (2016: 137-8). I have also been told that the spelling should better not be based on the Latin alphabet, but rather be elaborated with a completely distinct alphabet like the Osage one. There are at least two reasons for this: to avoid using the alphabet of the settler, which is a colonial alphabet, and to avoid confusion with the English pronunciation of this alphabet (because learners are mostly or only using the Latin alphabet to read and write English).

Possible harm doing research

From the previous accounts, we can easily see how harm can be inadvertently done by scholars. First, community members can experience emotional harm from research that disempowers them. The fact that outsiders acquire a technical knowledge of their language or culture and are the ones recognized as "specialists" in the Western system, in the context of language loss and culture loss, is considered by some to be the ultimate cultural appropriation (Hill 2002). Gordon (2019: 10) relates: "I bear witness of a grieving, sometimes angry rejection of a centuries-old documentary project which has made access to Umóⁿhoⁿ and Póⁿka words easier for a White university student to come by than for young tribal members." And indeed I first went to Macy after two years of studying Dorsey's (1890, 1891a) texts and linguistic papers by Koontz and Rudin (see §2.1.1), and I knew more of technical jargon on Umóⁿhoⁿ grammar than the majority of Umóⁿhoⁿ tribal members ("head-marking language", "indexing A and P on the verb", "morphophonological changes yielding opaque surface forms in verb conjugation", etc.). Vida Woodhull Stabler explained to me that many tribal learners do

[13] https://natives4linguistics.wordpress.com/. Accessed on July 10, 2020.

not understand the training linguists have which helps them learn the language faster. Disheartening feelings must be overcome when comparisons are made between the non-Umóⁿhoⁿ linguist and the Umóⁿhoⁿ learner[14].

Further harm is done when the research results are not shared with the community. Hamilton et al. (2019) comment: "Too many researchers have come in, conducted research, and left without ever being heard from again". This problem is also mentioned in Bowern's (2008: 157) *Linguistic Fieldwork: A Practical Guide*[15].

I have also realized that harm can result from the ignorance of the profound difference between Western and Native relations to culture and teaching. Customs and traditional knowledge are seen as tribally owned in many (or all?) Native communities. For example, Welsch (1984; cited in Awakuni-Swetland 2003:72) reports a discussion he witnessed between Umóⁿhoⁿ members in relation to the acceptance of the Tia-piah (Warrior) society that the Kiowas were offering to them: "The Kiowas, impressed by the dignity and integrity of many Omaha friends (...), had decided to give the Omaha Tribe their Tia-piah (or Warrior) Society. The dance, songs, costumes, hereditary offices, and high standards of patriotism and morality would become a part of Omaha tribal ways." I have been told while in Macy that cultural and linguistic knowledge used to be transmitted orally, personally, and in particular within the family. From what I have heard and understood, sharing one's knowledge in Umóⁿhoⁿ culture equals entrusting it to the person with whom it is shared. All this is very different from the Western culture, in particular in the academic domain, where knowledge is seen as a universal good that should be accessible to all and that can be widely distributed through books or on the Internet. Scholars undertaking fieldwork among Native communities do so in order to make publications for audiences wholly unconnected with the communities in question. One can see the gap between the two visions, and see how academic research can be very harmful emotionally.

There are many other possible harms while doing research, when the researcher is not aware enough of what is at stake in language documentation or revitalization, or of the consequences of their presence among community members (see a few examples in Bowern 2008: 158-9). Hill (2002) describes inadvertent harm through the way linguists speak of endangered languages, although they advocate for their preservation. One of them is presenting endangered languages as treasures for humanity – which supposes them as universally owned; another is the impulse of counting speakers or languages.

[14]We can add to the linguistic training the absence of emotional link to the language, which enables the linguist to focus on grammar alone.

[15]Bowern writes: "A complaint also frequently heard is that researchers do not share their knowledge with the community that adopts them. That is, the researcher gains substantial knowledge from the community (knowledge of the language, culture, belief systems), but the community does not get access in return to advanced scientific knowledge, and that itself may be interpreted as disenfranchisement."

It is not easy to "count" speakers. First, there can be many people who have significant knowledge of the language but do not share it nor make it public for diverse reasons (DeLancey 2010); second, the notion of who is considered a speaker inside the community may evolve over time, and is different from what linguists usually count as speakers. Linguists tend to consider a language extinct as soon as there are no more fluent speakers, while community members do not necessarily share this view. From the community perspective, the idea of counting speakers can be irrelevant, or can be resented. Hill (2002: 128) explains that "such a claim [that 'only 5 elderly speakers of the language X remain'] may be heard as dismissive and insulting by members of younger generations in the community who make claims of speakerhood in some form".

New approaches

First, the legal framework relative to notions of intellectual or cultural property is evolving. The Umóⁿhoⁿ language and culture can be considered traditional knowledge, or traditional cultural expressions, which are now recognized and protected nationally and internationally, for example by the World Intellectual Property Organization (WIPO) and the UNESCO (Palosaari 2016). Umóⁿhoⁿ Tribal law requires any non-Enrolled person to submit in an approved application form for any research on the Umóⁿhoⁿ language. Palosaari (2016) emphasizes the need to obtain "informed consent" (with legal and ethical framework), but warns that "Written forms [of consent; or IRB forms] may create a "suspicious tone" and set up an overly authoritative power structure." (p. 159)

Second, "community-driven projects" (Bischoff & Jany 2018) and "participatory action research" (Cammarota & Fine 2008, Hamilton et al. 2019) are increasingly encouraged both inside communities and in academia. Eschenberg & Saunsoci (2018) describe their collaborative work for language revitalization at the Nebraska Indian Community College (NICC), Alice Saunsoci as a Native speaker and an Elder, and Ardis Eschenberg as a non-Native linguist. They are also co-authors of a textbook of conjugated Umóⁿhoⁿ verbs (Saunsoci & Eschenberg 2016).

The goal of "participatory action research" is doing research *with* rather than research *on*, in Hamilton et al.'s words. They remark that "one of the simplest ways for [community] empowerment is to collaborate with members from the community" (p. 22). Collaboration between Native and non-Native people (the latter being "settlers") involves reflection over one's situation and positioning. Smith (2012: 178; cited in Hamilton et al. 2019) states that "it is critical that researchers recognize the power dynamic that is embedded in the relationship with their subjects". Many White researchers feel some guilt for their privileged situation, like myself. It is necessary to move beyond that guilt. Hamilton et al. (2019: 21) write: "Sudbeck [the non-Native co-author of the paper] has an ethical responsibility to not only name the privileges she has and share this knowing (Cardinal 2013), but she also has the responsibility

to move beyond White/colonizer's guilt."

Gordon (2019) suggests trails for the settler linguist to follow in order to move away from traditional research practices which perpetuate colonial agendas. The community-driven projects and participatory action research are such means (although she does not cite them *verbatim*). She also suggests supporting the community in the process of repatriation and reappropriation of extracted materials (e.g., reclamation of archives), and helping in making academic works accessible to and usable by the community[16].

It is also important to avoid another misstep, something I was tempted to do (and started to do at one point) when realizing the amount of prejudices endured by Native communities: over-exerting myself in language "revitalization", thinking about ways to create teaching materials, anticipating needs, feeling slightly frustrated that the community members whose guidance I relied on would not keep the same fast rhythm as mine. I slowed down when I realized, through discussions and readings, that such conduct could end up with the opposite effect from that intended. Perley (2012: 136; cited in Gordon 2019:37) writes: "[This] perspective as outside experts working on behalf of endangered language communities also perpetuates the helplessness of said communities."

I have tried (and am still trying) to follow these directions, and to avoid as much as possible doing harm in the ways described in the previous section, although almost all my dissertation research was done in France on written texts. This dissertation project has undergone a review from the NICC Institutional Review Board, which enabled me to discuss my work with the IRB members, e.g. what I can include and what I cannot.

Thanks to discussions with community members and with non-Native scholars having more experience than me, and thanks to diverse readings (most of them cited here), I have gradually become aware of everything written in this foreword and have adapted my practices in consequence.

My stay in 2019

I went for the third time to Nebraska in June and July 2019. This stay went better than the preceding ones, among other things because I felt much more at ease. First, the simple fact that I came back for the third time, and that I had kept in touch by email between each stay, was probably important in itself. I felt like although I still had much to prove (and still have), I had shown consistency and a reasonably appropriate conduct during three years (despite several mistakes). I was glad to meet Octa again within a few days of my arrival, and we

[16] "Accessible" is not meant in the sense of "available to consult or download". Making it accessible refers to "helping community linguists and institutions wade their way through the thickets of jargon, methodology, scientific purpose and biographical drama which accompany each artifact and its production's context." (p. 40)

resumed our transcribing and translating work. Secondly, I proposed to offer a dinner and a "giving away" (*wawé'i*) for all the people within the community who had helped me, as I was more aware than before of the kindness they had shown me.

Considering all the past frustrating and painful experiences of researchers coming in and (most often, I hope, inadvertently) perpetuating harmful behaviors, and considering how natural the resentment towards scholars must be, it was generous to accept meeting me in the first place, and to take the time to talk with me. Several people with experience of academia granted me the benefit of the doubt. I imagine how exhausting it must be to be confronted with a young foreigner who does not understand their culture, nor the stakes involved in language preservation. Aware of that at least, and aware of the great generosity of welcoming me, taking time for me, giving me my chance, I asked Octa what she thought about my giving a dinner in the traditional Umóⁿhoⁿ way in order to express my gratitude to all the people who helped me and welcomed me. Octa told me it was a good idea, and she gave me her support and her guidance in order to carry it out properly. This would have been completely impossible for me to do without the support of her and her son Taylor Keen. The organization of the dinner took about a month. Octa and I went with Taylor to meet Jeff Gilpin, a "roadman", and to offer him tobacco and ask him if he would agree to be in charge of the ceremony. (The request must be made by a man representing the organizing family.) Octa guided me to borrow a room from the Paⁿka Tribe (in South Omaha), and to organize everything in the proper way. We went together to a shop to buy blankets that would be offered during the give-away, and she gave me directions about where to buy traditional Indian corn to make corn soup, where to buy baskets and what to fill them with, how to fold the blankets, etc. She prepared the fried bread dough and the corn soup, and I cooked bœuf bourguignon and chocolate cakes. On the day of the feast, Barbara Robins helped us all day long with last-minute preparations. Around 25 people were present at my dinner. We had the ceremony run by Jeff Gilpin, the prayer, the give-away, and the meal.

Concerning language documentation, my stay in 2019 was fruitful too. I proposed to Octa to transcribe the last tape of Catherine Rudin's recordings (Tape nº19). Most of it had been recorded during a visit by Catherine to the Senior Center at Macy, at the beginning of the 90s, and the names of the speakers recorded were not always clear to me. The sound quality is very uneven from one speaker to another. Octa, Donald Grant, Joseph Harlan thiⁿge, Wynema Morris, and Renee Sans Souci listened to the tape and gave me indications about who was speaking, who are their nearest relations, and what they are talking about. Before long, Octa and I drove together to Macy around once a week, and there we had transcription sessions with Donald Grant. It was very efficient and agreeable to do this work together, and Octa and Donald used to discuss what they heard. Octa and I also met at least once a week in Omaha. In total, we transcribed the speeches of four elders: Coolidge Stabler, Betsy Hastings, Victoria Robinson and Maggie Webster. I met Betsy Hastings' son, Dennis Hastings, in order to share with him the transcription of his mother's speech. I also met Alvina Webster

again, the daughter of Mary Clay, and shared again the recordings of her mother. She and her daughter came to my dinner. The clean copies of all the transcriptions made together were sent by mail to Octa and Donald in January 2020.

I also met Renee Sans Souci, the daughter of Alice Saunsoci[17], twice, and she spent a lot of time explaining to me things about the Umóⁿhoⁿ culture and issues about language preservation and academic research. She advised me to contact the tribal council and get approval from them for my research. I tried to do that, and in that matter Octa helped me a lot once more. She went with me to Macy several times to go to the tribal council building and try to meet the councilmen. Thanks to her, we managed to meet several members individually, but never all of them together. Finally, during the last few days of my visit, I recorded a four minute speech by Octa, which I transcribed with her help, and I gave her the audio file on a flash-drive and on ten CDs (so she can easily share it herself).

My meeting and collaboration with the Umóⁿhoⁿ people represents the greatest cultural gap I faced to date, and it has made me more mature in numerous ways. It is challenging and sometimes painful. Everything written in this foreword is the result of observations I had to make little by little, and which were painful, especially those where I am involved myself as a White scholar. Realizing that some people were either angry at me or distrustful towards me was also painful, although I understand why. I think I have to accept it, in the hope that better relationships will be built over time. Documenting the language with Octa, Háwatay thiⁿge and Donald was very enjoyable, because it made me learn about the language and culture and I felt at the same time really useful to the community. The organization of the dinner involved much work and stress, but I felt in the end that every single hour I had spent preparing it was worth it.

This dissertation's subject and the sources used (searching already existing old corpora) reflect my nonexistent relationships with community members at the time when I submitted my dissertation project and obtained a grant for it. I want my forthcoming research projects to follow the principles of participatory action research, in order to improve my collaboration with the community, and hopefully to improve the quality of my academic research at the same time.

[17] Renee uses the unmodified French name "Sans Souci".

Introduction

This dissertation presents a detailed study of valency-changing constructions in a Native North American language, Umóⁿhoⁿ. The goal is to contribute to a better description and understanding of this little-studied language and thereby to improve our understanding of argument structure, valency change, and the morphology-syntax interface more generally.

Umóⁿhoⁿ is a highly endangered language currently spoken by elders of the Umóⁿhoⁿ Tribe of Nebraska and Iowa in the United States. It is part of a language family called "Siouan" after the Sioux tribes. (For the language family, see p. 512.) The Umóⁿhoⁿ Tribe is presented in the foreword to this dissertation, together with a description of my fieldwork experience and a discussion of issues related to linguistic description and language preservation.

To date, the most important documentation of Umóⁿhoⁿ comes from Dorsey, a linguist who lived on the Umóⁿhoⁿ and Paⁿka[18] reservations at the end of the 19th century. He published two corpora amounting to more than 900 pages of glossed and translated legends, historical stories, and letters (Dorsey 1890, 1891a). He also left behind a manuscript dictionary with more than 16,000 word entries. The present dissertation is primarily based on these documents, which offer many in-context valency-changing constructions, some of them of high grammatical complexity. (See §2.1 for a presentation of more recent documentation also used as primary sources – among others, Rudin et al. 1989-92, Saunsoci & Eschenberg 2016, OLIT-UNL 2018.)

Umóⁿhoⁿ is a head-marking language with almost all its morphology centered on the verb. Its verbal morphology includes the indexation of two arguments, a wide array of derivational prefixes (most affecting the valency), nominal incorporation, many different conjugational paradigms, and post-verbal TAM markers, auxiliaries, and negation. The valency of verbs is rather rigid (there are few labile verbs), but the language displays numerous valency-modifying constructions, both morphological and syntactic. These include the causative and the reflexive-reciprocal, as well as some less common constructions: the applicative, which adds a core object to the verb (there are at least five different applicative markers in Umóⁿhoⁿ associated with different semantic roles), and the antipassive, which removes the verb's object.

[18]The Paⁿka are the group most closely related to the Umóⁿhoⁿ, and speak the same language. See the foreword.

The applicative and antipassive constructions have been the object of typological studies for the last few decades only, and are described in a restricted number of languages compared to the causative, passive, and reflexive-reciprocal constructions.

Formally speaking, most valency changes are morphologically encoded in Umó^{n}ho^{n}, but we also find syntactic constructions and several types of complex predicates. The latter are midway between morphology and syntax, and comprise compounds, instances of nominal incorporation[19], and monoclausal periphrastic constructions.

Throughout this work, a verb's objects are represented by italic letters in curly brackets ($\{x\}$, $\{y\}$, $\{z\}$). These objects can be realized by noun phrases (NPs), person markers on the verbs, or clausal complements, or can be left empty. (The symbol $\{CL\}$ stands for an object that is always a clausal complement.) In cases with special semantic restrictions, the letters can be replaced by one or more words specifying the kind of object required. Semantic patients can also be included in the lexical-semantic structure of the verb without being an object at the syntactic level. Such implied patients are included in the definition, but are not put in brackets. The resulting notation is easily legible, as can be seen below:

The three most common valency values of Umó^{n}ho^{n} verbs:

(a) *húto^{n}* 'to bellow', *shná* 'to be bald', *wénaxitha* 'to attack the herd' (monovalent)
(b) *ágthi^{n}* 'to sit on $\{x\}$', 'to mount $\{a\ horse\}$' *wa'í* 'to give things to $\{x\}$' (bivalent)
(c) *íbat^{h}e* 'to sew $\{x\}$ with $\{y\}$', *gígo^{n}tha* 'to want $\{x\}$ to $\{CL\}$' (trivalent)

This conventional representation of the verb's valency is supplemented by a classification of verbs into classes according to the grammatical roles assigned to the verb's arguments. Umó^{n}ho^{n} has a split intransitivity system (§2.5.2.2), which means that the intransitive verbs are either active or stative, depending on whether their subject is encoded with the agentive (A) or patientive (P) person marker of the transitive verb. The verb classes distinguished by the number of arguments and grammatical roles selected are presented in §4.1.

Due to the scarcity of prior publications on the Umó^{n}ho^{n} language, several chapters are needed to provide a basic description of the grammar before turning to the precise analysis of valency-changing constructions. The dissertation is accordingly organized into two parts. Part I, "The Umó^{n}ho^{n} language and the valency-changing operations", provides a general overview of valency change and the Umó^{n}ho^{n} language. Part II, "Case studies", investigates in detail four types of valency-changing constructions in Umó^{n}ho^{n}.

[19] Although compounds are morphologically created, they combine elements with lexical contents, i.e. predicational elements. In this respect, they are complex predicates. The same can be said of nominal incorporation, which is often defined as a morphological process (Mithun 1984, Aikhenvald 2007). See §1.4.4.

In Part I, Chapter 1 presents the most common valency-changing operations from a typological perspective (§1.2-§1.3), the array of formal encodings available to them (§1.4), and some problems related to the description of these operations (§1.1.5, §1.5). In Chapter 2, I offer a grammatical sketch of the Umóⁿhoⁿ language, including some key points like noun-verb distinction (§2.4.8) and grammatical roles and grammatical alignment (§2.5.2), in addition to presenting the available documentation (§2.1). Chapter 3 focuses on verbal morphology. I put special emphasis on the prefixal template (§3.4) and the morphophonological changes in the prefixal sequences (§3.5.1), which are essential for a correct identification and analysis of the valency-changing morphemes in complex and opaque verbal forms. Finally, Chapter 4 presents Umóⁿhoⁿ verb classes (§4.1) and all the existing valency-changing operations, whether syntactic or morphological (§4.2-§4.7). The passive interpretation of transitive verbs is also discussed (§4.8), as is the lexicalization of valency-changing affixes and its impact on the language's morpho-syntax (§4.9). All valency-changing derivations and their possible combinations are summarized in §4.10.

In Part II, I present four in-depth studies of valency-changing constructions: the various types of causatives (Chapter 5), oblique applicative prefixes (Chapter 6), the antipassive or indefinite object marker *wa-* and the other functions related to this prefix (Chapter 7), and nominal incorporation (Chapter 8). In addition to the detailed descriptions of the morphosyntactic and semantic features of these constructions, I especially look into the limits of valency change. The morphological and syntactic constructions under study do not always modify the verb's valency: they are polyfunctional, polysemic, and subject to lexicalization processes. In consequence, the contexts where and conditions under which they really do modify the valency need to be outlined. In Chapter 5 (§5.2, §5.3), I provide a semantic and syntactic analysis of instrumental prefixes (especially the prefix *ga-*), which do not consistently have a causative function. Section 5.4 also presents the causative and non-causative constructions involving the verb *gáxe* 'to make $\{x\}$'. The major part of Chapter 7 is dedicated to investigating the many syntactic functions and referential values of the prefix *wa-*, and outlining the contexts where it satisfies the defining criteria of the antipassive marker. I also present a comparative survey of this prefix and its cognates in other Siouan languages (§7.7). Chapter 8 focuses on nominal incorporation, which only marginally is a valency-reducing process in Umóⁿhoⁿ. On the one hand, some instances of NI are not strictly speaking cases of valency-reduction, since either the incorporated noun or the incorporating verb are no longer found as autonomous items (§8.1.4, §8.5). On the other hand, the dividing line between non-incorporated bare objects and incorporated nouns is difficult to draw (§8.4). In Chapter 8 I also provide a detailed survey of the formal and semantic criteria indicating that a given N-V sequence[20] constitutes a single lexical item (§8.2).

[20]Or other sequences involving whatever acts as a verb argument (pronouns and clausal complements, in particular) and a verb.

Part I

The Umó^{n}ho^{n} language and the valency-changing operations

Chapter 1

Verbal valency cross-linguistically

This chapter provides an overview of the valency-changing constructions cross-linguistically. Basic notions are presented in **§1.1**, including semantic and grammatical roles, transitivity and valency, and the referentiality of the verb's arguments. The main valency-increasing and valency-reducing operations are then described one by one in **§1.2** and **§1.3**, respectively. In **§1.4** I present the possible formal encodings of valency change: first the valency alternations which are not encoded, then four types of encoding ordered from the most synthetic (lexical pairs) to the most analytic (multiclausal constructions). I conclude this chapter with some considerations regarding the description of valency change (**§1.5**): cases of syncretism, and more generally various blurred boundaries between the categories we intend to identify (continuums, stages of grammaticalization).

1.1 Basic concepts

In order to appropriately describe argument structure and argument marking, it is necessary to distinguish between a number of notions and to define them precisely. Distinctions between the semantic and the syntactic level are particularly important. In this section, I will present the notions of argument structure and semantic and grammatical roles (§1.1.1), the differences between arguments and adjuncts, and between core and peripheral expressions (§1.1.2), and the notions of transitivity, valency, and voice (§1.1.3). Finally, I will comment on some issues of argument referentiality (§1.1.4) and present the valency-changing operations by way of an introduction to the following sections (§1.1.5).

1.1.1 Argument structure, semantic and grammatical roles

The lexical semantic structure[1] refers to the number of arguments a given verb takes, and the semantic roles associated with each of them. The lexical semantic structure of a verb is mapped into a syntactic construction, with language-specific grammatical roles assigned

[1] Also called the "logico-semantic structure" (e.g., Marantz 1984). Marantz mentions that in Case Grammar names it is termed "case frame".

to its arguments. It is a well-known fact that semantic roles and grammatical roles do not always coincide, both cross-linguistically and inside languages. Examples sentence (1) is a well-known illustration of how a given verb may map its arguments onto different syntactic structures.

(1) a. English: *break* *John* *broke* *the window.*
SEMANTIC ROLE agent predicator patient
GRAMMATICAL ROLE subject object

b. English: *break* *The hammer broke* *the window.*
SEMANTIC ROLE instrument predicator patient
GRAMMATICAL ROLE subject object

(Fillmore 1968)

Since Fillmore's (1966, 1968) study of "(deep structure) cases" and Gruber's (1965) study of "thematic relations", the semantic roles and their mapping into various syntactic structures have been a central subject of research (among many others: Jackendoff 1972, 1976, Dowty 1986, 1991, Grimshaw 1990, Andrews 2007[1985])[2]. Semantic roles can be defined as "what the verb implies about the way each entity represented by a nominal constituent is involved in the process signified by the verb" (Creissels 2006a: 279)[3]. In reality, there is an unlimited number of possible semantic roles, according to the degree of specificity we choose to consider, since each verb assigns unique semantic roles to each of its arguments. More generally, labels such as "agent", "patient", "theme", and "goal" have emerged in the literature, and serve to characterize various types of participants. As Andrews (2007[1985]) observes, semantic roles are generally not explicitly defined, but are rather given basic characterizations with examples. Below is a reduced list of definitions found in Andrews (2007[1985]), Givón (2001a) and Creissels (2006a), that will be particularly relevant in this dissertation. Note that the labels and the particular characteristics associated with each can vary among scholars[4].

- agent: "a participant which the meaning of the verb describes as doing something, or causing something to happen, possibly intentionally" (Andrews 2007[1985]: 137). It is typically animate. *The hunter killed a deer.*
- patient: "the participant, either animate or inanimate, that either is in a state or registers a change-of-state as a result of an event" (Givón 2001a: 107) *The hunter killed a deer.*; *I gave my textbook to Max.*; *The window broke.*

[2] Various names are commonly used in the literature, especially "thematic relations" and "thematic roles" (among others, works by Jackendoff 1972, 1976, Grimshaw 1990, Dowty 1986, 1991). Palmer (1994) calls them "notional roles". Following Andrews (2007[1985]), Givón (2001a) Foley & Van Valin (1984) and others, I use the term "semantic roles", as it highlights the syntax-semantic interface.

[3] Original version: "ce qu'implique le verbe quant à la façon dont chaque entité représentée par un constituant nominal intervient dans le procès signifié par le verbe."

[4] As an example, it can be noted that Creissels associates the notion of agent to an action performed on a patient – thus, linked to transitivity (§1.1.3), while Givón does not.

(this definition covers the semantic role of "theme" in other works: "an argument which undergoes a change of slate or location." (Goldberg 1995: 111))

- beneficiary: "the participant, typically animate, for whose benefit the action is performed" *He fixed the roof for his mother.* (Givón 2001a: 107)

- recipient: "animate being toward which something or someone goes or is carried" (Creissels 2006a: 281)[5] *Sam gave the piece of land to his son; Sam received/got/acquired a package.* (Goldberg 1995: 111) (the recipient is sometimes named 'goal', e.g. by Marantz (1984))

- cause: "inanimate entity which affects unconsciously and involuntarily a patient: *The wind broke the branch.*" (Creissels 2006a: 281)[6]

- instrument: "a participant, typically inanimate, used by the agent to perform the action" (Givón 2001a: 107)

The syntactic construction of verbs, i.e. the way verbs encode their arguments, is referred to as the argument structure of the verb or its valency. The notion of "argument structure" (see among many others: Williams 1981, Marantz 1984, Grimshaw 1990, Goldberg 1995) has been developed in the formal-logical grammatical tradition. The notion of valency is an equivalent, more usually found in works taking a functional perspective (among others: Dik 1997, Lazard 1994, Dixon & Aikhenvald 2000b). I will present this notion in more detail in §1.1.3.

1.1.2 Arguments vs. adjuncts, core and peripheral

A verb ARGUMENT can be defined as a participant which is verb-specific, while an ADJUNCT is not (Haspelmath & Hartmann 2015). Argumenthood can be recognized through coding-specificity, obligatoriness or specificity of occurrence[7]. A core syntactic role, or CORE ARGUMENT, is a nominal entity whose marking unambiguously identifies it as a verbal argument. A PERIPHERAL SYNTACTIC ROLE is a nominal entity that receives a marking which is sometimes used for verbal arguments, and sometimes for adjuncts. Table 1.1 summarizes the correspondence between arguments and adjuncts at the semantic level, and between core and peripheral syntactic roles at the syntactic level. The distinction between peripheral arguments and adjuncts has been an issue in grammatical theories at least since Chomsky (1965). Example (2) exemplifies how the same peripheral syntactic role can be a verb argument (2a) or an adjunct (2b).

[5] In French: "être animé vers lequel quelque chose ou quelqu'un se déplace ou est déplacé"

[6] French version: "force[:] entité non animée qui affecte de manière inconsciente et involontaire un patient". (Creissels 2006a: 281)

[7] Haspelmath & Hartmann (2015) reject the criterion which defines the argument as a participant entailed by the meaning of the verb (the cite, as examples, Van Valin (2005) and Bickel (2011)), in favor of verb-specificity. See their paper for more examples and a discussion.

Table 1.1: The usual representation of argument vs. adjunct encoding (adapted from Creissels 2006a)

Semantics	**argument**		**adjunct**
	core argument (2a)	peripheral argument (2b)	adjunct (2c)
Syntax	**core**	**peripheral syntactic role**	

(2) a. *I'm going* *to Lyon.*
argument (semantics)
peripheral (syntax)

b. *I'm working* *in Lyon.*
adjunct (semantics)
peripheral (syntax)

Note that, unlike what is shown in Table 1.1, adjuncts can sometimes be formally identical to core arguments. This is often the case for time adjuncts, as in (3). This is a particularly difficult issue in Umóⁿhoⁿ, where manner adjuncts and possibly also place adjuncts are expressed as NPs, and especially as bare nouns. See §2.5.3.

(3) *I saw that horse this morning.*
argument adjunct
core peripheral

1.1.3 Transitivity, valency and voice

Research on transitivity, valency, and voice have lead to countless papers and books in linguistic research (among many others, Tesnière 1959, Hopper & Thompson 1980, Fox & Hopper 1994, Lazard 1994, Dixon & Aikhenvald 2000b, Creissels 2002, 2016), and transitivity has been a central issue in the development of linguistic theories (Fodiatou & Vassiliadou 2017). However, these terms have been used with different definitions. In this section, I will present them and specify in which way they will be used throughout this study.

Transitivity. Transitivity can be defined as a semantic concept, referring to clauses where an argument identified as an agent is performing a conscious and voluntary action that affects an identified patient, without being affected themself. This is, for example, the definition applied by Lyons (1968) (cited in Hopper & Thompson 1982), and the starting point of Hopper & Thompson's analysis of the transitivity scale (1980). *To kill* and *to break* are well-known prototypical transitive verbs.

In particular language descriptions, "transitivity" also stands for the construction in which prototypical transitive verbs are inserted. Thus, in English, the semantically transitive verb *to kill* is inserted in a construction with two core arguments realized as NPs, without any particular marking on them. Many verbs that are not semantically transitive (like *to hit*, *to*

see, *to miss*) have the same construction so that "transitivity" is also regularly defined with formal criteria: a construction with two core arguments (see for example Humphreys 1999: 391). In English and in many other languages, it refers to constructions with two arguments identified as the subject and the direct object. According to this definition, (4) gives three transitive clauses in English, despite the fact that only (4a) is semantically transitive.

(4) Transitive clauses in English

a. *The hunter killed the rabbit.*

b. *The hunter ate the rabbit.*

c. *The hunter saw the deer.*

Thus, "semantic transitivity" must be distinguished from "syntactic transitivity" (Creissels 2016: 18). Semantic transitivity is considered a scalar concept rather than an absolute category. Hopper & Thompson's paper (1980) proposes different features according to which events are considered high or low on the transitivity scale. Conversely, syntactic transitivity can be seen as a binary concept. It can be extended with such labels as "extended intransitive" or "ditransitive" (Dixon & Aikhenvald 2000b). In this dissertation, I will use the standard labels of "intransitive", "transitive" and "ditransitive" verbs to classify verb classes in Umóⁿhoⁿ (see Chapter 4). This refers to syntactic transitivity.

Valency. The notion of valency was first introduced by Tesnière (1959) to refer broadly to the number of arguments that a verb selects. While there is universal consensus over Tesnière's definition, scholars disagree on which elements should be included in the valency of a verb. Some scholars, like Dixon & Aikhenvald (2000a), relate valency to the number of core arguments, and mainly describe operations which add or remove core arguments to/from the verb. Humphreys (1999: 391) considers that valency designates the total number of arguments selected by the verb (core and peripheral), in contrast with syntactic transitivity which designates the number of core arguments only. Finally, many scholars include in the notion of VALENCY the total number of arguments *and* the way they are encoded. I employ this final definition, which corresponds to the notion of "argument structure" (which itself is a central topic of interest in theoretical formal syntax; see, among many others, Williams 1981, Marantz 1984, Grimshaw 1990, Goldberg 1995). This definition also corresponds to the notion of "actance" described by Lazard (1994).

Example sentences (5) through (7) illustrate valency alternations according to this definition, because each deals with different mappings of semantic roles onto grammatical roles. However, only examples (7) and (8) present a change in the number of arguments, and the valency alternation is overtly encoded on the verb only in examples (6) and (8).

(5) English "dative alternation"

a. *He gave Mary a book.*

b. *He gave a book to Mary.*

(6) Antipassive-like construction in Artchi (Caucasian) (in 6b)

a. *dija-mu* *x̄ₒalli-Ø* *b-ar-ši* *b-i.*
father(I)-ERG bread(III)-ABS III-bake-GER III-AUX

b. *dija-Ø* *x̄ₒalli-Ø* *b-ar-ši* *w-i.*
father(I)-ABS bread(III)-ABS III-bake-GER I-AUX
The father bakes the bread. (Lazard 1994: 213)

(7) French (and English) anticausative (in 7b)

a. *Il a claqué la porte.*
He slammed the door.

b. *La porte a claqué.*
The door slammed. (verb listed in Legendre & Smolensky 2017)

(8) Causative construction in Umóⁿhoⁿ (in 8b)

a. *Égithe bíze amá.*
finally dry REPORT
At last it was dry. (Dorsey 1890: 589.12)

b. *Bíze-thá* *bi-amá.*
dry-CAUS PX-REPORT
She dried it. (Dorsey 1890: 288.12)

Although valency is defined here as the number of arguments and the manner in which they are encoded, alternations can be described with labels such as "valency-increasing", "valency-reducing" and "valency-rearranging" (Onishi 2000) to distinguish cases where the total number of arguments changes (examples (7) and (8) above), from those where only their grammatical encoding changes (examples (5) and (6)). Likewise, the terms "avalent" (no argument), "monovalent" (1 argument), "bivalent" (2 arguments), and "trivalent" (3 arguments) are sometimes used as equivalents to "impersonal", "intransitive", "transitive", "ditransitive", respectively.

Voice. The "grammatical voice" (i.e., voice as a grammatical category of verbal morphology) is a very ancient category in descriptive grammars, already identified in Sanskrit, in Ancient Greek and in Latin (Klaiman 1991). In Latin and Greek descriptive traditions, it was used as a verbal grammatical category along with tense, aspect and modality. Traditionally recognized voices are the active, the middle, and the passive.

Many scholars now use this term when describing of the different syntactic constructions affecting verb valency (the number of arguments and the way they are encoded). In short, the terms valency and voice generally cover the same concepts. (For instance, Dixon & Aikhenvald (2000b) only use "valency".) Constructions attested outside Indo-European languages are or are not considered voices depending on the precise definition chosen for "voice", which

may vary among scholars. These include the "antipassive" (Foley & Van Valin 1984, Shibatani 1988, Fox & Hopper 1994) and the "inverse" (Givón 1994, Fox & Hopper 1994, Croft 2001)[8], for instance. Some scholars, like Creissels (2016) and Zúñiga & Kittilä (2019), consider voices to be formally marked valency frames[9], and thus also include causative constructions and applicative constructions as voices. The term "voice" (from Latin *vox*) is linked to "diathesis" (from Greek). Scholars traditionally use either one or the other, although "voice" seems to be more common in recent literature, and generally includes more constructions than "diathesis".

The "inverse" system, first described in Native American languages (Fox & Hopper 1994: ix), neither increases nor decreases the number of core arguments. It appears in languages that have a topicality hierarchy of arguments, and often occurs alongside the obviation system, which morphologically distinguishes topical (proximate) and non-topical (obviative) arguments[10]. The "inverse" marker appears to signal that the agent-like argument is lower in the hierarchy scale than the patient-like argument. An inverse construction is given in (9): The proximate argument (unmarked) is higher on the hierarchy than the obviative one (morphologically marked), but is the patient[11].

(9) Inverse construction in Plain Cree (Dahlstrom 1986: 77, cited in Givón (2001b))

osa:m e:-sa:khikot ohta:wiy-ah aw o:skini:kiw
much love-OBV.3.INV his.father-OBV this young.man

(for) his father[OBV] loved this young man [PROX] too much.

1.1.4 Argument referentiality

In all the above section's examples, an increase or reduction in valency was visible both in syntax (the number of arguments expressed in NPs and/or realized by indexation markers on the verb) and in semantics. But the number of arguments involved in an activity or event at the semantic level does not always correspond to the number of arguments that are realized. There are cases where arguments are not realized but nonetheless are semantically implied, and conversely there are cases where a formal realization serves a grammatical purpose, but does not correspond to any referent at the semantic level. This last case involves the question of the referentiality of the nominal expressions and pronouns.

[8]Note that conversely, some scholars like Palmer (1994) or Creissels (2006b: 51) do not consider inversion as a voice. Lazard (1994) uses the term "diathesis" , but he includes in it the antipassive and makes no reference to the inverse.

[9]Creissels writes that voice is a "morphologically coded valency alternation". Zúñiga & Kittilä (2019: 10) write: "[The present study] defines diatheses as mappings of the roles of the semantic arguments of predicates onto grammatical relations in clauses, and voices as diatheses formally marked on predicates".

[10]See §2.6.1 for a description of the obviation system in Umóⁿhoⁿ.

[11]See Jacques (2010) for a description of the inverse system in Japhug Rgyalrong (Gyalrongic, China), where it serves as a means for recognizing who is acting on whom.

Missing arguments. It is often the case that verb arguments are not overtly expressed. This occurs with greater or lesser systematicity across languages. Languages where verbs encode the person and number of the subject often do not express it overtly, like all "pro-drop" languages. Umóⁿhoⁿ and other Siouan languages are pro-drop languages, and additionally they never encode 3rd person arguments on the verb (except for O3PL in Umóⁿhoⁿ and some others; see §3.1.3 and §7.7). Thus, 3rd persons can only be overtly realized by noun phrases (NPs), and these NPs are often missing when they are recoverable from the context. In (10) the transitive verb *thixóⁿ* 'to break {x}' is a clause in itself, and is often used with no NPs when the subject and object are both already known. The high frequency of argument omission in Umóⁿhoⁿ makes it difficult to establish from the corpora whether or not a given verb involves an object argument. (See Chapter 7 for discussion of the antipassive.)

(10) *thixóⁿ*
break
She broke it. (Saunsoci & Eschenberg 2016: 72)

The missing 3rd person subjects in pro-drop languages also lead to difficult interpretations related to the analysis of passive or passive-like constructions; see §4.8 for an analysis of the passive reading in Umóⁿhoⁿ.

In all languages that do not index the object on the verb, non-expression of the object can be interpreted in different ways depending on the verb and the context[12]. In French, object omission commonly occurs with many transitive verbs to direct focus to the process and defocus the object, which is unimportant (and often indefinite or nonspecific). This is the "absolutive construction" of transitive verbs. On the other hand, a definite and contextually prominent object can be omitted yet remain referential. Both cases are illustrated in (11)[13]. Note that Umóⁿhoⁿ bare nouns have the same distinct referential statuses: either indefinite or nonspecific, or attention-central (§8.4).

(11) a. Absolutive use
Il boit beaucoup. He drinks a lot.

b. Omission of a referential object at the center of attention
Alors, tu achètes? So, are you buying (it)?[14]

Note that even in absolutive uses, omission of the object does not necessarily mean that the object is completely deleted. In French, for example, the missing object of absolutive

[12]For English, see Humphreys (1999), which provides an overview of valency-changing alternations in English, many of them unmarked, and different semantic interpretations for the missing arguments.

[13]Haspelmath & Hartmann (2015) propose to include the interpretation of omitted argument among the possible tests to recognize argumenthood. They note: "Often one can make a clear distinction between an anaphoric and an existential interpretation of argument omission, and when argument absence implies an anaphoric interpretation, this could be taken as evidence of verb-specificity and argumenthood".

[14]This example comes from Creissels (2006a: 274). As he points out, it is the kind of sentence that can be heard in a shop, where a prominent object is the topic of the conversation.

constructions can be modified: *J'ai mangé, et c'était bon!* 'I ate, and it was good!' Object omission resulting in the object's complete non-referentiality is more likely to occur with imperfective aspects, in order to describe activities or properties, as in (11a). Croft (2001: 317-8) comments that "the situation denoted by a detransitivized verb form such as *drink*, or its antipassivized counterpart in other languages, can be analyzed as either a two-participant situation type with an obligatory non-salient participant, or as one participant situation type."

Empty arguments. Verbs are sometimes used in syntactic constructions involving a noun or pronoun as a syntactic argument, but with empty reference. In Turkish, non-expression of the object is regularly interpreted as anaphoric (Creissels 2006b: 3). On the other hand, Turkish transitive verbs can sometimes be used with what is called the "internal object" ("objet interne"; Creissels 2006b: 3): "to sew sewing", "to knit knitwear", etc.[15]. In such constructions, the syntactic transitivity remains the same, but the semantic transitivity clearly decreases, as the object is not referential. Göksel & Kerslake (2005: 329) mention that constructions with non-referential objects of this type are sometimes found as lexical entries in dictionaries. Two examples of Turkish internal objects are given in (12).

(12) Examples of "internal objects" in Turkish (Creissels 2006b:3 and Göksel & Kerslake 2005:329)

dikiş dikmek	*yemek ye-*
sewing sew	food eat
'to sew sewing'	'eat food' (= have a meal)

Dummy pronouns are another typical example of a discrepancy between the number of syntactic constituents in a construction and the number of entities involved in the event. Dummy pronouns are used in French and English to fill the subject argument in impersonal constructions: *Il pleut* ('It rains'). Meteorological verbs are usually considered avalent (having no argument), irrespective of the presence or absence of a pronoun as a grammatical subject. In a similar way, reflexive pronouns in Romance languages take the same form as object pronouns (except in the 3rd person): *Je me regarde* 'I look at myself' (lit. 'I look at me'). Thus, on the surface this construction looks like a bivalent construction, but semantically only one argument is involved in the process.

As can be seen in the last examples, the concept of valency primarily takes into account the arguments involved in a process at the semantic level. Dummy subjects are not considered parts of the verb valency because they are semantically empty. Likewise, a given verb's valency does not necessarily decrease each time one of its arguments is not realized.

[15] Levin (1993: 95) calls the English equivalent a "cognate object": *Sarah sang a song.* In English, however, cognate objects do not have the same valency-reduction value as they do in Turkish. Often, they are only possible when the object is modified by relevant information: *Sarah sang a beautiful song*. See also Boons et al. (1976: 64 ff.) for an analysis of French "internal objects" and its implication for the verb transitivity.

Reference of NPs. Between the non-existence of an argument and the presence of a definite, highly individualized one, there is a continuum of indefinite, plural and nonspecific arguments. Indefiniteness and plurality are two factors of decreasing individuality, and thus they are used in the less referential expressions. This is the reason why they are included among the features surveyed in Hopper & Thompson's (1980) study of the semantic transitivity scale.

The distinction between "specific" and "nonspecific" nominal expressions can be observed in the different possible interpretations of a sentence such as *I want to marry a Tahitian woman* (Kleiber 1981: 146; my translation)[16], where the speaker can have a specific person in mind that they call "a Tahitian woman" (specific reference), or just mean "any Tahitian woman" (nonspecific reference)[17]. Generic expressions are often opposed to specific expressions (e.g., Corblin 1987: 82), and in fact they can be considered a particular subtype of nonspecific expressions (Corblin 1987: 47).

1.1.5 Describing valency-changing operations

Thus far, I have used the terminology "valency-changing alternations", which suggests no directionality between a basic construction and a derived, or more marked, construction. Indeed, it is sometimes difficult to clearly determine directionality, as evidenced in (5) and (7), on p. 49 above.

Many valency alternations, however, have a clear directionality; in (8), a basic construction undergoes a valency-changing operation which adds an argument in the subject position. In (8b), the derived construction is marked by means of an affix on the verb. There are many such valency-changing operations, where formal marking indicates a change in the number of core arguments encoded by the verb, and how they are encoded[18].

In this dissertation, I focus on formally-marked valency-changing operations that either add or remove a core argument to or from the verb. This choice reflects the valency alternation found in Umó^{n}ho^{n}: there are numerous valency-increasing and valency-reducing operations that are formally marked on the verb or in the syntactic structure. Conversely, there are no valency-rearranging constructions (with the exception, arguably, of the possessive prefix briefly described in §4.4.3), and unmarked valency changes are marginal. There seems to be a restricted class of labile verbs (§4.1.6), and transitive verbs can receive a passive interpretation, which I do not consider to be a case of valency reduction (see discussion in §4.8).

[16]The original example is: *Je veux épouser une Tahitienne*. Kleiber argues that the "specific" vs. "nonspecific distinction" is different from the "known" vs. "unknown" distinction, which is a relevant distinction within the specific reference.

[17]Givón (1978, 2001a) calls these expressions "referring" and "non-referring", respectively.

[18]There is one famous exception in the identification of directionality. In Philippine languages, it is not possible to clearly identify a basic, unmarked transitive construction to be identified as the default "active" voice. See Lazard (1994: 180), Zúñiga & Kittilä (2019: 122-7), or Creissels (2006b: 17) for commented examples on Tagalog.

Valency-increasing and valency-reducing operations receive different labels. The most well-known ones are the passive, the causative, the reflexive and reciprocal, the antipassive and the applicative. Each implies a different kind of operation on the verbal arguments, represented in Table 1.2. Valency-increasing operations are presented in section 1.2, and valency-reducing operations are presented in section 1.3.

Table 1.2: Main valency-changing operations

	Affecting A	Affecting P	Affecting both
Valency-increasing	Causative (adding A)	Applicative (adding P)	
Valency-decreasing	Passive (removing or demoting A)	Antipassive (removing or demoting P)	Reflexive & reciprocal (A = P)

These operations are not equally attested in all languages and have not received the same degree of interest in the literature. The passive and reflexive-reciprocal have been described as voices (passive and middle) since at least Ancient Greek. The notion of causation seems to be attested in all natural languages (Shibatani 2002: 1) and has been of central importance in the development of various approaches to valency alternation and/or argument structure (Shibatani 1976). Conversely, the applicative and antipassive have only emerged as cross-linguistic labels in the last few decades, and neither is attested in European languages (except, notably, for an applicative construction attested in Basque; see maps in Polinsky 2013a, 2013b). Relying on the relevant chapters from WALS Online (Dryer & Haspelmath 2013), we see that 162 languages are identified with a passive construction, 405 with a causative construction, 83 with an applicative construction, and 48 with an antipassive construction (see maps in Siewierska 2013a, Polinsky 2013a,b, Song 2013b,a).

Another distinction is that the operations affecting P are defined as being morphologically encoded on the verb, while operations affecting A arguments encompass a wider variety of formal encodings. Yet another possible distinction is that some operations affect the semantic roles of the verbal arguments, while others do not. The original A of a basic transitive construction undergoes a reduction of its agent-like status when it becomes the causee of a causative construction. Conversely, the passive is often described as an operation demoting A to a peripheral argument (or leaving it unexpressed), *without* modifying the semantic roles assigned to the verbal arguments. Finally, a valency-reducing operation is likely to be interpreted and analyzed in different ways by different people because the exact referential status and semantic value of a missing argument is not easily available (see §1.1.4). Valency-increasing operations are less likely to be subject to various interpretations. Given

the different characteristics inherent to each operation, in addition to the different degrees of interest in the literature, a cross-linguistic study of valency-changing operations is difficult to make.

The descriptions provided in sections 1.2 and 1.3 will encompass formal, semantic, and functional observations, as well as occasional remarks on grammaticalization paths. Some valency-changing operations removing A or adding an A receive a different label than "passive" or "causative", because their semantic and functional aspects differ substantially from what is prototypically considered passive or causative. They are not included in Table 1.2, but some of them will be described succinctly in §1.2.3 and §1.3.4.

1.2 Valency-increasing operations

1.2.1 Adding an A: Causative

A causative operation can be defined as the introduction of a new argument in A position, which controls or is the origin of the event denoted by the verb, while the original subject (A or S) becomes P[19], as illustrated in (13). The argument added to the A position is called the CAUSER, while the original A or S argument which becomes a P is called the CAUSEE.

(13) a. *L' enfant mange.*
The child eat
S verb
The child eats.

b. *Je fais manger l' enfant.*
I make eat the child
A verb verb P
I make the child eat.

Causative constructions have served as central supporting elements in various linguistic analyses, particularly since 1965 within the Transformational Grammar model (Shibatani 1976: 3). Among the many publications that specifically address the issue of causative constructions, we can mention Comrie (1975, 1985), Shibatani (1976, 2002), Alsina (1992), Polinsky (1995), and Dixon (2000).

Dixon & Aikhenvald (2000b) propose the following criteria to functionally define a prototypical causative construction:

(a) Causative applies to an underlying intransitive clause and forms a derived transitive.

[19] Throughout this chapter, I use Dixon's (1994) "syntactic primitives": S = subject of an intransitive clause; A = subject of a transitive clause (agent-like); P = object of a transitive clause (patient-like; Dixon uses O). A and P also correspond to grammatical roles in Umóⁿhoⁿ (see §2.5.2).

(b) The argument in underlying S function (the causee) goes into P function in the causative.
(c) A new argument (the causer) is introduced, in A function.
(d) There is some explicit formal marking of the causative construction.

(Dixon & Aikhenvald 2000b: 13)

Criterion (a) is accounted for by the implicational universal that any language having causative constructions on transitive clauses also has them on intransitive clauses. As a consequence, causativization of intransitive clauses is more common (Dixon 2000: 63).

Criterion (d) excludes lexical pairs and ambitransitive verbs, whose semantics reflect causation, from the study of causatives. Note that this criterion underspecifies which kind of formal markings constitute a causative construction. Indeed, causation can be encoded by diverse means, from morphology to multiple clausal constructions (see section 1.4). It is not uncommon for one language to possess several causative constructions, some of which are morphological, and others peripheral, in which case they generally have different syntactic restrictions and/or different semantic values (see Chapter 5 for Umóⁿhoⁿ).

Constructions conveying the notion of causation exist in all languages, and it is difficult to determine which of these should be considered causatives. Dixon (2000: 32), for example, excludes causation expressed by a syntactic construction wherein the verb maintains its lexical meaning beyond the causation. Under these guidelines, constructions with *make* are considered causative, while constructions with *order to* are not[20].

In the next sections, I will briefly introduce some syntactic and semantic variations and restrictions, from a cross-linguistic perspective.

1.2.1.1 Syntactic variations and restrictions

There can be some restrictions on the transitivity of the basic clauses. While some causatives can be formed only on intransitive clauses, others may be formed both on intransitive clauses and on monotransitive clauses. Others still can be formed on any number of clauses, including ditransitive ones (as is the case in French).

In all causatives the causer takes the A function, and in causatives derived from intransitive clauses, the causee almost always receives a P function (some exceptions are reported in Dixon (2000: 45) and Creissels (2006b: 62)).

When the causative construction is based on a transitive or ditransitive clause, however, the syntactic function of the causee varies across languages. Dixon (2000) identifies five types of causative constructions based on transitive clauses, according to how the original A and P

[20] Dixon provides as examples *Mary made John go* vs. *Mary ordered John to go*.

are encoded (Creissels 2006b). For example, there can be cases where both the causee and the original object are encoded as P; where the original P remains the same and the causee is out of the core arguments; and where both the causer and the causee display A properties.

The first construction is known as the "double object construction", as illustrated in (14) below for Matses, a Panuan language from Perú. Fleck (2002) notes that in the derived ditransitive construction, there is an ambiguity around argument identification; the causee and the original P receive the same marking. Thus, (14) could also be a causative construction derived from 'the chicken ate caiman [meat]'.

(14) Causative construction with two P in Matses

a. *cachita-n cachina-Ø pe-o-sh*
caiman-ERG chicken-ABS eat-PST-3
The caiman ate the chicken.

b. *bacuë-bo-n cachita-Ø cahina-Ø pe-me-o-sh*
child-COLL-ERG caiman-ABS chicken-ABS eat-CAUS-PST-3
The kids fed a chicken to a caiman.
The kids fed caiman [meat] to the chickens. (Fleck 2002: 380)

French causative constructions are well-known examples of the second type of constructions mentioned above. They can derive intransitive, transitive, and ditransitive constructions, and the causee "goes into the first empty slot on a hierarchy of clausal functions" (Dixon 2000: 78). In other words, the causee takes on the P function when the causative is based on an intransitive clause, the dative function when the base clause is transitive, and the oblique function when the base clause is ditransitive. This pattern is rather rare, according to Dixon (2000). See detailed examples in Bailard (1982).

A few languages reported by Dixon (2000) encode the causee as A. Two of them are ergative languages, while another is the Tibeto-Burman language Qiang, where the causer is cross-referenced on the verb as A, and the causee is expressed with an NP taking the "agentive-marker" (Dixon 2000: 50).

1.2.1.2 Semantic variations and restrictions

The functional definition of the causative presented here encompasses constructions which display substantial linguistic variation. Given the semantic heterogeneity of causers and causees observed cross-linguistically, the challenge is thus successfully defining true causative constructions (outside the broad definition used at the beginning of this section, which relies on syntactic primitives as landmarks). As Creissels (2006b: 59) notes, causative constructions can have a very wide semantic range, expressing for instance the equivalents of English "make do", "let/allow to do", and "help to do". Specific kinds of causation can be labeled with more specialized terms according to the semantic features of the causation. For example, Butt (1995) identifies the "permissive" in Urdu while Donohue (1999: 210) identifies the

"factitive" in Tukang Besi (Austronesian, spoken in Indonesia). In the former, the permissive indicates the causer lets/allows the causee to do something, while the latter (factitive) is a morphological marker applied only to intransitive verbs with a P argument, "indicat[ing] a complete change of state, usually of a permanent nature, that involves a degree of effort on the part of the [causer]".

It is common for a language to display several causative constructions, in which case there will always be some semantic difference between them (which can entail syntactic restrictions on valency). Dixon (2000: 61) provides a list of 9 semantic criteria relevant in at least one language each. These criteria (summarized below) express possible restrictions on the verb semantics, on the causer role, or on the causee role:

Relating to the verb. Some causative constructions can operate only on verbs denoting states (*to be dark* → *to darken*), while others can operate on verbs denoting states and events. Moreover, as we have mentioned before, some restrictions exist in relation to transitivity.

Relating to the causee. Some constructions imply that the causee lacks control or volition, whereas others imply that the causee controls the process or desires it[21]. Another possible restriction considers the degree to which the causee is affected[22].

Relating to the causer. Causative constructions can be sensitive to directedness of action, intention and involvement of the causer, and the "naturalness" of the process (the degree of effort required [or not required] of the causer).

Although rare, some languages do have causative constructions used for syntactic purposes, which thus have no semantic restrictions. This is the case in Yup'ik (Mithun 2000), where the causative can be used for discursive purposes, keeping a salient argument as the co-referential subject in a dependant clause by making it a causer, even in the absence of semantic causation.

1.2.2 Adding a P: Applicatives

Applicative constructions are "derivational processes within the verbal morphology that add a participant to the set of core arguments" (Mithun 2001: 1). Example (15) illustrates an applicative derivation in Creek (Muskogean family, southeastern United States), whereby an instrument 'pen' is added to the core arguments of the verb 'write'. This addition is achieved using the applicative marker *is-*, prefixed to the verb and glossed INS for 'instrument'. We see in (16) a similar construction in Hualapai (Yuman, Arizona), for the addition of a beneficiary.

(15) Instrumental applicative in Creek

[21] The two causative suffixes of Creek (see Martin 2000: 394-9) illustrate this opposition.

[22] Affectedness is attested as a relevant parameter in Tariana (Aikhenvald 2000). No other instance is known to Dixon.

a. *Bill có·ka-n hó·cceyc-ís*
Bill letter-OBL write:LGR-IND
Bill is writing a letter

b. *Bill isho·cccéycka có·ka-n is-hó·cceyc-ís*
Bill pen letter-OBL AP:INS-write:LGR-IND
Bill is writing a letter with a pen (Martin 2000: 392)

(16) Benefactive applicative in Hualapai

a. *nya-ch he' yo:v-wi-ny*
1S-SBJ dress 1/3.make-AUX-PST
I made a dress

b. *nya-ch he' nyi-yo:v-ò-wi-ny*
1S-SBJ dress 1/2-make-AP:BEN-AUX-PST
I made you a dress (Peterson 2007: 64)

Although use of the term "applicative" is attested in Bantu language studies by at least the beginning of the 20th century, and in Uto-Aztecan grammars as far back as the 17th century (Peterson 2007: 2), the study of applicative constructions and use of the label itself is quite recent (outside the grammars of a few language families). Nevertheless, applicative constructions are generally considered a widespread feature in world languages (Mithun 2001: 2), particularly within certain regions. It is not a widespread feature of European languages, although Creissels (2006b: 75) provides some examples of what could be considered applicative constructions in Georgian, German and Hungarian[23].

We see that the definition of a prototypical applicative construction relies primarily on formal criteria. Applicatives are identified by morphological markings on the verb[24] and by the ways in which its arguments are encoded. Conversely, the semantic roles of the core arguments added to the verb are not part of this definition, and can vary greatly: beneficiaries, instruments, locations, etc.

Obligatory vs. optional applicatives. Mithun's definition of applicative constructions mentioned earlier is quite broad. In some languages (or "most", with the exception of specific regions like sub-Saharan Africa [Creissels 2006b:73]), applicatives[25] are a means to express

[23]Creissels notes (regarding German and Hungarian): "Often, the addition of preverbs to intransitive verbs results in their transitivization, all while maintaining the semantic role of their subject" – "Souvent, l'adjonction de préverbes au verbe a pour effet de transitiviser les verbes intransitifs tout en maintenant le rôle sémantique de leur sujet" (Creissels 2006b: 75). He clarifies, however, that the processes in these languages are not systematic like those attested in Bantu or Amerindian languages.

[24]Thus, all the possible formal realizations of valency change listed in §1.4 are not applicable to all types of operations. Applicative and antipassive derivations, in particular, are restricted in the formal realizations possible.

[25]Although the term "applicative" originally applies to a type of syntactic construction, it is often used to refer, by extension, to the morphological marker introducing the new argument.

otherwise optional, peripheral NPs as core arguments of the verb, as exemplified in (17) from Hakha Lai.

(17) Hakha Lai's optional instrumental applicative construction

a. *tiiloon khaa tivaa kan-tan-naak*
boat TOP river 1PL.SBJ-cross-AP:INS
We used the boat to cross the river.

b. *tiiloon=ʔin tivaa (khaa) kan-tan*
boat=INS river TOP 1PL.SBJ-cross
We used the boat to cross the river. (Peterson 2007: 46)

In other languages, those constructions are the only possible means to overtly express certain arguments. The definition of applicative constructions has sometimes been restricted to those optional constructions, as demonstrated in the following quotation provided by Peterson (2007) in his comprehensive study of applicative constructions:

> Applicative constructions are a means some languages have for structuring clauses which allow the coding of a thematically peripheral argument or adjunct as a core-object argument. Such constructions are signalled by overt verbal morphology.
>
> (Peterson 2007: 1)

This definition implies that the applicative construction is optional. However, Peterson (2007: 50) later claims that obligatory applicatives "can be (...) highly similar to ones which do have an alternative expression", and that seemingly obligatory constructions can be proven to have a syntactic alternative after further research. Considering that beneficiaries are often encoded with obligatory applicative constructions cross-linguistically (p. 46), Peterson ultimately broadens his initial definition of applicative constructions to include obligatory constructions as well (p. 51). Thus, Peterson, Creissels (2006b), and Mithun (2001) all consider that obligatory applicative constructions should be studied along with their non-obligatory counterparts. As nearly all applicative constructions in Umóⁿhoⁿ are obligatory, I will use Mithun's (2001) definition of the applicative construction cited at the beginning of this section; in other words, I will not consider optionality a defining criterion of applicatives.

1.2.2.1 Syntactic variations and restrictions

Dixon & Aikhenvald (2000b) state that "the great majority of applicative constructions apply to intransitive verbs". By contrast, Polinsky (2013b) divides her language sample between those which have applicative constructions only on transitive bases, and those which have applicative constructions on all bases. Peterson (2007: 61-63) reports that languages can have different restrictions on the valency of the base verb (for example, Tzotzil does not allow applicative constructions on intransitive verbs, while Yimas does not allow them on ditransitive

verbs). He then links these valency restrictions to applicative types and their grammaticalization path (Peterson 2007: 133-4).

In most cases the new core argument acquires the properties of a direct object (Creissels 2006b:74 mentions that some languages encode it as dative, which is quite rare). With basic transitive verbs, the object introduced by the applicative marker either is inserted inside a double object construction (in languages that possess such constructions), or takes the place of the original object which in turn is non expressed or treated as a peripheral argument (Creissels 2006b: 85). Peterson (2007: 51-60) distinguishes the "applicative object" (the object added as a core instrument) from the "base object" (the original object of the base verb), and provides a survey of the properties of each across languages.

Creissels (2006b: 79) widens the study of applicative constructions by including what he calls "periphrastic applicatives"[26]. In languages like Baoulé or Yoruba (Atlantic–Congo), the benefactive applicative is expressed by complex predicates formed with the verb "to give", as illustrated in (46), §1.4.4.3. Such constructions have the same effect on verbal valency as prototypical applicatives.

1.2.2.2 Semantic variations

As mentioned previously, applicative objects correspond to many different semantic roles. The most common role cross-linguistically is the beneficiary/maleficiary (and/or recipient), followed by the comitative, the instrumental, the locatives (e.g., stative, allative, ablative), and finally by various other roles (cause, reason, purpose, etc.; Peterson 2007: 202 ff). Dixon & Aikhenvald (2000b: 14) also mention the "presentative" meaning ("do it in presence of $\{x\}$"), and provide examples such as "laugh at $\{x\}$", "cry over $\{x\}$", and "be frightened by $\{x\}$" to refer to semantic roles which are difficult to describe.

Applicative markers can be more or less polysemic. Some languages show a great variety of applicative markers, each referring to a restrictive semantic role. For instance, Hakha Lai (Tibeto-Burman, Myanmar) exhibits seven different applicative markers, including what Peterson (2007: 41) calls a "relinquitive" (leaving $\{x\}$), a "prioritive" (ahead of $\{x\}$), and an "additional benefactive" (she does it for $\{x\}$ in addition to doing it for herself). Conversely, languages such as Tswana (studied in Creissels 2002) have only one, highly polysemic applicative marker. The semantic role assigned to the object introduced by the applicative marker is deduced from the context and from the lexical semantics of the verb, as typified in (18).

(18) Polysemous applicative marker in Tswana (Creissels 2002: 409)

a. *kítsó ɯ ɔ́-bɛ́rɛ́l-ɛ́l-à* *bàná*
Kitso.I SBJ.I-work-AP-FIN kid.II

[26]It has been said in §1.1.5 and at the beginning of this section that the applicative construction is understood as a construction encoded by an affix on the verb. Thus, periphrastic complex predicates (see §1.4.4) are not usually included in surveys on applicative constructions.

Kitso works for the children

b. *kítsɔ́ ɯ ɔ́-bɛ́rɛ́l-ɛ́l-à* *tíɛ́χɔ̀*
Kitso.I SBJ.I-work-AP-FIN retardedness.IX
Kitso is working because of the delay (to make up for the delay).

Some polysemies are more common than others, such as the widespread benefactive/recipient polysemy and benefactive/malefactive polysemy (Zúñiga & Kittilä 2010). "Dative is probably the case most used cross-linguistically to encode beneficiaries" (Zúñiga & Kittilä 2010). Mithun (1999: 246) mentions a case of syncretism between beneficiaries and locations (allatives), in Barbareño. The common point between those roles is that they represent "goals of actions".

1.2.2.3 Functions

Optional applicative constructions (i.e., applicative constructions which are an alternative to the expression of peripheral arguments) can have morphosyntactic functions and discursive functions[27]. Core arguments of the verb are often available to more syntactic operations (relativization, passivization, and topicalization for instance) than the peripheral arguments. Because of this, the applicative construction can be used in order to make an argument available to such operations. Mithun (2001) provides examples of this usage for Kapampangan (Austronesian, Philippines), an ergative language where only core objects (marked with the absolutive case) can be heads of relative clauses.

The motivations for using applicative constructions are very often discursive, however. Kapampangan applicative constructions are used not merely to allow relativization, but may more generally be described as a "pervasive device for shaping argument structure in connected speech, so that central, topical arguments are cast as syntactic core arguments" (p. 3). The use of applicative constructions to encode topical and discursively important arguments is widely attested. For example, Peterson's qualitative study of Hakha Lai (2007) shows that applicative objects are "far more topical than obliques", and have a "topic persistence"' and "topicworthiness" closer to or greater than canonical objects (p. 106-9). Peterson also suggests that applicative constructions might be linked to focusing effects (for the object demoted to the peripheral position), but he does not provide data with any description of this function[28].

[27]We also find other functions in particular languages. Peterson (2007: 49) mentions the case of Haya (Bantu), wherein the locative applicative construction introduces a stative locative entity (i.e., "I fell in the house'", while the same argument corresponds to an allative entity when expressed as a peripheral argument, (i.e., "I fell into the house").

[28]Interestingly, Creissels (2006b: 83) provides an example from Tswana of an applicative prefix evolving towards a focus marker, appearing to contradict the topicalizing effect of the applicative markers suggested by Peterson and others. However, in this case the argument under focus remains peripheral, and the applicative marker is used to indicate focus rather than to promote the argument to a core object.

The morphosyntactic function and the discursive function of applicative constructions are not mutually exclusive, as observed by Peterson (2007) and Mithun (2001). Rather, the two functions are linked, as the majority of the syntactic operations mentioned above are also linked to topicality effects. Furthermore, the main function of one applicative construction can depend on the kind of semantic role of the argument introduced by the applicative marker, especially animacy. For example, Peterson's study of Wolof (2007: 107) shows that applicative constructions introducing inanimate participants (such as instruments) do not display the same high topicality as beneficiaries. As a consequence, their main function is more likely to be the accessibility to specific syntactic operations. In a cross-linguistic perspective, Peterson (2007: 208) also notes that if all types of applicative constructions can be used in order to give an attenuated expression to the participant involved (e.g., pronominalization), it is "much more clearly the case for applicatives which refer to prototypically animate participants".

The above discussion seems to hold only for optional applicative constructions, where the choice between the applicative construction or the non-applicative construction is meaningful. Nevertheless, Mithun's (2001) study of Tuscarora (Iroquoian) shows that obligatory applicative constructions do have a discursive function. They "allow speakers to package elements of what is viewed as a single event in a single clause." (p. 18)[29]. In Tuscarora, "[s]peakers tend to introduce one significant new participant into the discussion at a time" (p. 14). Thus, English sentences involving multiple arguments are often reframed in Tuscarora (during elicitation sessions) with multiple clauses. In these circumstances, using an applicative construction becomes a meaningful choice.

1.2.3 Other valency-increasing operations

As detailed in the previous section, applicative objects can encompass a large range of semantic roles (e.g., beneficiaries, maleficiairies, instruments, locations). To the best of my knowledge, there are no valency-increasing operations that would add an object to the verb and receive a label other than "applicative".

There are, however, constructions which add an argument into the A position that are distinct from causative constructions. For example, the TROPATIVE (occasionally referred to as the "estimative") "designates a derivation from an adjective or a stative verb into a transitive verb meaning 'to consider to be …'." (Jacques 2013a: 1)[30]. In most languages, this idea is expressed by multi-clausal expressions, and/or is included in the possible interpretations of their causative construction(s). In a few languages, however, there is a dedicated morphological means to express tropative. And when the language in question includes property words

[29] It is also useful to derive nouns. For instance, "one heats with it" becomes "kettle". This is observed in Umóⁿhoⁿ too.

[30] Jacques (2013a) reports that this term originally comes from Arabic linguistics. Larcher (1996) explains how in Arabic a tropative reading has arisen from causative derivation, using the example of *'aḥmada* 'to find {x} laudable', from *ḥamida* 'to be satisfied with {x}' (root ḥmd) (the definition *ḥamida* 'to be satisfied with {x}' is from Reig (2008)).

in the verb class, the tropative becomes a valency-increasing operation. This is illustrated in (19) for Japhug and Lakhota[31].

(19) Examples of tropative constructions (Jacques 2013a)

Japhug *nɤ-wxti*	Lakhota *wakȟáŋ-la*
TROP-be.big	be.sacred-TROP
consider {x} to be big	to consider {x} to be sacred

1.3 Valency-reducing operations

1.3.1 Demoting A: Passive

Passive constructions are commonly and broadly defined as "constructions in which the passive subject corresponds to an active direct object while the active subject, if overt, is expressed in the form of [a peripheral argument]" (Siewierska 1988: 243)[32]. They are contrasted with "active" constructions, where the agentive argument is in subject position. However, there is little consensus regarding what should and should not be considered a passive construction. The term itself was first applied in the analysis of specific constructions in Greek and Latin, and its defining criteria have since expanded to accommodate similar constructions in other languages. I will first describe the canonical passive, and deviations from it (§1.3.1.1), and will then present the possible functions of passive constructions (§1.3.1.2).

1.3.1.1 Passive constructions in a canonical perspective

Example sentences (20) and (21) typify passive constructions obtained by a periphrastic construction (i.e., an auxiliary and a past participle) and by verb morphology (a change in the verb base), respectively. These examples show that passive constructions are found in accusative as well as ergative languages. In accusative languages like Bulgarian in (20), the P argument is encoded with the accusative case in the active construction and with the nominative case in the passive construction. In ergative languages like K'iche' in (21), the P argument retains its absolutive marking.

(20) Bulgarian (Siewierska 1988: 245, citing Radewa 1984)

a. *Horata zatvoriha l'va*
people:NOM lock.up:3PL lion:ACC
People locked up the lion.

b. *L'v't bese zatvoren ot horata*
lion:NOM was lock.up:PST.PTCP by people
The lion was locked up by people.

[31] For another example of a non-causative, valency-increasing construction, see Mithun (2000). She identifies several verb suffixes in Yup'ik which express, among other things, beliefs or claims, and which increase the valency of the verb.

[32] Siewierska writes "adjunct", but what she refers to corresponds to what I call a peripheral argument in §1.1.2.

(21) K'iche' (Campbell 2000: 245)

a. ***k-ox-ki-to?-oh***
ASP-1PL.ABS-3PL.ERG-help-TR
They help us.

b. ***k-ox-to:?*** ***k-uma:l***
ASP-1PL.ABS-help.PASS 3PL.POSS-by
We are helped by them.

Dixon & Aikhenvald (2000b) define canonical passive with four syntactic and formal criteria:

> (a) Passive applies to an underlying transitive clause and forms a derived intransitive.
> (b) The underlying P becomes S of the passive.
> (c) The underlying A argument goes into a peripheral function, (...) [or is] omitted (...).
> (d) There is some explicit formal marking of a passive construction (...).
>
> (Dixon & Aikhenvald 2000b: 7)

Criteria (a) and (d) are the most widely accepted, and apply to almost all constructions labeled as passive cross-linguistically. The intransitiveness is due to A being expressed (if ever) in an adpositional phrase, and not as a core argument. This process is particularly visible in ergative languages with case marking, since the encoding of the subject as absolutive identifies it unequivocally as an S (see (21) in K'iche' above). Keenan & Dryer (2007) explicitly challenge criterion (a) by providing many examples of "passive" clauses where monovalent verbs become avalent[33]. (Their examples also challenge criterion (b), as discussed below.). Cobbinah & Lüpke (2012) contest the usefulness of criterion (d), arguing that it is mentioned or implicitly assumed by every scholar, but is almost never shown to be necessary[34].

Criteria (b) and (c) are more controversial. Divergences from criterion (b) can be of several kinds:

1. The passive construction can subjectivize an argument other than P, such as an indirect object or an oblique constituent. This common phenomenon is illustrated in English (22) and (25). Several examples are also provided by Siewierska (1984).

   (22) English

[33]Other counterexamples can be found for criterion (a), especially in language-specific descriptions where the label "passive" can be used on a great variety of constructions. This term is even applied to a Japanese valency-increasing operation with an adversative meaning (in which the introduced subject has no control over the action) (Dixon & Aikhenvald 2000b: 9, from Shibatani (1990)).

[34]See Cobbinah & Lüpke (2012) for an account of zero-marked passives in African languages (and also §1.4.1).

John was given a meal. (passivization of a recipient; indirect object)
This bed has been slept in. (passivization of a location; oblique constituent)

2. In case-marking languages, the original P sometimes retains some object features such as the accusative case marking, as in (23)[35].

(23) Ulcha (Manchu-Tangus; Foley & Van Valin 1984: 155, citing Nichols 1979)

Ti dūse-we hōn-da ta-wuri
DEM tiger-ACC how-Q do-PASS

What's to be done about that tiger?

3. Some seemingly passive constructions subjectivize no argument at all, giving rise to apparently subjectless sentences. Such constructions are generally not considered passive but rather "impersonal", though we regularly find formal links between them (cf. §1.3.4).

Criterion (c) follows the traditional view of defining the passive as a construction that either allows A to be expressed, or semantically implies the presence of A (if it is not explicitly expressed). Dixon & Aikhenvald (2000b) call those constructions that do not enable the expression of A, as in (24), "agentless passives". Keenan & Dryer (2007: 330) claim that the passive constructions that do not express the underlying A are "basic passives", since they are more frequent[36]. The existence of an underlying A is what distinguishes the passive from the anticausative (presented in §1.3.4) and other passive-related constructions.

(24) Slave (Athapaskan; Rice 1989, 2000)[37]

a. *léyighe*
I cut it.

b. *léyege*
It was cut. (implied: by someone)

While some scholars agree with the conditions set forth in criterion (c), including Perlmutter & Postal (1983), Postal (1986), Dixon & Aikhenvald (2000a), Keenan & Dryer (2007), others object (e.g., Foley & Van Valin (1984), Shibatani (1985), Siewierska (1988)). Shibatani (1985) and Siewierska (1988) both emphasize that passives should be seen as an A-backgrounding process. Such a broad view of passives runs counter to criteria (b) and (c), because A-backgrounding encompasses both its demotion and suppression, and does not suppose P-promotion. These considerations are developed in §1.3.1.2.

[35]Siewierska (1988: 256) provides a similar example from Polish (the only Slavic language in her survey which displays such a construction), and Abraham (2006) provides examples from Swedish and German. In all three cases, the original P optionally retains its accusative case.

[36]Keenan & Dryer (2007: 330) make the following generalization: "If a language has passives with agent phrases then it has them without agent phrases". However, their characterization of basic passive also includes a retrievable underlying A, suggesting they agree with criterion (c).

[37]The original data comes from Rice (1989), but she identifies it specifically as an "agentless passive" (with an implied agent) in 2000. The passive marker is *d*, but apparently morphophonological rules make the surface form impossible to segment.

1.3.1.2 The functions of passive constructions

Syntactically speaking, passivization can be used to allow co-reference of an argument across two clauses by placing it in a subject position. For example, in English the subject holds a prominent position, and subjects, but not objects, can be deleted in non-initial coordinate clauses when they are co-referent to the subjects in the main clause. This is illustrated in (25)[38].

(25) Possible ellipsis in coordinate structures (Foley & Van Valin 1984: 109)

a. *Oscar went to the store and spoke to Bill* (= Oscar spoke to Bill)

b. **Oscar went to the store and Bill spoke to* (intended: Bill spoke to Oscar)

c. *Oscar went to the store and was spoken to by Bill* (= Bill spoke to Oscar)

Semantically and pragmatically speaking, various functions can be linked to the passive construction:

- promoting P or another argument to a more topical grammatical function (subject)
- decreasing focus from A
- placing focus on the result of the process

There has been much debate around which of these functions should be considered defining characteristics, and the choice has an impact in the range of constructions recognizable as passives.

Perlmutter & Postal (1983) consider the passive as being both an object-promotion and subject-demotion operation. This seems to be the case, also, of Dixon & Aikhenvald (2000b), according to the defining criteria they provide. Conversely, Siewierska (1988) (following Comrie (1977), Shibatani (1985) and others) argues that the passive is only an agent defocusing process[39]. According to her definition, any construction is considered passive where A is downgraded to an oblique case, remains implicit, or is suppressed outright. This includes constructions often labeled as "anticausative", "impersonal", or "middle" (see (26) and §1.3.4).

An argument in favor of considering passives as primarily agent-defocusing is the fact that many languages use the same encoding in various constructions, whose only commonality is agent defocusing (regardless of whether this defocusing corresponds to a syntactic demotion or a complete semantic suppression). Famously, the reflexive marker also encodes passives

[38]The prominent position of subject in English is also exemplified by Foley & Van Valin (1984) with complementation, participial relativization, raising to subject, raising to object.

[39]The term "agent defocusing" is proposed by Shibatani (1985: 832), while Siewierska (1988) uses "demotion". The term "defocusing" is preferred here because it covers a diverse array of phenomena, including the demotion of an agent to peripheral argument, and the absence of the agent altogether.

where no agent is implied at all (Siewierska 1988), as in (26). The *get*-construction in English (*All the books got sold*) are also considered passive constructions by some (e.g., Givón & Yang 1994). Finally, the passive constructions based on intransitive verbs promote no argument; see Shibatani (1985: 834) for an example in German.

(26) a. French

Ces petit-s pain-s se vendent facilement.
DEM.PL small-PL bread-PL REFL sell:3PL easily

Those rolls sell easily.

b. Imbabura Quichua (Quechuan, from Shibatani 1985, citing Cole 1982)

Pungu-kuna-ka paska-ri-rka.
door-PL-TOP open-REFL-PST.3

The doors opened.

A focus placed on the result of a process is sometimes called the "resultative". Mithun (2000) provides an example of a derivational affix which can be considered a "resultative (passive)".

1.3.2 Demoting P: Antipassive

The notion of "antipassive" was first used by Silverstein (1972: 395) to refer to a syntactic construction in Chinook Jargon, a pidgin which arose between speakers of Indo-European languages and speakers of several Indigenous languages of North America. In this construction, the object of a transitive verb is removed from the clause (but still implied), leaving the subject A as the sole core argument (S) of the verb. As Chinook Jargon is an ergative language, the change from A to S implies a change in marking from ergative to absolutive.

Example (27) illustrates the antipassive construction in Dyirbal (Pama–Nyungan; Queensland, Australia), a language with ergative alignment. Example (27a) shows a transitive construction with two NPs, one ergative (the subject), and one absolutive (the object). In (27b) the object is marked as dative instead of absolutive, and is thus no longer a core argument of the verb; the subject remains the only core argument and is therefore marked as absolutive. This is analoguous to the change from accusative to nominative in passive constructions in accusative languages, hence the term "antipassive" (Silverstein 1972).

(27) a. *balan dyugumbil banggul yaranggu balgan.*
there.ABS woman.ABS there.ERG man.ERG hit

'Man hit woman'

b. *bagun dyugumbilgu bayi yara balgalnganyu.*
there.DAT woman.DAT there.ABS man.ABS hit.ANTIP

'Man hit woman' (Dixon 1972: 130. Adapted by Cooreman (1994), gloss adapted by me)

Since Silverstein's initial definition of antipassive constructions, the notion has been applied with more or less restrictive definitions to describe diverse constructions. While many scholars restrict it to ergative languages (including Givón 1984, Cooreman 1994, Palmer 1994, Wechsler 2015), others have extended the notion to non-ergative languages (including Heath 1976, Foley & Van Valin 1984, Comrie 1989, Dixon 1994, Polinsky 2013a). The definitions also vary in the amount of structural features required[40].

Disagreement over whether to restrict the use of the term "antipassive" to descriptions of ergative languages probably stems from the fact that, much like passive constructions, antipassives can be divided into two main categories: those which have a main syntactic function and those which have a main semantic function. At the syntactic level, antipassive enable the subject argument to be in pivot position. At the semantic level, they background P and/or foreground A. These correspond to the "structurally determined" vs. "functionally determined" antipassives of Cooreman (1994), to the "promotional" vs. "indefinite" antipassives of Heath (1976)[41], and to the "foregrounding" (which allows a pivot)[42] vs. "backgrounding" antipassives of Foley & Van Valin (1984).

The structurally determined antipassive construction (or "promotional", or "foregrounding") is indeed restricted to ergative languages, but the functionally determined antipassive construction is not restricted in terms of alignment patterns. Cooreman (1994) posits that originally, all antipassive constructions were functionally (i.e., semantically) determined. She notes that some languages with structural antipassives also have (or show relics of) functional use, thus proposing a grammaticalization path.

When antipassive constructions are used functionally to defocus P, P can either be demoted to a peripheral argument or left unexpressed. This latter option is called the "patientless antipassive", which often has an absolutive value as typified in (28).

(28) Ojibwe (Algonquian, Rhodes and Valentine 2015, cited in Heaton 2017: 176)[43]

a. *'Zagkinaan iw mnoomin.*
o-zagakin-am-n(aa) *iw* *manoomin.*
A3-store.up.TR-INAN.OBJ-N that.INAN rice
He stores up wild rice.

[40]This paragraph is based primarily on Heaton's dissertation (2017: 51.3) which provides a review and comparison of the definitions by eleven different scholars

[41]Heath (1976) surveys many constructions where an original P is demoted or deleted, including some that are not usually considered antipassive. He mentions the "indefinite" and "promotional" types first.

[42]Here, "foregrounding" should be understood as syntactic foregrounding, permitting the argument to be encoded in a way that allows a pivot.

[43]The gloss N means "n registration", an object morpheme that only appears with an overtly present animate primary object" (Heaton 2017: 176). For more details, Heaton refers to Rhodes and Valentine (2015:1212, fn. 6).

b. *Zgaknige*
Zagakin-ige-w.
store.up.TR-ANTIP.INAN-S3
He stores things up.

As Cooreman herself states, antipassive constructions are functional parallels to English sentences like (29).

(29) The boy ate an apple. → The boy ate.

Following the same reasoning, we can analyze many instances of noun incorporation (NI) as antipassive constructions (as Givón (2001b) does). Most cases of NI concern incorporation of the object into the verb. With the exception of particular types of NI where the incorporated object acts as a specifier, and does not prevent the verb from being used transitively (see Mithun 1984), the incorporated object saturates the object position. The incorporated object is often nonspecific, and created with the incorporating verb a new lexical unit denoting habitual, socially-recognized activity, as in (30) (Type 1 of NI: "lexical compounding"). Such cases are similar to antipassive constructions with absolutive use. There is, however, an important semantic difference: a typical patientless antipassive construction like (28) has an underspecified object, while NI gives information about the object involved in the process, despite being nonspecific. This is shown in (30) below.

(30) "Lexical compounding" (NI), Mokilese (Micronesian; Harrison 1976, cited in Mithun 1984)

a. *Ngoah kohkoa oaring-kai.*
I grind coconut-these
I am grinding these coconuts.

b. *Ngoah ko oaring.*
I grind coconut
I am coconut-grinding.

NI can also be used as a discourse device, to background information already known from the context, as in (31) (Type 3 of NI: manipulation of discourse structure).

(31) Backgrounding information (NI), Huahtla Nahuatl (Mithun 1984: 860)

a. speaker A:

askeman ti-'-kwa nakatl.
never you-it-eat meat

You never eat meat.

b. speaker B (answer):

na' ipanima ni-naka-kwa.
I always I-meat-eat

I eat it (meat) all the time.

1.3.3 Merging A and P: Reflexive / reciprocal

Reflexivity and reciprocality are similar concepts that "share an essential feature which sets them apart from most other situation types: each participant plays two distinct roles in the same situation" (Elena & Nedjalkov 2013). Example (32) shows a reflexive construction and a reciprocal construction in English, both encoded by pronouns. In each case, the grammatical subject both sees and is seen. The reflexive construction can more precisely be defined as a clause where two arguments of the verb are coreferent (Frajzyngier & Curl 2000: vii). Givón (2001b) decomposes the reciprocal construction as "two (or more) like events coded by the same verb (...) with the subject of the first being the object of the second, and vice versa". (This complex underlying structure is visible in languages lacking reciprocal constructions, as shown in Elena & Nedjalkov 2013.) The reflexive and reciprocal constructions are often encoded in the same way[44], and are often treated together in surveys.

(32) a. *She saw herself.*

b. *They saw each other.*

The merging of the A and P functions is a semantic particularity that sets the reflexive-reciprocal constructions apart from the passive and antipassive constructions; the former reduces the semantic transitivity[45], while prototypical passive and antipassive constructions correspond to two-participant events which are treated syntactically as intransitive constructions. Hopper & Thompson (1980: 277, cited in Kemmer 1993) consider the reflexives to be an intermediary step between one- and two-argument clauses.

Kemmer (1993) identifies a prototypical or canonical reflexive construction, and continuing from there, further identifies many more constructions where the distinguishability of participants is more or less clear. She then proposes a semantic map (p. 202) of all the situation types lying between one- and two-participant events that are likely to be encoded by a "middle marker". Among the situation types that are often linked to the reflexive and reciprocal, we can mention the autobenefactive (which she calls "indirect reflexive"), the collective (doing something together), and the "middle passive" (no A implied).

Romance languages are known to have a polysemous middle marker encoding reflexive, reciprocal, and other middle situation types, as in (33) for French. (See Melis 1990 for an in-depth study of French pronominal constructions.)

(33) French "reflexive" pronoun *se*

a. Reflexive value

[44]In Elena & Nedjalkov's (2013) survey of reciprocal constructions, 60 out of 175 languages have reflexive-reciprocal constructions.

[45]This statement can be questioned. Thus, Creissels (2016) considers that the reflexive and reciprocals do not affect the argument structure of verbs; each verb involves the same semantic roles, but those roles are held by the same referent(s).

Jean se regarde
J. REFL look

Jean looks at himself.

b. Reciprocal value

Jean et Pierre se regardent
J. and P. REFL look.3PL

Jean and Pierre look at each other.

c. Passive value

Ces polar-s se lisent rapidement.
these crime.novel-PL REFL read.3PL rapidly

These crime novels read rapidly.

d. Autobenefactive value

Il se prépare une salade.
he REFL prepare a salad

He makes a salad for himself.

At the syntactic level, Dixon & Aikhenvald (2000b) note that cross-linguistically there are two basic strategies for encoding the reflexive/reciprocal: as a transitive structure with a reflexive or reciprocal pronoun in the P slot, like in English and in Romance languages; and as an intransitive structure with a reflexive or reciprocal encoding on the verb, like in Umó^{n}ho^{n} (see §4.7). Note also that in a number of languages, such as Kalaallisut (Inuit), some verbs are simply conjugated with the intransitive person markers to yield a reflexive meaning; see (40).

1.3.4 Other valency-reducing operations

Several constructions reduce verbal valency without clearly falling into the category of "passive" or "antipassive". The anticausative and the impersonal constructions partly overlap with the passive, and can be considered passive subtypes according to the definition retained for the passive. In both cases, there is no agent-like argument (neither in surface nor in the semantic structure), which indicates a reduction in valency. Subject incorporation is a third example of a valency-reducing construction which corresponds to none of the usual valency-reducing operations.

Anticausative. The anticausative construction contains a syntactic subject which semantically is a patient-like argument. There is no implied agent-like argument, and as a result "the anticausative implies that [the original P] came into the state spontaneously" (Dixon & Aikhenvald 2000b: 8). This is illustrated in (34).

(34) Anticausative coverb construction in Ngan'gityemerri (Reid 2000: 343)

a. *kuru ngi-nem-Ø-purrngpurrng.*
water A1SG-heat-P3SG-boil
I'm boiling the water.

b. *kuru di-m-purrngpurrng nyine.*
water S3SG-sit-boil FOC
The water is boiling.

The anticausative rarely (if ever) has a dedicated marker. Most of the time, the anticausative is one of the possible functions or interpretations for a construction which also encodes the passive, the reflexive, or other interpretations usually grouped under the term "middle". For instance, in Dixon & Aikhenvald (2000a), none of the anticausative constructions presented in the language-specific descriptions have dedicated markers. Other functions of the same markers include reciprocal, passive, reflexive, autobenefactive, and resultative[46]. Ngan'gityemerri (spoken in Australia) displays a myriad of coverb constructions, and the anticausative interpretation exemplified in (34) results from the combination of an "intransitive finite verb" and a "bivalent high transitive verb".

The term "anticausative" is also regularly used to refer to a category of ambitransitive verbs, when their intransitive construction has an anticausative interpretation. One archetypical example of anticausative is the unmarked English alternation *The child broke it* vs. *It broke*. Such alternations have also been called "causal-noncausal alternation" (e.g., Haspelmath & Hartmann 2015: 65) or "S = P ambitransitivity" (Dixon & Aikhenvald 2000b).

Impersonal. Malchukov & Siewierska (2011) broadly define impersonal constructions as "constructions lacking a referential subject"[47] . They identify four kinds of impersonal constructions, ranging from those with an argumental subject which is not fully referential, to those which lack a subject altogether (as in (35) below; also note that the verb is conjugated for 3rd person singular neuter).

(35) Slovak

starsi ludia hovoria, ze v tomto zamku strasilo
old people say that in that castle spook:3SG:NEU

Old people say that it spooks in that castle (that the castle is haunted). (Siewierska 1988)

[46]The languages in question are Amharic, Creek, Dulong/Rawang and languages from the Athapaskan family. In Creek, Martin (2000) describes a "middle" marker which primarily has an anticausative function (thought not always). A few examples provided by the author seem to be instances of the resultative, because they include verbs which inherently imply an agent (e.g., "to cut").

[47]Malchukov & Siewierska (2011: 2) observe that the impersonal has traditionally been defined from two partially overlapping perspectives: a communicative-functional one, and a structure-based one. They adopt a structure-based perspective in this definition.

Sentences with a dummy subject are also considered impersonal constructions. In (36), the fact that the subject is used non-referentially amounts to a valency-reduction at the semantic level. Two common ways of forming such impersonals cross-linguistically are with a 3rd person plural subject, and with an indefinite 3rd person singular subject (such as English *one*, French *on*, German *Mann*, etc.).

(36) Grammatical subject used non-referentially

a. English "they" *They're going to raise taxes.* (Siewierska 2011)

b. French "on" *On ne doit pas toucher*
One must not touch (it).

There is sometimes a formal link between passive and impersonal, since the latter construction can develop as an alternative reading of the former. This is the case, for instance, of constructions with the reflexive marker *se* (and cognates) in some Romance languages, as illustrated in (37) from Italian.

(37) Italian

In Italia si mangia spaghetti.
in Italia REFL eats spaghetti[PL]

In Italy, people eat spaghetti (it is usual to eat spaghetti) (Giacalone Ramat & Sansò 2011: 190, citing Abraham & Leiss 2006)

Impersonal constructions are often studied alongside impersonal verbs, which are always used either without a subject, or with a dummy subject. Meteorological verbs are typical impersonal verbs (see §4.1.1 for Umó^{n}ho^{n}).

Subject incorporation Noun incorporation is one possible means of formally decreasing valency (§1.4.4.2) when the incorporated element is an argument of the verb. The verb almost always incorporates an object, resulting in the functional equivalent of an antipassive construction (discussed in §1.3.2). However, there are a few attested cases of verbs which can incorporate their subject. Such incorporating verbs, when compared to the non-incorporating construction, illustrate a valency recuction which does not clearly fall in either label described so far. For an example of subject incorporation, see (42b) in §1.4.4.2.

1.4 The formal realizations of valency change

This section presents the formal realizations of valency change. Some alternations are not marked at all, as shown at the beginning of this chapter (cf. examples (5) and (7)). When alternations are indeed marked, the ways in which they are encoded spread on a continuum

from the most synthetic (lexical pairs) to the most analytic (syntactic formations). We can identify at least five different categories on this continuum, which are presented in the sections below: lexical pairs, verbal morphology, complex predicates (including noun incorporation), and multiple clause constructions.

We have already seen that some alternations, such as the antipassive and the applicative, formally mark their constructions through verbal morphology only. Conversely, the causative construction is defined in functional terms, and displays a wide variety of formal realizations. This explains why the causative is one of the most represented valency alternations in this section.

Each kind of formal marking is presented below, from alternation not formally encoded (§1.4.1) to constructions involving multiple clauses (§1.4.5).

1.4.1 No formal marking

Some languages display valency alternations with no formal marking at all. This is the case with so-called "labile" or "ambitransitive" verbs, which can be used in either monovalent or bivalent constructions without altering their form. There are two kinds of labile verbs: the "unergative" verbs where S=A, and the "unaccusative" verbs where S=P (Perlmutter 1978, Levin & Rappaport Horav 1995). Unergative and unaccusative alternations are found with various degrees of systematicity across languages[48].

(38) a. Unergative type

Il a mangé du couscous.	*Il a beaucoup mangé.*
He has eaten couscous.	He has eaten a lot.

b. Unaccusative type

Un enfant a cassé cette branche.	*Cette branche a cassé.*
A child broke this branch.	This branch broke.

Unergative alternations correspond to transitive object omission, the various semantic effects of which are briefly described in §1.1.4. When the object omission occurs because the object is nonspecific or unimportant, as in (38a), this construction is a functional equivalent of the antipassive construction, as noted in §1.3.2.

[48]Boons et al. (1976: 268 ff.) argue that omission of the direct object (resulting in S=A alternation) is almost always possible in French, with various semantic effects. Languages allowing unaccusative alternations on a systematic or near-systematic basis are also found, an example being Tunica (isolate, Louisiana) (Dixon 2000: 38). Cobbinah & Lüpke (2012) describe systematic S=P alternations in several African languages, and argue that these are passive constructions, though unmarked.

Unaccusative labile verbs can be inserted into transitive constructions with A and P, or intransitive constructions with P only, as illustrated in (38b). In French and English, alternations of this kind correspond to a reduction in semantic valency, as the process is viewed as happening "on its own". They are thus anticausative alternations (§1.3.4). In other languages, such as Bambara (Cobbinah & Lüpke 2012) and Northern Akhvakh (Creissels 2017), the A can remain semantically present but not be explicitly expressed. These unmarked alternations are then semantically equivalent to passive constructions.

There is a very important body of literature on unaccusative valency alternations, going as far back as the 1960s (e.g., Levin & Rappaport Horav 1995; Blinkenberg 1960 and Boons et al. 1976 for French; Fillmore 1970 for English). These forms are variously treated as verbs used in alternating argument structures or as homonymous lexical pairs (see §1.4.2); in the latter case various analyses are possible concerning the directionality of the derivation. Unaccusative verbs are sometimes described in terms of the notion of causation, interpreting the transitive construction (or the transitive verb) as "causative" or "causal" (Shibatani & Pardeshi 2002, Legendre & Smolensky 2017, Creissels 2017).

Note that some languages have inflectional systems that encode differently transitive and intransitive clauses differently (in particular with different inflectional paradigms for S, A and P). In such cases, valency alternations that are unmarked by derivational morphology or periphrastic constructions are still formally visible. An example is provided in §1.4.3.

As a further example of unmarked valency change, we can mention the addition to a construction of a peripheral argument, such as a beneficiary, maleficiary or instrument; Zúñiga & Kittilä (2019) call this the "uncoded (anti-)applicative". For instance, *I cooked a cake* (bivalent construction) becomes *I cooked a cake for Mary* (trivalent construction) when adding a beneficiary. The malefactive construction in English (e.g. *Your car broke down on me/you*, Humphreys 1999) would also fall under this category. See Zúñiga & Kittilä (2019) for a review of uncoded syntactic and semantic valency alternations.

1.4.2 Lexical pairs

Several authors mention lexical pairs of verbs, with the transitive verb being the causative counterpart of the intransitive one. One often-cited example is the pair *die/kill*. Dixon (2000) provides several arguments to justify regrouping such verbs and identifying them as lexical pairs. Ambitransitive verbs like those cited in 1.4.1 are regularly treated as lexical pairs (Dixon 2000) or lexical causatives (Shibatani & Pardeshi 2002), because most of the time, only a finite set of verbs undergo this kind of alternation. (They must be stored in the lexicon with their possible constructions and correspondent interpretations.)

Humphreys (1999: 394) cites some valency-alternating English pairs which were historically the same verbs undergoing vowel alternation, but have since lexicalized: *fell/fall, set/sit,*

raise/rise, lay/lie.

1.4.3 Verbal morphology

Valency change encoded by verbal morphology is very common and thoroughly described. This type of encoding is even a defining feature of the applicative and antipassive constructions, as mentioned earlier.

In (39) we see valency-changing constructions encoded by various morphological means: infixation in Brag-dbar, suffixation in Kapampangan, and internal vowel change in Literary Arabic. Cross-linguistically, many different kinds of formal encoding fall under the domain of morphology, like affixation, compounding, base modification, and reduplication. (See Dixon 2000: 34 for a list of morphological encodings attested in causative constructions.)

(39) a. Causative: Brag-dbar (Rgyalrongic, Zhang 2016: 88)

kərpâm	*ka<sə>rpâm*
be frozen	to freeze (transitive)

b. Benefactive applicative: Kapampangan (Philipine, in Mithun 2001: 1-2)

Buklat=na=ya	*Buklat-an=na=ye*
open=3.ERG=3.ABS	open-AP=3.ERG=3.ABS
He will open it.	He will open it for him.

c. Passive: Literary Arabic

šariba	*al-walad-u*	*aš-šāy-a*	*šuriba*	*aš-šāyy-u*
drink.PST	DEF-child-NOM	DEF-tea-ACC	drink.PST.PASS	DEF-tea-NOM
The boy drank the tea.			The tea was drunk.	

Another kind of morphological encoding is found in languages whose verb inflection systems encode intransitive and transitive constructions differently. For instance, Yup'ik (Eskimo-Aleut, Alaska) possesses distinct inflectional paradigms for intransitive and transitive constructions, as well as a morpheme expressing "intransitive indicative". The labile verbs of this language thus encode S, A and P differently, such that the difference between intransitive and transitive constructions is formally encoded by inflection. This case is illustrated in (40), from Kalaallisut, another language from the Eskimo-Aleut family. As can be seen, the ambitransitivity can have several interpretations according to the semantics of the verb.

(40) Kalaallisut (Inuit, Greenland)[49]

a. Antipassive interpretation

igav-ara	*igav-unga*
cook-A1SG.P3SG	cook-S1SG
I cook it.	I cook.

[49]These examples are from my notebook for the fieldwork class at the 2017 LSA Summer Institute, where we worked with two native speakers of Kalaallisut.

b. Reflexive interpretation

taku-ara	*takuv-unga*
see-A1SG.P3SG	see-S1SG
I see it.	I see myself.

1.4.4 Complex predicates

Complex predicates (CPs) combine broadly different units in one (monoclausal) predicate. Beyond that, scholars differ regarding what they define as a CP, as can be observed in Alsina et al. (1997)[50]. Butt (1995), cited in Samvelian (2012: 18), defines a CP as "a construction that involves two or more predicational elements (such as nouns, verbs and adjectives) which predicate as a single element, i.e., their arguments map onto a monoclausal syntactic structure". This is the definition used here, and it is also followed by Samvelian (2012) and Godard & Samvelian (2019), among others[51]. Compounds, noun incorporation, and some periphrastic constructions can all be considered complex predicates.

Formally, three kinds of CPs recurrently correlate with valency change. First, the "instrumental affixes" of many languages from North America, including Umóⁿhoⁿ, form compounds with verbs and have a causative function. Second, noun incorporation involves a noun and a verb, and the resulting CP is a verb; this often results in a reduction of valency. Third, periphrastic constructions composed of two verbs are used in several types of valency-reducing or valency-increasing operations (e.g., causative, passive, and applicative).

Complex predicates contrast with analytic constructions (in §1.4.5), and defining the border between them is a topic of research. See Mithun & Corbett (1999), Massam (2009), and Dayal (2011) for discussions on noun incorporation vs. free object + verb; and Butt (2005) and Bonami & Samvelian (2015), among others, for discussions on periphrastic CP vs. pure syntax constructions.

1.4.4.1 Compounds

Compounding involves combining several lexical roots possessing lexical meaning. In this respect, compounding is distinct from the derivational and inflectional morphology described in §1.4.3, which involves morphemes or morphological expressions with grammatical content only. The valency-changing "compounds" I am thinking of here involve a verb or verbal root, and a component with a verbal or adverbial/prepositional meaning which is generally not attested as an independent word, and various examples of which exhibit varying degrees

[50]For instance, Baker (1997) states that "[The term CP] can refer to any predicate that a particular researcher finds difficult – whether due to semantic complexity, syntactic complexity, morphological complexity, or whatever." He himself analyzes morphological causatives as CPs.

[51]Godard & Samvelian (2019), following the HPSG tradition, define a CP as being "composed of two or more words, which are predicates, of which one is a verb, head of the construction, and the other belongs to diverse categories: non-finite verb, noun, adjective, preposition".

of grammaticalization (which is why such constructions qualify as compounds, and are not periphrases).

The ambiguous status of the latter component is visible in the literature. For instance, Kulikov (2012) analyzes the valency-changing function of Vedic preverbs, describing them as "semi-autonomous verbal morphemes (prefixes)" (p. 721). Reid (2000) presents valency-changing operations involving compounds of verbs and coverbs in Ngan'gityemerri (Australia); the "coverbs" have a verbal lexical meaning and have a valency value, but are not autonomous.

The "instrumental verbs" described in Chapter 5 (§5.2 and §5.3) are compounds involving a verbal root and an "instrumental prefix" with a lexical meaning. Since these prefixes have a lexical meaning, I analyze the resulting verbs as complex predicates. The instrumental prefixes sometimes have a causative function in addition to their semantic content, as illustrated in (41). Instrumental affixes are pervasive in the Western part of North America, and are often linked to a causative function (Mithun 1999, 2015, Thornes 2013).

(41) The "instrumental verbs" in Umó^{n}ho^{n}: instrumental prefix + verb

xó^{n}	'be broken'	(intransitive)
baxó^{n}	'to break {x} by pushing'	(transitive)

1.4.4.2 Noun incorporation

The term "noun incorporation" (NI) "refers to morphological structures in which a nominal constituent is added to a verbal root, and the resulting construction is both a verb and a single word" (Aikhenvald 2007: 11). Although according to this definition it is a morphological process, some researchers have analyzed it as a syntactic process (for instance Sadock 1980), and Mithun (1984) recognizes it to be "perhaps the most nearly syntactic of all morphological processes". This is why it is distinguished in this section from other morphological processes. Creissels (2006b: 16) notes that "object incorporation is the ultimate completion of a very general tendency for indefinite nouns in object position to have a reduced mobility around the verb."[52]

Mithun (1984) distinguishes between four types of NI according to functional criteria, two of chich reduce verb valency. In type 1, a verbal argument is incorporated to refer to a habitual or socially recognized activity as a unitary concept, for example "baby-sit" in English. The incorporated argument is typically undetermined and nonspecific. In type 3, noun incorporation is used as a pragmatic device for backgrounding information that is already known. (Note that in the latter case, highly individuated arguments can be incorporated, so there is no decrease of semantic transitivity.) Type 1 is the most well known, and probably the most

[52]Original quote: "L'incorporation de l'objet est l'aboutissement ultime d'une tendance très générale des noms indéfinis assumant le rôle d'objet à avoir seulement une mobilité réduite par rapport au verbe."

frequently occurring, type of NI found.

In Mithun's type 1 and type 3 NI, the incorporated noun saturates one argument of the incorporating verb, decreasing its syntactic valency by one. In most cases, the noun saturates the direct object position of the verb, making the resulting CP intransitive (Spencer 1995). Intransitive subjects are sometimes incorporated, but much less frequently. Examples of each case are shown in (42); they correspond to type 1 NI in Mithun's classification.

(42) a. Object incorporation in Futuna (Oceanic; Creissels 2006b: 16)

e taki-motokā Ø le fafine
IMPF drive-car ABS DEF woman

The woman is driving

b. Subject incorporation in Huahtla Nahuatl (Uto-Aztecan; Mithun 1984: 860)

tesiwi-tl weci *tesiwi-weci*
hail-ABS fall hail-fall

Hail is falling It's hailing

Mithun & Corbett (1999) show how the verb *isak* 'seek, hunt' in Mohawk (Iroquian) receives no personal indexation marker for animate object once it has incorporated*onkwe't* 'person'. (Mohawk has obligatory indexation of animate objects on the verb, regardless of whether or not these objects are also expressed by NPs.) This is thus a formal demonstration that the verb 'people-hunt' in (43) is intransitive. Further evidence of valency reduction of noun-incorporating verbs, in ergative languages, is the case marking found on the remaining argument, as in (42a).

(43) Object incorporation (Mohawk, Iroquian)

ra-at-onkwe't-isak-s
A.M-MIDDLE-person-seek-IMPF

He hunts people (Mithun & Corbett 1999: 61)

NI is a frequent feature of languages of North America and is found in Umóⁿhoⁿ and other Siouan languages (see Chapter 8). Mithun (2015: 47) proposes a map of Native American languages on which more than fifty are highlighted as having productive NI or relics of it.

1.4.4.3 Periphrastic CPs

In a general sense, the term "periphrasis" refers to "the use of longer, multi-word expressions in place of single words" (Haspelmath 2000). Under such a definition, periphrastic constructions can form either complex predicates or multiclausal constructions (§1.4.5), although some

scholars restrict this term to one or the other type of construction[53].

Haspelmath (2000) distinguishes between "suppletive periphrasis", which completes an inflectional paradigm otherwise composed of synthetic forms, and "categorial periphrasis", which expresses a grammatical category that does not necessarily have a synthetic counterpart in the given language, and that is not necessarily inflectional. (Bonami & Samvelian (2015) call this the "typological definition" of periphrasis, because descriptive grammars often use the term "periphrasis" in reference to Haspelmath's "categorial periphrasis".)

Periphrastic valency-changing constructions are generally, if not always, of the categorial kind. It is sometimes difficult to distinguish periphrastic CPs from multiclausal expressions, and many grammars do not explicitly address this issue. We can find evidence, at least, of monoclausality or multiclausality in clitic positioning, recursivity, and semantics. (For a more detailed study, see Bonami & Samvelian 2015.)

Clitic positioning shows that the causative construction of French *faire* + **Inf.** forms a CP, unlike the English equivalent *make* + **V. base**. As shown by Abeillé et al. (1998), any object of the CP can be pronominalized and be attached to the head verb *faire*. In (44), the original direct object of the verb *lire* becomes the direct object of the CP *faire lire*; and the original subject of *lire* becomes the indirect object of the CP. Both objects of the CP can be pronominalized, in which case the pronouns (which are clitics) are attached to the causative head verb *faire* and not to the infinitive verb *lire*, as illustrated in (44) for the direct object. Conversely, in the English translations of (44), we see that *make* and *read* remain separate predicates, since *read* governs its own object.

(44) Monoclausality shown by clitic positioning in French

a. *Paul fera lire Proust aux élève-s de terminale.*
P. make.FUT read P. to.the student-PL of senior.year
Paul will make the senior year students read Proust.

b. *Paul le-fera lire aux élèves de terminale.*
P. it-make.FUT read to.the student-PL of senior.year
Paul will make the senior year students read it.

c. **Paul fera le-lire aux élèves de terminale.*
Paul will make the senior year students read it. (intended)

(Abeillé et al. (1998). Hyphens are added to highlight which verb the object pronoun *le* 'it' is bound to, following Creissels (2006b).)

[53]For example, Song (2013b) defines "periphrastic causative constructions" as being multiclausal only: "the expression of the causer's action [...] and the expression of the causee's action or change of condition or state [...] must be in different clauses". Dixon (2000) also calls causative constructions built across two clauses "periphrastic". Conversely, Bonami & Samvelian (2015) oppose periphrases to open syntactic constructions, the former being a subcategory of CP.

Discussing Lahu (Tibeto-Burman) causatives, Dixon (2000: 59) provides another feature of monoclausality: the causative verb cannot be used twice in the same clause. Thus, double causatives such as "God made the devil spirit make the boy kick the dog" (his example) is possible in English, but not in Lahu (nor in French). Rather, "one must embed [the causative complex predicate] within a higher causative-purpose clause" (Matisoff 1973: 436, cited in Dixon 2000).

Serial verb constructions are another kind of periphrastic complex predicates sometimes used as a means of changing valency. (See Aikhenvald & Dixon (2006) and Haspelmath (2016) for discussions and studies on serial verb constructions.) In (45), both verbs encode the subject of the CP (the causer), which would not be possible if the verb *hɲa* 'eat' were a separate predicate.

(45) Monoclausality shown by same verb inflection in Tariana (Arawak, spoken in Brazil)

nu-inipe-nuku kwaka-mhade nu-a nu-hɲa
1SG-children how-FUT 1SG-make 1SG-eat

How will I get my children to eat (if I can't hunt anything)? (Aikhenvald 2000: 160, commented in Dixon 2000)

As mentioned in §1.2.2, serial verb constructions involving the partly grammaticalized verb "to give" can function like applicative constructions (Creissels 2006b: 79), although they do not match the typical definition of the applicative.

Creissels (2006b: 79) provides examples from several languages, such as Kwa in (46). He notes that the meaning of this sentence is evidence that the verb "to give" here forms a CP with the verb "to prepare", since it cannot be interpreted as a sequence of two events.

(46) Monoclausality shown by the semantic interpretation in Baoulé (Kwa, spoken in Ivory Coast)

ákísí à-tɔ̀n duô à-màn kòfí
Akissi PFV-prepare yam PFV-GIVE Kofi

Akissi prepared yam for Kofi.
*Akissi prepared yam and gave it to Kofi. (Creissels 2006b: 79)

1.4.5 Open syntax: multiclausal constructions

Some valency-change operations involve syntactic constructions with two verbal heads in separate clauses, each one governing its own arguments, like the English examples in (47).

(47) *I made him go.*
I forced him to go.
I allowed her to go.
(Dixon 2000: 36)

Valency-changing operations are generally understood as alternations in the number of arguments in one clause. This means that periphrastic constructions involving several clauses should not be considered true valency-changing operations. However, because the causative construction is primarily defined in functional and/or semantic terms, and involves a change in the semantic role associated with the syntactic subject, it usually involves a greater range of formal realization. In French, for example, the complex sentences in (48) convey a causative meaning.

(48) *J'ai fait en sorte que Thibaut finisse sa soupe.*
approximately: I did what was necessary for Thibaut to finish his soup.
J'ai laissé les enfants manger de la glace.
I let the children eat ice cream.

Complex sentences that semantically and functionally correspond to valency-reducing operations also exist. Creissels (2006b) shows how Basque uses constructions similar to adjectival predication constructions in order to yield passive and antipassive meanings. Example (49), taken from Creissels (2006b: 93), illustrates the periphrastic passive construction.

(49) Basque passive construction

a. *Jon-ek idatzi du eskutitiz hau*
Jon-ERG write.PFV AUX.PRS.A3SG.P3SG letter DEM
It's Jon who has written this letter.

b. *Eskutitz hau {Jon-ek idatzi-a} da*
letter DEM Jon-ERG write.PFV-SG be.PRS.A3SG
This letter has been written by Jon.
(literally: This letter$_i$ is {Jon having written $\emptyset_i$})

Note that the addition of a peripheral argument to a clause, mentioned in §1.4.1, is another example of valency modification in open syntax.

1.5 Syncretism and blurred boundaries around valency-changing operations

The categories described in §1.2 through §1.4 are not clear-cut. There are cases of syncretism, there are continuums, and there are phenomena of grammaticalization and semantic change at work that blur the boundaries between them.

Syncretism. Syncretism is often observed inside valency-increasing or valency-reducing operations. The causative-applicative syncretism is well described. There are languages with one general transitivizing marker, which will take causative or applicative value depending on the meaning of the verb. Creissels (2006b: 80) provides one such example from Boumaa Fidjian (Austronesian). Sometimes, the syncretism is reduced to a few semantic functions of

the applicative constructions. For instance, Shibatani (2002: 116) shows that Yidini (Australian) has one morpheme with several transitivizing values, among which are causative, instrumental applicative and comitative applicative. Peterson (2007: 135-6) explains the existence of the causative/instrumental/comitative syncretism as follows: "as long as a language allows causees to be inanimate, then the possibility of interpreting an inanimate causee as an instrument is available". There is a minor causative/instrumental applicative syncretism in Umóⁿhoⁿ, which is described in §6.2.6 (see also §5.6)[54].

Syncretism is also observed between several valency-reducing operations, especially between the types of valency reduction gathered under the label "middle" that were briefly described in §1.3.3. (See in particular (33) on French.) Although they are less expected (and much less frequent), syncretisms between valency-increasing and valency-reducing prefixes also exist. Dixon (2000: 31) cites two languages where one affix can have a causative or a passive value: Korean and Sonrai (or Songhai, Nilo-Saharian). In both languages, there are at least some verbs for which both interpretations are possible. (In Sonrai, the suffix in question can even occur twice, once for each value.)

Continuums. Cross-linguistic studies of valency-changing operations also reveals a diversity of constructions with blurry boundaries. Croft (2001: 283) states that "constructions as cross-linguistically valid configurations of morphosyntactic properties do not exist", because "there is an extraordinary range of structural diversity of constructions encoding similar functions across languages". He illustrates his point by providing a continuum of constructions spanning between the typical passive construction and the typical inverse construction. Any dividing line between what should be considered "passive" and what should be considered "inverse" can only be arbitrary. Similar examples can be found at the boundaries of antipassive constructions, like the "sort of antipassive" (Lazard 1994: 213) construction presented in (6) (§1.1.3). This is particularly interesting because these non prototypical examples are situated midway between valency-reducing and valency-preserving constructions.

Valency-changing vs. valency-preserving derivations. We also have cases of morphemes that act as valency-changing markers in some contexts but not in others. For instance, Mithun (2000) presents the suffix *-ma~uma* in Yup'ik as having a "passive-like meaning", as illustrated in (50a). She shows that it has a detransitivizing effect only when it attaches to transitive bases, with a passive/resultative interpretation. When it attaches to an intransitive base, it does not act as a valency-reducing marker, but it still conveys a resultative interpretation, as in (50b). See Mithun (2000: 89-93) for more discussion and examples.

(50) Yup'ik resultative (Mithun 2000: 91, my glossing)

[54]The Umóⁿhoⁿ causative/instrumental syncretism concerns the instrumental applicative marker which can be interpreted, in a few contexts, as a causative marker. This is different from Peterson's description where a causative marker evolves into an instrumental applicative marker.

a. Transitive base verb → valency-reducing derivation

melg-aa	*melg-uma-uq*
close-A3SG.P3SG	close-RES-S3SG
She closed it	It is closed

b. Intransitive base verb → valency-preserving derivation

tuqu-uq	*tuq-uma-uq*
die-S3SG	die-RES-S3SG
It died	It is dead

Concerning the valency-increasing markers, we find examples of causative markers being used in some contexts to increase the agentivity of a verb subject instead of introducing a causer. In Bambara (Mande), the verb *mɛ'n* meaning 'to hear {x}' (transitive) is derived with the causative marker into *lámɛ'n* meaning 'to listen to {x}' (transitive) (Creissels 2016: 81). The resulting verb is nonetheless higher on the transitivity scale. Peterson (2007: 50) provides various examples of semantic (and functional) irregularities of applicative markers, among which is the Pogoro (Bantu, spoken in Tanzania) applicative which sometimes does not add any object, but "involves intensification of one or another sort". For instance, *-komera* 'hit somebody' becomes *-komerera* 'hit strongly' (Marten 2003).

Grammaticalization and semantic demotivation. Morphemes encoding valency--changes, whether with grammatical or lexical content, are likely to undergo processes of grammaticalization, semantic shifts and demotivation (see §4.9). Peterson (2007: 50) notes, regarding semantic irregularities like those of Pogoro above, that "[they] have not been given much attention, but they appear to be fairly common". This also makes the description of valency changing markers more difficult. A case study of the cline of semantic demotivations and lexicalizations of valency-changing markers in Umóⁿhoⁿ is presented in §4.9. See also Chapter 8 for comments about the grammaticalization and semantic (non-)compositionality of incorporated nouns and preverbs.

Chapter 2

Grammatical sketch of Umo^{n}ho^{n}

Before proceeding to the description of valency-changing operations, it is necessary to sketch the main grammatical features of Umó^{n}ho^{n}, especially considering that to date there is no published grammar of the language. This chapter aims to provide indispensable information on Umó^{n}ho^{n} grammar and the available literature. It includes some elementary grammatical analyses on which the descriptions of valency-changing constructions are based (especially the section on syntax).

In **§2.1**, I present the available documentation on the Umó^{n}ho^{n} language, which consists of primary texts/recordings as well as linguistic descriptions, and specify how I use this documentation in my work. I then present basic information about Umó^{n}ho^{n} phonemes in §**2.4**, morphology in **§2.3** (very briefly, since verbal morphology is the subject of Chapter 3), and parts of speech in **§2.4**.

Umó^{n}ho^{n} syntax is introduced in **§2.5**, with descriptions of some syntactic features that are essential for Chapters 4 through 8: word order, grammatical roles encoded by the verb, morphological alignment, core arguments vs. peripheral arguments vs. adjuncts, relative clauses and clausal complements, verb sequences, and the expression of possession. All these subjects are relevant for the subsequent descriptions and analyses.

Finally, **§2.6** describes some discourse and pragmatic features. The obviation system is presented in §2.6.1 and gendered speech in §2.6.2. Section **§2.7** concludes the chapter with a presentation of the attested differences between various sources, and especially between Dorsey's texts ("19th century Umó^{n}ho^{n}") and contemporary materials ("Contemporary Umó^{n}ho^{n}").

2.1 The Umó^{n}ho^{n} language: available documentation

Gordon (2019) provides a thorough and critical review of documentation extracted from the Umó^{n}ho^{n} and Pa^{n}ka communities from their earliest contacts with settlers, and documentation

created by community-based projects or in collaboration with the communities[1]. Here, I focus on the language documentation, especially the documentation available to me, and how it is used in this dissertation.

2.1.1 Available documentation

The linguistic documentation of Umó^{n}ho^{n} in use today begins with the prodigious work of James Owen Dorsey at the end of the 19th century. Dorsey published several books about Umó^{n}ho^{n} language and culture, including two collections of texts that are the main primary sources for my work (Dorsey 1890, 1891a). Around 20 years after his publications, the anthropologists Alice Fletcher and Francis La Flesche published a monograph about the Umó^{n}ho^{n} Tribe (Fletcher & La Flesche 1911), comprising important cultural information and lexical information (kinship terms, animals, names for places and tribes...). According to Hamilton et al. (2019), their work was one of the "first documented cross-cultural collaborations between Natives and non-Natives", as Francis La Flesche was an Umó^{n}ho^{n} enrolled member and a speaker of the language. (He collaborated with Dorsey too, and provided him with many stories; see the Index of speakers p. 651.)

After this there is a broad gap of several decades[2]. In the 1970s, a language teaching program was started in Lincoln, Nebraska, and in 1977 Mark Swetland published a lexicon in collaboration with the Elder Elizabeth Stabler, the *Umó^{n}ho^{n} Iye of Elizabeth Stabler: A Vocabulary of the Omaha Language* (Stabler & Swetland 1977) (reissued in 1991 with an English to Umó^{n}ho^{n} version). After that, the language was documented by Dr. Catherine Rudin in collaboration with several speakers. Her work consists of recordings and unpublished transcriptions (Rudin et al. 1989-92), and various papers (see below). Around the same time, several linguists began describing Umó^{n}ho^{n}, including John Koontz, who produced many unpublished documents (among others: Koontz 1984, 1989b, 1991, 2001a,b). Eschenberg (2005) and Gordon (2019) wrote PhD dissertations on the Umó^{n}ho^{n} language and sociolinguistics. Larson has also worked on Umó^{n}ho^{n} for several decades (Larson 2005, 2009) and is co-author of a dictionary project with two elders (Sanchez, Larson & Walker in progress). Language and culture programs were also started (or expanded) in the community from the 1970s onward, gathering a significant amount of documentation.

Below, I give more details about different sources briefly presented so far: Dorsey's work, Rudin's documentation work, and modern teaching materials. See also the Foreword (p. 25) for more detail on the existing documentations and various questions regarding documenta-

[1]Tate (1991) has also published a bibliography (meant to be exhaustive) of everything which has been written on the Umó^{n}ho^{n} tribe.

[2]During this period, an unpublished grammar of Pa^{n}ka was written, presumably in the 1930s (Hahn c. 1930s). Some attribute it to Hahn, a student of Edward Sapir (e.g. Gordon 2019). However, it is of limited utility nowadays, as it is much smaller than Dorsey's description, has a counter-intuitive structure (e.g. having "nominal ideas" and "verbal ideas" as subsections of Part I, Phonology), and gives no indication at all about the references and primary sources used.

tion work and academic work.

Dorsey. The Reverend James Owen Dorsey was a missionary among the Pa^{n}kas from 1871 to 1873, and he stayed among the Umó^{n}ho^{n}s as a linguist from 1878 to 1880 (Dorsey 1890: xv). He published many works about the languages and cultures of different Siouan Tribes in the 1880s and 1890s (among others: Dorsey 1885, 1891b, 1892). In 1890 he provided an exhaustive list of his publications (Dorsey 1890: xvii). Most of his work focuses on the Umó^{n}ho^{n} and Pa^{n}ka Tribes, which he calls "Dhegiha"[3]. He published two collections of texts, *The Ɛegiha language* (1890, 800 pp.) and *Omaha and Ponka Letters* (1891a, 120 pp.), as a complement to the first. They comprise legends, personal stories and letters collected by the author during his stay among the Umó^{n}ho^{n}s and Pa^{n}kas, and later in Washington, where several speakers helped him revise his texts. The structure of each text is the same: the original Umó^{n}ho^{n} transcription is presented with an interlinear gloss and is followed by a free translation into English. Sometimes, notes about the text (context, author's uncertainties, explanation of certain points) are included between the Umó^{n}ho^{n} version and the free translation. Dorsey collected his texts by writing down stories and letters directly dictated in Umó^{n}ho^{n} or Pa^{n}ka by native speakers. He presents the main speakers with whom he worked in the introduction to *The Ɛegiha language*.

Dorsey also worked on a grammar and a dictionary that were meant to be published together, but he never completed them. The grammar comprises almost 500 manuscript pages (Dorsey n.d.a). The dictionary totals more than 16,000 entries on slip files which are available as scans. The original slip files are archived at the National Anthropological Archives of the Smithsonian Institution, Washington D.C. Non-linguistic works related to the Umó^{n}ho^{n} and Pa^{n}kas include Dorsey (1884) and Dorsey (1896), among others.

The textual corpus, dictionary and grammatical description by Dorsey are of immense value, given their size and precision. Because of its size and the complexity of the stories reported in it, the corpus makes it possible to study complex syntactic structures and operations, including valency-changing operations. Rankin (2008) converted Dorsey's original texts into a readable pdf file using modern spelling, which enabled me to do extensive text research.

Despite the extraordinary extent and value of Dorsey's work, he has been reproached for harboring several biases. Gordon (p.c.) suspects that Dorsey had a tendency to standardize his documentation towards the forms he considered correct[4]. She also notes that Dorsey mainly collaborated with a reduced and politically biased sample of families, on whose lan-

[3] "Ɛegiha", which is currently spelled "Dhegiha" by community members (but strictly corresponds to *Thegiha* in the spelling used here, cf. section 2.2) means "Belonging to the people of this land" (Dorsey 1890: xv). Dorsey used it in reference to the language of the Umó^{n}ho^{n} and Pa^{n}ka Tribes. Nowadays, it is used to designate a subgroup of five Tribes and their languages: Umó^{n}ho^{n}, Pa^{n}ka, Osage, Kaw and Quapaw. See the family tree on p. 512.

[4] Nevertheless, Dorsey regularly records in his documents words or syntactic constructions that he does not fully understand (he adds "(?)" in the gloss), or reports variations between speakers about how to convey an idea or whether or not a particular word exists (see the appendices of Dorsey 1890).

guage and culture his analysis was based, and that his documentation therefore probably fails to capture variations depending on family affiliation or social position. At that time the Umó^{n}ho^{n} Tribe suffered from multiple conflicts and divisions resulting from colonization, and Dorsey had more access to people who were politically aligned with him and other white "progressives". (See Swetland (1994) for more details about this political division (also Fletcher & La Flesche 1911: 631-4).) In addition to this, with the exception of Mary La Flesche (Mrs. La Flesche) and Suzanne La Flesche, Dorsey only recorded male speakers. Dorsey has also been reproached for introducing spelling differences between homonymous words, like *pá* 'head' and *pá* 'to be bitter', the latter being often written <p^{h}a> by Dorsey (Rankin 1974). More generally, Rankin (1974: 7) reports that Dorsey regularly miswrote phonemes as aspirated stops when they were not so.

Koontz. John Koontz was a Siouanist who worked extensively on Umó^{n}ho^{n} and Pa^{n}ka, often from a historical and comparative perspective. To the best of my knowledge, he has no published works, but produced a great number of unpublished works, including a manuscript grammar of almost 300 pages (Koontz 1984), and three manuscript chapters of his dissertation project (Koontz 1991, 2001a,b). He often focuses on phonetics, phonology, and morphology, and uses a phonetic spelling shared with other Siouanists (e.g. Rankin 2004). He did fieldwork in the 1980s, but does not seem to have recorded speakers, and most of his work is based on Dorsey (Catherine Rudin, p.c.). His description of verbal morphology was the starting point of my knowledge of this language, and my master's thesis (Marsault 2016) builds on it.

Rudin. Catherine Rudin is a linguist from Wayne State College (NE), living near the Umó^{n}ho^{n} reservation. In the late 1980s and early 1990s she obtained grants to document Umó^{n}ho^{n}. She collected around 20 hours (19 tapes) of recordings consisting of elicitation, stories in Umó^{n}ho^{n} and discussions in Umó^{n}ho^{n} and English (Rudin et al. 1989-92). She mainly worked with three speakers: Mary Clay, Clifford Wolfe and Bertha Wolfe[5]. Most of the recordings were transcribed and translated with the help of these speakers. Both the recordings and the transcriptions are available to me, and part of my fieldwork consisted of continuing to transcribe them. Rudin wrote many papers based on her materials (among others: Rudin 1991a, 1993, 1998), mainly about syntax.

Teaching materials produced by community programs. Many Elders have been teaching the language at the Umó^{n}ho^{n} Nation Public School (then Macy Public School) since at least the 1970s (Gordon 2019: 21). Currently, the school's language and culture classes are developed by the Title VI Umó^{n}ho^{n} Language and Culture Center (ULCC), coordinated by Vida Woodhull Stabler since the late 1990s. Gordon also writes that the Elder Alice Saunsoci (Mo^{n}shiho^{n}thi) established the Umó^{n}ho^{n} Language Center of Excellence at Nebraska Indian Community College (NICC) (Gordon 2019: 24), and that the Elders Alberta Grant Canby,

[5]In Tapes 10 and 11, Coolidge Stabler is recorded as well. In Tape 19, many elders of the Senior Center were recorded a few minutes each: Betsy Hastings, Maggie Webster, Rose Harlan, Coolidge Stabler again, Lucille Thomas, Victoria Robinson, Edith Springer.

Emmaline Walker Sánchez and Arlene Walker, and linguist Mark Awakuni-Swetland developed the Umó^{n}ho^{n} Language Curriculum Development Project (ULCDP) at the University of Nebraska-Lincoln (ULN) (p. 22). Many teaching and documentation materials have been created by these different community programs, sometimes in collaboration with linguists. Among others we can cite the lexicons created by Elizabeth Stabler and Mark Swetland (Stabler & Swetland 1977, 1991); a textbook developed by the Elder Thurman Cook with several colleagues (Cook et al. 1997); a book of recipes developed by the students and teachers of the ULCDP class, also available online (ULCDP 2002); a smartphone app *Omaha Basics* (Freemont et al. 2013); a book of conjugated forms of verbs by Alice Saunsoci and Ardis Eschenberg in NICC (2016); and a textbook, CD and flashcards of Level 1 of *Umó^{n}ho^{n} Íye-wathe! Let's speak Umó^{n}ho^{n}*, in collaboration with the Language Conservancy (Cayou et al. 2018a,b,c). Finally, a textbook was published in 2018, the result of a collaboration between ULCC and ULCDP. The first part of the textbook provides many teaching resources developed by and used in ULCC classes in Macy. The second part provides the teaching resources developed by the ULCDP (the last chapters have only recently been completed and have not yet been used in class) (ULCC & OLIT 2018). Gordon (2019: 20-22, 24) provides a more complete and contextualized list of community-based and collaborative publications. Currently, there are many cultural and linguistic resources at the language and culture centers in Macy: the Umó^{n}ho^{n} Íye Tí (Umó^{n}ho^{n} language department) on the Macy campus of NICC, and the ULCC which is situated in the Umó^{n}ho^{n} Nation Public School. These resources are not meant to be used for academic research.

2.1.2 Typology of the documentation

The Umó^{n}ho^{n} documentation that I have used can be divided according to several criteria:

- "19th-century Umó^{n}ho^{n}" vs. "contemporary Umó^{n}ho^{n}"
- "textual data" vs. "lexicographic data"
- written data vs. oral data

"19th-century Umó^{n}ho^{n}" is the variety recorded by Dorsey, while "contemporary Umó^{n}ho^{n}" refers to documentation from the 1970s on. This distinction is necessary given a number of systematic differences observed between them (see §2.7). Given that most of my research relies on Dorsey's data, 19th-century Umó^{n}ho^{n} is more highly represented. In some cases, 19th-century and contemporary documentation seem contradictory, and it is difficult to say whether this is evidence of language change, or if the contemporary documentation describes aspects of Umó^{n}ho^{n} that were already in use in Dorsey's time, but that he failed to record (see comments on Dorsey's documentation in §2.1.1). In such cases I report the variation, but base my analyses primarily on Dorsey's documentation[6].

[6]For example, see the analysis of instrumental prefixes in Chapter 5. I demonstrate that there is a strong correlation between the semantics of the prefix and the valency of the instrumental verb derived with it. A few verbs with the prefix *ná-* contradict my analysis, but all of them are only attested in OLIT-UNL (2018).

Another distinction which can be made is between what I call "textual data" and "lexicographic data". Here, "textual data" is defined very broadly as any data which constitutes at least a sentence. This includes narratives, letters and discussions (Dorsey 1890, 1891a, Rudin et al. 1989-92, ULCDP 2002), but also isolated sentences from elicitation sessions (Rudin et al. 1989-92), or example sentences from books (Saunsoci & Eschenberg 2016) and dictionaries (Dorsey n.d.b) and sentences from teaching exercises (OLIT-UNL 2018). By contrast, "lexicographic data" only includes dictionary headwords, their definitions, and sometimes morphological information like conjugated forms. Lexicographic data is found in Dorsey (n.d.b), Stabler & Swetland (1977, 1991), Saunsoci & Eschenberg (2016) and OLIT-UNL (2018) (all of which, except Stabler & Swetland (1977, 1991), also provide textual data in the form of isolated sentences). Each kind is useful in its own way. Dictionaries and lexicons provide a substantial amount of vocabulary which does not necessarily appear in textual data. Additionally, they can clarify the meaning of words attested in texts, especially words that are poorly attested. On the other hand, dictionary entries for verbs often give insufficient information about their valency. Narratives, letters, and dialogs give us much more information about context of use, pragmatics, and verb valency.

Textual data and lexicographic data are useful in complementary ways. This is illustrated in (51); the verb *gatúbe* is attested in four different sources, which together give a good view of all its meanings. The variety of definitions found in different sources corresponds to the polysemy observed for the prefix *ga-*.

(51) Attestations of *gatúbe* in different sources

a. In Dorsey's *The Dhegiha language* (Dorsey 1890: 331.4 / Joseph La Flesche)[7]

í^{n}'e tho^{n} ugáshneshnégo^{n}
stone the as it was cracked in many places by the fall
gatúbextió^{n}-biamá.
it was ground very fine by the fall, they say

As the rock was cracked in many places by the fall, it was ground very fine.

b. In Dorsey's dictionary
gatúbe v. to beat fine, to mash up by striking or cutting; to pound with a round instrument, as Indian women do with dried meat (*ta*). *thátube* ['you' conjugated form]. This differs from *batube*

c. In *Umó^{n}ho^{n} Iye of Elizabeth Stabler: A Vocabulary of the Omaha Language* (Stabler & Swetland 1977, 1991)

These verbs are included in my database, and the variation is mentioned in §5.3.4. However, I did not modify my analysis (which is highly consistent with the data found in Dorsey) in order to account for them.

[7]This example reproduces exactly how Dorsey wrote, glossed and translated the sentence. I only adjusted the spelling.

gátube – to crush

d. In Sanchez, Larson & Walker (in progress)
gatúbe: ground up, like a car in an accident; crush completely; a wrecked car

All the Umó^{n}ho^{n} data available to me is in a written format, with the exception of Catherine Rudin's field tapes (Rudin et al. 1989-92), and the recordings that I made with Háwatay (Winona Caramony) in 2017 and Octa Keen in 2019, which are not used for research purposes (see the Foreword and App. D).

2.1.3 Corpora and databases used in this dissertation

Almost all the materials described above are used to some extent in this dissertation. I mainly take Dorsey's corpora and dictionary as primary sources, as can be observed by browsing the examples presented, or by consulting the index of speakers (p. 651). This is because Dorsey's work is by far the largest body of documentation available to me (and in particular the largest body of textual data). Moreover, some valency-changing operations are rare, and only can be found in his texts. This is the case for the applicative prefix *í-* introducing a reason (see Chapter 6), for instance. However, contemporary sources are also extensively used, and some of them provide documentation that is lacking in Dorsey, for example conversational style and recorded spontaneous speech.

Three kinds of databases are used in this research, and are regularly referred to throughout the dissertation.

Extended searchable corpus. All the sources available to me in .doc or .pdf files have been copied into separate .txt files, corrected and standardized as much as possible. These comprise Rankin (2008) (i.e., the modernized and searchable version of Dorsey's corpora), transcriptions of Rudin et al. (1989-92), Stabler & Swetland (1991)[8], ULCDP (2002), Saunsoci & Eschenberg (2016), OLIT-UNL (2018), and Sanchez, Larson & Walker (in progress). The text files are searched using the software Notepad++ and Geany[9], which propose many research options in one corpus or all corpora together. Only Dorsey's dictionary (n.d.b) is missing and must be searched manually.

Some of Dorsey's texts and Rudin et al.'s (1989-92) stories and discussions have been thoroughly studied and gathered in Umó^{n}ho^{n}-only versions in order to reduce the bias introduced by the glosses and translations, and to concentrate on the context, the referent-tracking sys-

[8]The searchable version is available on ULCC website: https://sites.google.com/a/unpsk-12.org/ushkon/resources (consulted on October 30, 2019).

[9]Notepad++ and Geany are free softwares downloadable at https://notepad-plus-plus.org/ and https://www.geany.org/, respectively. Accessed on January 22, 2020.

tem, etc. Fourteen of these texts have been systematically surveyed for the analysis of *wa-*'s functions in Chapter 7, and two are integrally reproduced and glossed in App. C.

Lexicographic database. I use the software Toolbox SIL[10] as a lexicographic database for gathering information on as many lexical items as possible. It takes the form of a dictionary. As of March 24, 2021, 2770 words had been gathered, including at least 1743 verbs. Dictionary entries include information about the part of speech, definition/translation, and morphological decomposition of each word. Examples from textual data are often included, and the conjugated forms of the verbs are filled in. All the sources mentioned so far are used and referred to.

The lexicographic database is useful for showing in how many words a given morpheme occurs, or how many member a verb class contains. As an example, the limited number of labile verbs can be appreciated by surveying the verbs recorded in the database, and the classes assigned to them (see §4.1). In Chapter 7, a survey of the functions of *wa-* in the lexicographic database is presented, showing how many different words are attested with each of the derivational functions of *wa-*.

Spreadsheet databases for particular valency-changing operations. Almost every kind of valency-changing operation investigated here involved the creation of dedicated spreadsheet databases. The analyses of the instrumental prefixes (§5.2 and §5.3), the prefix *wa-* (Chapter 7), and nominal incorporation (Chapter 8) were grounded on spreadsheet databases gathering as many examples as possible. The databases are reproduced in App. E[11].

2.2 Phonology

Table 2.1 shows the phonemic inventory of Umó^{n}ho^{n} (adapted from Rudin & Shea 2005 and Eschenberg 2005). The phonemes are represented with the spelling system used in this dissertation, which is a revised version of Fletcher & La Flesche's (1911) spelling system. This is the spelling currently used in the Umó^{n}ho^{n} Language and Cultural Center's publications[12] (ULCC 2015, ULCC & OLIT 2018), in other community-driven projects (Saunsoci & Eschenberg 2016), and in contemporary linguistic works (among others, Eschenberg 2005, Rudin & Shea 2005, Gordon 2007, 2008). Each phoneme in Table 2.1 is associated with the corresponding IPA characters in square brackets.

[10]Toolbox SIL is a free software developped by SIL (https://sil.org/). See information and download at https://software.sil.org/toolbox/.

[11]In App. E.1, I also provide spreadsheet databases of causative bound stems (§5.1) and oblique prefixes (Chapter 6), but these are only meant to illustrate the diversity of these markers.

[12]Umó^{n}ho^{n} Language and Cultural Center (ULCC - https://sites.google.com/a/unpsk-12.org/ushkon/), in the Umó^{n}ho^{n} Nation Public School (UNPS).

Table 2.1: Phonemic inventory of Umó^{n}ho^{n}
(from Rudin & Shea 2005 and Eschenberg 2005)

	labial	**dental**	**alveo-pal.**	**velar**	**glottal**
Stops					
voiced	*b* [b]	*d* [d]		*g* [g]	
voiceless	*p* [p]	*t* [t]		*k* [k]	*’* [ʔ]
aspirated	*p^{h}* [p^{h}]	*t^{h}* [t^{h}]		*k^{h}* [k^{h}]	
ejective	*p’* [p’]	*t’* [t’]			
Affricates					
voiced			*j* [ʤ]		
voiceless			*ch* [ʧ]		
aspirated			*ch^{h}* [ʧ^{h}]		
Fricatives					
voiced		*z* [z]	*zh* [ʒ]	*x* [ɣ](?)	
voiceless		*s* [s]	*sh* [ʃ]	*x* [x](?)	*h* [h]
glottalized		*s’* [s’]	*sh’* [ʃ’]		
Nasals	*m* [m]	*n* [n]			
Approximants	*w* [w]	*th* [ð]	(*y* [j])		
Vowels					
oral		*i*, *e*, *a*, (*o*) *u*			
nasal		*i^{n}* [ĩ], *o^{n}* [õ], (*a^{n}* [ã]), (*u^{n}* [ũ])			
long		(each vowel can be long or short)			

To the best of my knowledge, there has been no comprehensive study of the phonetics and phonology of Umó^{n}ho^{n} (or Pa^{n}ka), and hence there are some uncertainties in the table. Characters indicated in parentheses correspond to sounds that have no phonemic status or whose phonemic status is subject to debate. There are also some phonemes that are very scarcely attested. Moreover, the exact phonetic realization of some phonemes may be different from what is usually described. All of these scenarios will be discussed in the following subsections.

2.2.1 Consonants

Umó^{n}ho^{n} has a rich consonant inventory, in particular due to its four-way distinction of occlusives (voiced, voiceless, aspirated, ejective), although the ejectives are not attested in all places of articulation, and are infrequent. The distinction between voiced, voiceless, and ejective is also found for fricatives. The “voiced” vs. “voiceless” opposition has sometimes been described as a “lax” vs. “tense” one (Koontz 1984: 14). It is possible that this opposition corresponds (or is similar) to the Korean opposition between lax and reinforced consonants

(see Martin 1993: 24). See Rankin (1974) for a discussion on this opposition in Dhegiha.

The velar fricatives labelled "voiced" and "voiceless" are not distinguished in the current spelling system. Other spelling systems record this distinction (e.g., Dorsey 1890, Koontz 1984, OLIT-UNL 2018). Saunsoci & Eschenberg (2016: 32) do not systematically distinguish it, though they sometimes indicate the "voiced" version with a dot beneath the *x*. As far as I know, there are no minimal pairs that highlight this opposition[13]. The real phonetic realization of these phonemes may be different from IPA [x] and [ɣ]. Similarly, the phonetic value of *th* does not correspond to English /ð/, having more the character of an approximant. As we will see in §3.5, it often appears as an epenthesis, and it may be unheard by people who are not used to listening to Umó^{n}ho^{n}. Larson (2009) describes it as follows: "[It] is a flap made by curling up the tip of the tongue to touch the alveolar ridge, and then running it down the back of the upper front teeth. (...) [It] is a dynamic sound that cannot be prolonged. It starts as an /l/, and shifts to being an edh only momentarily as the tongue slides off the back of the upper incisors."

The approximant *y* (IPA [j]) is included in Table 2.1, following Eschenberg (2005), because it is a sound that is commonly heard in Umó^{n}ho^{n} and is written by some speakers or community members. However, it has no phonemic status.

Some of the phonemes in the table are very poorly attested, in particular the ejective phonemes and the affricate *j*. Sanchez, Larson & Walker's dictionary project (in progress) gives us a good idea of their scarcity. Out of 3,500 word entries, there are only six words containing *p'*. There are 46 words containing *t'*, but more than half are derivations and compounds from the root *t'é* 'to die'. There are 11 words containing *s'*, and only three containing *sh'*. The ejectives *k'* and *x'* are sometimes included in charts of the Umó^{n}ho^{n} phonemic system, but there are no words containing either of these phonemes in Sanchez, Larson & Walker's dictionary project (in progress), nor in the corpora available to me. For this reason, they are not reproduced in Table 2.1. Finally, there are only two words beginning with the affricate *j*, where *j* corresponds to a *d*, with a diminutive value[14].

The glottal stop [ʔ] seems to be optional in most cases in contemporary Umó^{n}ho^{n} (Gordon, p.c.). Conversely, Dorsey does not mention nor records any variation on its (non-)realization, hence in his documentation the glottal stop seems obligatory.

[13] In his appendix, Dorsey (1890) mentions one minimal pair of verbs conjugated with the negative marker: *thixába = zhi-xti* 'without flaying at all' and *thixá = bazhi-xti* 'without chasing at all'. The corresponding verbs are *thixábe* 'to flay {x}' (with [ɣ]) and *thixé* 'to chase {x}' (with [x]), respectively.

[14] It was not possible to look in Sanchez, Larson & Walker (in progress) for all Umó^{n}ho^{n} words that contain the [ʤ] phoneme, as <j> is a common letter in English and there is currently no way to search the Umó^{n}ho^{n} entries independently from the English translations.

2.2.2 Vowels

Umó^{n}ho^{n} vowels and their phonemic status are subject to debate among speakers and community members, which is reflected in spelling variations. We can distinguish at most five oral vowels: *i*, *e*, *a*, *o* and *u*, and four nasal vowels: *i*^{n}, *a*^{n}, *o*^{n} and *u*^{n}, but it is not certain that all of these have phonemic status.

All vowels presented in Table 2.1 are used in some sources at least. Here, I follow the analysis by Koontz (1991) and Rudin & Shea (2005), by distinguishing four oral vowels (*i, e, a, u*) and two nasal vowels (*i*^{n} and *o*^{n}). The oral vowel *o* is used instead of *u* for some words in some materials. For example, the Omaha Language Instruction Team in UNL (ULCDP 2002) used *o* for bread, while ULCC (2018) spells it with either *u* or *o*^{n}, as seen in (52). The vowel *o* is also used for words like the male expression *ahó* (for salutation and marking agreement), and in the male vocative of kinship terms (see Table 2.9, p. 149).

(52) *wamóske* 'bread' (ULCDP 2002)
wamúske 'bread' (ULCC 2018)
wamó^{n}ske 'bread' (ULCC 2018)

Turning to nasal vowels, some argue that *o*^{n} and *a*^{n} should be distinguished, but in practice almost every word with a back nasal vowel is spelled with *o*^{n}. *O*^{n} and *a*^{n} definitely correspond to different sounds in Umó^{n}ho^{n}, but it is not clear whether they are distinct phonemes. To the best of my knowledge, there is no minimal pair illustrating an opposition between these vowels. In this dissertation, the vowel *a*^{n} is used only for the name of the Pa^{n}ka Tribe[15]. It should also be noted that there are regular variations between *a* in Dorsey's documents and *o*^{n} in contemporary documentation. The distinction between oral *a* and nasal *o*^{n} is not always easy to hear.

The vowel *u*^{n} is used in one word of Sanchez, Larson & Walker's dictionary project (in progress) (*tíu^{n}pe* 'sweat lodge') and in at least one word in Dorsey's dictionary (n.d.b) (*iúhú^{n}* 'Ah! (An exclamation used by a warrior telling what he will dare to do.)').

Finally, vowel length is recognized by linguists as being phonemic in Umó^{n}ho^{n}, but it has not been consistently documented, and is not reported in the current spelling. Some minimal pairs exist, as can be seen in the following example:

(53) Vowel length (Eschenberg 2005: 7)
nó^{n}o^{n}de 'wall'
nó^{n}de 'heart'

As Eschenberg (2005: 7) points out, vowel length also results from morphological operations, like person marking on the verb (see §3.4 and App. B). OLIT-UNL (2018) attempts to distinguish vowel length in its spelling system.

[15] According to Rudin (p.c.), the southern Pa^{n}ka Tribe of Oklahoma has adopted a spelling where all back nasal vowels are written *a*^{n}.

2.2.3 Accent and prosody

According to Koontz (1988), accent in Umó^{n}ho^{n} is based on pitch, and every word has "a high-low pitch contour, that is, a section in which the vowel or vowels are pronounced with a relatively high pitch, followed by a section in which there is a relatively low pitch." The "accent" corresponds to the point of highest pitch in a word.

Accent is generally determined lexically, with several minimal pairs distinguished by accentuation, as in (54). However, some lexical units are attested with accents on either the first or the second syllable, like *zhi^{n}ga* 'to be small'. This verb is variably attested as *zhi^{n}gá* or *zhí^{n}ga*, and so far it is not clear if this corresponds to a free variation or if the accent position is constrained by any phonetic, grammatical or pragmatic features.

(54) *Máxude* 'Baxoje' vs. *maxúde* 'ash, powder'
Wáxe 'White person' vs. *waxé* 'cache'

All words are accented on one of the two first syllables[16], a feature that Koontz (1988: 3) calls the "First Two Syllables Constraint". (Lakhota and Jiwere share the same constraint.) This means that when derivational or inflectional prefixes are added to a root, the accent sometimes shifts leftwards to remain in the two first syllables, as in (55). See §3.5.1 for more detail.

(55) *sítha* — remember — he remembered him
o^{n}-thá-sithe — P1SG-A2-remember — you remember me

Accentuation is important for the grammar, as it is sometimes the only signal distinguishing two grammatical morphemes, or two persons, as in the following example. In (56a), the epenthetic approximant *-th-* appears between the two grammatical prefixes *í-* (instrumental applicative) and *a-* (first person singular agentive), and the accent shifts rightwards. Example (56b) shows the same verb form with a second person agentive. In this case, the verbal form presents the same sequence *itha-*, but the accent remains on the instrumental applicative prefix.

(56) a. *ith-á-k^{h}o^{n}to^{n}* — AP:INS-A1SG-tie — I tied him with it
b. *í-tha-k^{h}o^{n}to^{n}* — AP:INS-A2-tie — You tied him with it
(verbal forms found in Dorsey n.d.b)

Investigating the Umó^{n}ho^{n} pitch contours of several monosyllabic and disyllabic words, Larson (2009) identifies at least four different contours at the syllable level, as illustrated in (57). The syllable contour can be the only signal distinguishing two meanings, which is reminiscent of tone systems, as Larson notes.

[16]Some exceptions are found, like *waií^{n}* 'robe, tunic'. These exceptions are always words that have a single vowel as one of their syllables.

(57) Pitch contours identified in Larson (2009)

shè	*shê*	*tānì*
apple	that	soup

The documentation and teaching materials written by Larson and the Umó^{n}ho^{n} language teaching team in Lincoln (OLIT-UNL 2018; Sanchez, Larson & Walker in progress) distinguish these pitch patterns. In the present dissertation, however, the accent is always signaled by an acute accent on the vowel, regardless of the particular pitch pattern[17].

Larson (2009: 20) indicates that the pitch patterns of vowels tend to be less important in longer words: "each vowel's pitch may become simply a point on the general circumflex pattern that governs the whole word". Words of four syllables or more are regularly written with two accents in Dorsey's texts. The first one is the main accent, and the second one is a secondary accent, although both are written with acute accents. (Dorsey (n.d.b) explicitly refers to "secondary accent" in the entry for *gáhithe* and its uses in compounds.)

Umó^{n}ho^{n} prosody is still under-documented. To the best of my knowledge, this subject has only been addressed in Larson (2009) and Gordon (2016), and very briefly in each case. Larson (2009: 22) notes: "Overall, the sentence is a gradually declining series of peaks, each peak generally representing a word". Gordon investigates deaccenting in audio samples of Umó^{n}ho^{n} and three other Siouan languages, and concludes that all the languages surveyed display deaccented forms, and that all such forms have recoverable referents. (See §8.4.2 for the definition of "recoverable".)

2.3 Morphology

In this section, I first present Umó^{n}ho^{n} morphological typology, following Aikhenvald's (2007) criteria (§2.3.1), then I briefly introduce nominal morphology (§2.3.2) and verbal morphology (§2.3.3). The latter is very complex and will be the object of a thorough description in the next chapter.

2.3.1 Typological aspects

Typologically, Umó^{n}ho^{n} displays both agglutinative and fusional properties, depending on which part of the morphology is being considered.

Following Sapir, Aikhenvald (2007) identifies two parameters for analyzing the morphological typology of languages: (1) the "transparency of word-internal boundaries", which differentiates isolating, agglutinating and fusional languages, and (2) the "internal complexity of

[17]This choice is due in part to the under-documentation of these different pitch patterns in the studied texts, especially in long words. Additionally, I follow the spelling system used by different community teaching materials, such as Saunsoci & Eschenberg (2016), ULCC (2015), and ULCC (2018).

grammatical words"[18], which differentiates analytic, synthetic and polysynthetic languages. Apart from the isolating and analytic properties, which are closely linked[19], one can find languages with agglutinating-synthetic, agglutinating-polysynthetic, fusional-synthetic and fusional-polysynthetic characteristics (Aikhenvald 2007: 8).

Regarding the first parameter, Umó^{n}ho^{n} displays both agglutinative and fusional characteristics. The Siouan languages are generally considered to have a mainly agglutinative morphology (Parks & Rankin 2001). Umó^{n}ho^{n} is accordingly sometimes considered an agglutinating language (Eschenberg 2005), but in fact it also displays fusional characterics in its verbal system, which is more complex than those of many other Siouan languages.

The agglutinative tendency of Umó^{n}ho^{n} is visible, for example, in its nominal morphology (see §2.3.2), and in some parts of its verbal morphology, in particular concerning all the post-verbal markers. Two examples of agglutinative morphology on verbs are provided below:

(58) *t'é -thi -the =hnó^{n} =i te*
die -P2 -CAUS =HAB -PP IRR
They will kill you. (Dorsey, 1890, 422.2 / Kaxé-Tho^{n}ba)

(59) *mu- á- shno^{n} =mázhi =hno^{n} =mó^{n} ha.*
INS:shoot- A1SG- *miss =1SG.NEG =HAB AUX.1 DECL.M
(No matter what I shoot at with it,) I never miss. (Dorsey 1890: 109.1 / Frank La Flesche)

However, the verbal system also possesses fusional characteristics at the level of indexation person markers and their fusion with several derivational prefixes. Simple examples of fusional morphology are provided in the following examples.

(60) *Házhi^{n}ga wé-k^{h}o^{n}tó^{n}=i*
/wa-í-k^{h}o^{n}tó^{n}-i/
rope O3PL-AP:INS-tie-PP
They threw lariats over the horses' heads, and tied their lower jaws. (Dorsey 1890: 442.1 / Páthi^{n}-no^{n}pázhi)

(61) *that^{h}é* *bthát^{h}e* *(sh)nát^{h}e*
eat A1SG.eat A2.eat
S/he ate it I ate it You ate it

[18] Aikhenvald gives the following definition of what she calls a "grammatical word": "A grammatical word consists of a number of grammatical elements which (i) always occur together, rather than scattered through the clause (the criterion of cohesiveness); (ii) occur in fixed order; and (iii) have a conventionalized coherence and meaning (...)" (Aikhenvald 2007: 2). .

[19] Although Aikhenvald claims that "isolating" and "analytic" properties are distinct, mentioning that "English, which has some fusional morphology, makes extensive use of analytic constructions", in her table she does not provide any example of an isolating-synthetic or isolating-polysynthetic language, or of an analytic-agglutinative or analytic-fusional language.

According to the second parameter, Umó^{n}ho^{n} is a polysynthetic language. Among other features, the verb indexes up to two arguments and sometimes incorporates objects. This will be discussed extensively in the next chapter, while incorporation is described in Chapter 8.

2.3.2 Nominal morphology

Nominal morphology is especially reduced in Umó^{n}ho^{n}. There are very few morphemes involved in the inflectional and derivational morphology of nouns. The most productive means of lexical creation are nominal compounding and conversion from verbs (conversion processes are presented in §2.4.8).

Inflectional morphology. Inflectional morphology on nouns is limited to the marking of inalienable possession and vocative on a restricted set of nouns (Rudin & Shea 2005). The nouns in question are kinship terms (which are very numerous) and *k^{h}agé* 'friend'[20]. Example (62) shows the inflectional paradigm for kinship terms, with *-negi* 'uncle'[21], which is used by both males and females. Note that there is no marker for 1PL possession ('our'), and speakers use either the first person singular or the second person possession marker instead. The noun *k^{h}agé* 'friend' is the only kinship term that can be used in direct address without the vocative marker.

(62) Nominal morphology: inalienable possession

**négi*	*wi-négi*	*thi-négi*	*i-négi*	*negí-ho*	*negi-há*
uncle	POSS:1SG-uncle	POSS:2-uncle	POSS:3-uncle	uncle-VOC.M	uncle-VOC.F
uncle	my uncle	your uncle	her/his/their uncle	uncle!	uncle!

(Fletcher & La Flesche 1911:315, ULCC 2018:58, Dorsey 1890:497.9)

Alienable possession is marked on nouns with independent possession markers (in §2.4.6 I treat them as specifiers which combine with articles to form complex determiners), or/and by verbal morphology. See examples in §2.5.7.

Derivational morphology. The derivational morphology for nouns is restricted to three prefixes that can have a deverbal function. There is no derivational prefix for creating nouns out of other nouns. The three deverbal prefixes are also productive derivational prefixes with verbs, and as a result, when they appear on nouns it is not always clear whether they have a nominalizing function (conversion from verbs to nouns is very frequent, including derived verbs). The prefixes are *wa-*, which often nominalizes objects (see Chapter 7); *ú-*, which often nominalizes places; and *wé-* (a contraction of *wa-* and the instrumental applicative *í-*), which

[20]The noun *izházhe* 'name' contains the 3rd person inalienable possessive marker *i-*. However, this marker cannot be dropped and replaced with other person markers: it combines with the possessive markers of alienable possession: *izházhe wiwíta t^{h}e* 'my name'. See §2.5.7.

[21]The gloss 'uncle' for *-negi* is used for convenience. In the Umó^{n}ho^{n} kinship system, this term is used for the brother of the mother, his sons, and some other relations (OLIT-UNL 2018: 414).

derives nouns that denote instruments. Example (63) illustrates the uses of each of these deverbal prefixes:

(63) a. *zhi^{n}ga* 'to be small' → *wazhí^{n}ga* 'a bird' (something small)
baxú 'to write {x}' → *wabáxu* 'a letter'

b. *xé* 'to bury' → *úxe* 'a cellar'; 'a grave'
kú_he 'to fear an unseen danger' → *úkuhe* 'a cause of fear' *do^{n}be* 'to look at/see {x}' → *udó^{n}be* 'appearence'

c. *ganázhi* 'to put out the fire' → *wéganazhi* 'fire extinguisher'
no^{n}zhú 'to thresh [cereals]' → *wéno^{n}zhu* 'threshing machine'

Nominal compounds. Together with conversion (§2.4.8), word compounding is one of the most productive ways to create new nouns. Many compounds are old and semantically opaque, as in (64), while others are old yet still semantically compositional, as in (65)[22]. Compounding is still a very productive way to create new lexical units; in (66) we see N+N compounding as well as N+V compounding. More research is needed to distinguish the creation of nouns by N+V compounding (in morphology) from the creation of nouns by fixation and lexicalization of N+V clauses (see Chapter 8).

(64)

ti-zhébe	*ti-úthip^{h}u*	*tí-huko^{n}*
lodge-?	lodge-?	lodge-?
door, entrance	small lodge	smoke hole at the top of the lodge

(65)

nú-zhi^{n}ga	*mí^{n}-zhi^{n}ga*	*wa'ú-zhi^{n}ga*
man-small	female-small	woman-small
boy	girl	old woman

(66)

ni-gatúsi	*i^{n}dé-íbik^{h}a*	*shé-ni*	*mó^{n}ze-íutha*
water-popping.sound	face-rub.with	apple-water	metal-tell.with
soda	towel	apple juice	telephone

2.3.3 Verbal morphology

Umó^{n}ho^{n} has a complex verbal system upon which almost all the morphology of the language is centered, since it is a head-marking language (see §2.5). The verbal morphology includes:

- Simple stems and double stems (the latter are doubly inflected);
- Continuous stems and discontinuous stems (which can be simple or double);
- Numerous derivational prefixes, most of them affecting the verbal valency;
- Argument coding for agentive, patientive, dative, and benefactive-possessive markers (up to two at a time);

[22] In (65), the element **mi^{n}-* 'female' is a bound morpheme only found in compounds and nominal incorporation (see Chapter 8).

- Coding for TAM;
- Coding of negation.

Chapter 3 describes Umó^{n}ho^{n} verbal morphology in detail, as it is of special relevance for this dissertation. Example (67) typifies a particularly complex verbal form: the verbal base *thitó^{n}* 'to work (at/on) {x}', which encodes an agentive argument (A) and a dative argument (D)[23]. The agentive argument is encoded twice: once with the "regular" prefix, realized as *the-*, and once through the modification of the initial consonant of the stem, with /th/ becoming /n/[24]. The theme of the original verb is suppressed through the prefixation of the antipassive prefix *wa-* (Chapter 7). The marker *=i* encodes proximacy in the verb form *naí* 'you went there', and plurality in the verb *o^{n}thísithaí* 'we remember you'. (For more detail on this marker, see §2.6.1, §3.1.2, and §3.2.3.)

(67) *ki wawétheníto^{n} naí t^{h}e o^{n}thísithaí ó^{n}bathé.*

ki *wa-wé-the-níto^{n}* *na=í* *t^{h}e* *o^{n}-thí-sitha=í* *ó^{n}bathé.*
and ANTIP-D1PL-A2-A2.work A2.GO=PX EVID A1PL-P2-remember=PL today

We think of you today, because you went to work at various things for us. (Dorsey 1891:22.13 / Te-úko^{n}ha)

It is worth noting that the Umó^{n}ho^{n} verb does not differentiate past and present tenses. It rather encodes an irrealis aspect (post-verbally), in contrast with the default realis aspect which is not encoded. Evidentiality markers encode past events, which has led several authors to gloss the evidentiality markers as PAST (for example Dorsey (1890) in his glosses).

2.4 Parts of speech

Like other Siouan languages, Umó^{n}ho^{n} is verb-centered; property words are verbs, many nouns are derived from verbs (by means of prefixation or conversion), and many relativized verbs serve as referential expressions. Moreover, many parts of speech can take a predicative function without any need for a copula or other grammatical marking. As a result, the distinction between verbs and nouns is not always straightforward (see §2.4.8).

Parts of speech in Umó^{n}ho^{n} have not been thoroughly studied to date. There are numerous post-verbal grammatical morphemes whose status is not clear; these may be affixes, clitics, or independent units. Koontz (1984: 45) proposes nine "form classes" in Umó^{n}ho^{n}, which do not always correspond to parts of speech. (For instance, "noun phrases" and "vocative phrases"

[23] In fact, the dative marking affects the agentive marker, which is why verbs with the dative prefix are identified as following the "dative" conjugational paradigm. See §3.6.

[24] The same phenomenon occurs on the second verb of the clause, *thé* 'to go there' which becomes *né* 'you went there'.

can refer to both single words and multi-word phrases.)[25]

I will not attempt to make an exhaustive list of Umó^{n}ho^{n} parts of speech. At a minimum, the following parts of speech can be recognized in Umó^{n}ho^{n}:

- Verbs (§2.4.1)
- Nouns (§2.4.2)
- Personal pronouns
- Articles (§2.4.3)
- Postpositions (§2.4.4)
- Adverbs (§2.4.5)
- Conjunctions
- Interjections

In the following sections, I will present the parts of speech of special relevance for this dissertation in more detail: verbs (§2.4.1), nouns (§2.4.2), articles (which are not only determiners; §2.4.3), postpositions (§2.4.4), and adverbs (§2.4.5). In §2.4.6 I present the demonstrative markers, possessive markers, and quantifiers, without attempting to assign them to a specific part of speech. Finally, I address the issues of predication (§2.4.7) and verb-noun distinction (§2.4.8).

2.4.1 Verbs

Verbs form the most extensive class in Umó^{n}ho^{n}. They can be recognized by their morphology, the features of which have been briefly introduced (§2.3.3). Verbal morphology and morphophonology are addressed in detail in Chapter 3. In addition to words denoting events or states, property words like "small", "old", "smart", etc., are also verbs. As seen in (68), property words can serve as predicates[26] without a copula or any other specific marker, and they display verbal morphology. They conjugate with the "patientive" indexation markers, and fall into the category of "intransitive stative verbs" (§2.5.2, §4.1.2). Thus, *zhi^{n}ga* should be translated "to be small" rather than just "small". (It is often glossed as 'small' to avoid long interlinear glosses.)

[25] His "form classes" are the following: (1) interjections, (2) sentence terminators, (3) subordinating conjunctions, (4) sentence introducers, (5) postclitics, (6) verbs, (7) noun phrases , (8) adverbials, (9) vocative phrases.

[26] Here, I use "predicate" to refer to the predicative function. This is typically performed by verbs, but Umó^{n}ho^{n} nouns and other parts of speech can also be predicates without any need for a copula.

(68) *o^n-zhí^{n}ga* *thi-zhí^{n}ga* *zhi^{n}gá* *wa-zhí^{n}ga*
P1SG-be.small P2-be.small be.small P1PL-be.small
I am small You are small S/he is small We are small
(Saunsoci & Eschenberg 2016: 58 / Alice Saunsoci)

A minor subclass of property words cannot index patientive markers, as *zhi^{n}ga* does above. Instead, they use the conjugated article *thi^n* (following the '*th-* stem athematic paradigm') as a person marker-bearing auxiliary. This is visible in (69), as opposed to example (70) which shows a property word displaying verbal features.

(69) *(udó^{n}be)* *újo^n* *ní^n.*
appearance beautiful 2.AUX
You're beautiful (Saunsoci & Eschenberg 2016: 33)

(70) *thi-shná*
P2-bold
You are bold (Saunsoci & Eschenberg 2016: 33)

At least five property words display these morphological features. Two are simple words (*ujó^n* 'beautiful', *tha'éga* 'ugly', *shiézhide* 'childish'), and two are compounds with *údo^n* 'good' (*nó^{n}de údo^n* 'good-hearted' and *udó^{n}be údo^n* 'good-looking'[27]). The verb *bthó^n* 'to emit a smell' is attested both with P person markers (in Saunsoci & Eschenberg 2016), and with the auxiliary *thi^n* (Dorsey 1890: 289.16). All property words are considered stative verbs, even when they are not attested with P person markers.

Some grammatical morphemes, like the negation marker *=(a)zhi* (whose status as affix or clitic is unclear) and the articles *thi^n* and *thi^{n}k^{h}e* (§2.4.3), also display conjugational patterns.

The negation marker is realized minimally as *=(a)zhi*. When it attaches to a verb having a 1st person singular subject, it takes the marker *-m-* 1SG (see examples in §2.5.2.3), in accordance with the "athematic *'*-stem paradigm" (§3.7.4). The word corresponding to English "no" is formed by a base **ó^{n}ka* of unknown meaning and the negation marker; thus it looks like a verb meaning "not to be so" or "not to do so", as can be seen in (71).

(71) *ó^{n}ka-m-azhi, shaó^n* *bthí^n,* *a=í* *t^{h}e.*
?-1SG-NEG Lakhota A1SG.OBV.MOV say=PX EVID
I am not so. I am Lakota. (my translation) (Dorsey 1890: 443.12 / Páthi^n-no^{n}pázhi)

As previously mentioned, the article *thí^n* can be used as a person marker-bearing auxiliary. It does so with some property words, as seen in (69), and with nouns, as in (71). Finally, the article *thi^{n}k^{h}e* sometimes appears as an auxiliary following a verb, in which case it also follows

[27] Note that, interestingly, *údo^n* 'to be good' is considered a verb by Dorsey (n.d.b), and is presented with personal inflection (see (274), p. 197). *Újo^n* 'beautiful' and *údo^n* 'good' are related; the affricate /j/ is sometimes used instead of /d/, with a diminutive/affective value.

the conjugation pattern of the "athematic ʼ-stems": *-m-* for 1SG; *-n-* for 2.

2.4.2 Nouns

Nouns display very little morphology, as seen in §2.3.2. Except for kinship terms, which show specific morphology, nouns in Umó^{n}ho^{n} are recognized by their lack of morphology, their pervasive function as verb arguments, and the fact that they need the conjugated article *thí^{n}* to act as an auxiliary when they are used as 1st and 2nd person predicates. See (71) above.

A list of nouns is presented in Table 2.5, §2.4.8, for the analysis of the verb-noun distinction.

2.4.3 Articles

There is a set of 11 definite polyfunctional "articles" in Umó^{n}ho^{n} and Dhegiha, which are usually called "articles" (Eschenberg 2005, Koontz 1984, Dorsey n.d.a, Rudin & Shea 2005) or "positionals" (OLIT-UNL 2018, Quintero 2004). I use the term "articles", because it refers to one of their principal functions: to serve as definite determiners. (By contrast, the term "positional" refers to the semantic features of a subset of them, as can be seen in Figure 2.1.)

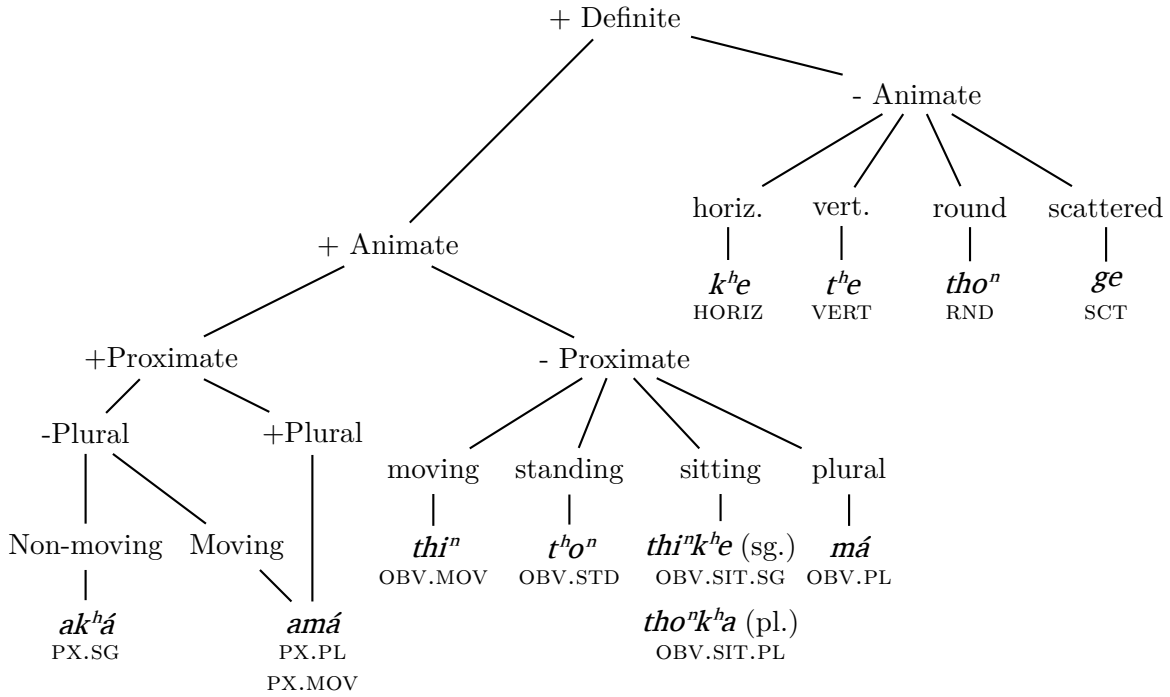
The article system of Umó^{n}ho^{n} (and Dhegiha) is cross-linguistically rare, since it presents a peculiar combination of semantic features: animacy, obviation, position/shape, and number. Figure 2.1 shows a representation of the article system in Umó^{n}ho^{n}, and the glosses used for each article in this dissertation. This is an adaptation of the figure from Koontz 1984 (p. 144), taking into account the subsequent evolution of his analysis (Koontz 1989b).

Semantically, the articles fall into two classes, animate and inanimate. The animate ones distinguish proximate from obviative arguments, and further distinguish singular and plural, moving and not moving. There are only two proximate articles, singular non-moving (*ak^{h}á*) and singular moving or plural (*amá*)[28]. Most of the time, proximate articles determine subject NPs, while obviative articles determine object NPs. The obviation system is introduced in §2.6.1.

Inanimate articles encode the shape and orientation of the noun: vertical, horizontal, round, and scattered. As a result, some nouns can be used with various articles according to the shape of the referent, like *pahé* 'hill' in (72), or according to their number and configuration, like *zhó^{n}* 'wood, tree' in (73).

[28]In the vast majority of cases, at least among the glossed examples of this dissertation, *amá* refers to plural entities. See example (314), p. 223, for an example of *amá* determining a singular moving referent.

Figure 2.1: The article system of Umó^{n}ho^n
(adapted from Koontz 1984 and Eschenberg 2005)



(72) *pahé k^{h}e* — hill HORIZ — the (long, extended) hill
pahé tho^n — hill RND — the (round) hill
From Dorsey (1890): 28.12 and 280.9, respectively.

(73) *zhó^n t^{h}e* — wood VERT — the tree
zhó^n k^{h}e — wood HORIZ — the wood (fallen from tree)
zhó^n ge (rare) — wood SCT — the trees (pl.)
From Dorsey (1890): 266.12, 51.11 and 51.17, respectively.

However, the combination of articles with given nouns is not always semantically transparent, and in some cases seems arbitrary. As Rankin (2004) notes, while *ní* 'water', referring to a river, is determined by *k^{h}e* HORIZ, *mó^{n}zho^n* 'land' is always determined by *tho^n* RND. The article for "vertical" objects, *t^{h}e*, seems the most frequent one. It is used for abstract entities such as *hó^n* 'night' or *mído^{n}be* 'hour', and it can serve as a plural determiner in certain cases.

The articles are not only determiners. Eschenberg (2005) documents their functions as relativizers, auxiliaries, copulas[29], and evidentials[30]. She also identifies two of them as "clause

[29]Eschenberg (2005) does not explain how she distinguishes the copula function from auxiliary or evidential functions. Most of her examples of "copulas", however, are existential clauses such as (75).

[30]Rankin (2004) explains that *t^{h}e* as an evidential marker is not diachronically linked to the article *t^{h}e*. It

Table 2.2: Some postpositions

ámusta	above	*etát^{h}o^{n}*	from
mó^{n}t^{h}e	inside	*égaxe*	around
-di	at, in	*ágaha*	on top of
-ta	to, towards	*gazó^{n}*	among

linkage markers", and one as an emphasis marker.

The following examples illustrate the use of *ak^{h}á* PX.SG as a relativizer, as a copula and as an auxiliary. In all three cases, the NP within brackets, which is the clause subject, is also determined by *ak^{h}á*. In the last two examples, moreover, the article *amá* is used as an evidential marker typical of the reportative mode (corresponding to hearsay information). These examples are all presented in Eschenberg (2005).

(74) {*Ik^{h}áge wiwita ak^{h}a*} *teska uhí-wa-the=no^{n}* *ak^{h}a* *tiup^{h}e a-t^{h}i.*
{friend POSS:1SG PX.SG} cow reach.there(?)-O3PL-CAUS=HAB REL:PX.SG visit PX-come

My friend who raises cows came over last night. (Eschenberg 2005: 118 / Alice Saunsoci)

(75) {*táxti-gí-kidá=bi ak^{h}á*} *ededí ak^{h}á-(a)ma*
{deer-DAT-shoot=PL SG.PX} there COP-REPORT
There was (a giant called) Táxti-gí-kidábi [= They shoot down deers for him]. (Dorsey 1890: 22.1 / Frank La Flesche)

(76) {*ké-to^{n}ga ak^{h}á*} *níta ak^{h}á=biamá.*
{turtle-big PX.SG} alive AUX=PX.REPORT
The Big Turtle is he who is alive. (Dorsey 1890: 265.14 / Te-úko^{n}ha)

The fact that articles can follow nouns when they are determiners, and verbs when they are relativizers, raises further issues regarding the noun-verb distinction. These will be presented in more detail in §2.4.8.

2.4.4 Postpositions

There are few postpositions in Umó^{n}ho^{n}, and some of these are presented in Table 2.2. Postpositions introduce postpositional phrases which can be peripheral arguments or adjuncts (see

comes from a separate but homophonous Proto-Siouan source, and underwent the same phonetic evolution. It was then reanalyzed as the article *t^{h}e* VERT with an evidential function. It is from this reanalysis that the evidential function has been expanded to include the other inanimate articles. This observation was first made by Koontz (2000).

§2.5.3), as can be seen in (77) with the postposition *mó^{n}t^{h}e* 'inside'. The postpositional phrase is delimited by brackets.

(77) *zhó^{n} wí^{n} {ní mó^{n}t^{h}e} bi-xó^{n}=biamá.*
wood one {water inside} INS:press-broken=PX.REPORT
He broke a stick under the water by bearing on it. (Dorsey 1890: 281.12 / Nudó^{n}-axa)

Note that Table 2.2 includes two suffixes which are considered postpositions (OLIT-UNL 2018: 383), and are the most frequent ones by far. The other postpositions (including *mó^{n}t^{h}e*) are rather infrequent, and locations, instruments or accompaniment are instead expressed with verbs. Umó^{n}ho^{n} applicative constructions are very frequently used for expressing locations, instruments and beneficiaries, and not all of them have a syntactic equivalent. Oblique applicative constructions are studied in Chapter 6. Examples (78) and (79) show how accompaniment relations are expressed using specific verbs instead of adpositions.

(78) *Wahó^{n}thishige i-kó^{n} zhú-gi-gthe.*
W. POSS:3-grandmother (1)-POSS-be.with(2)
Wahó^{n}thishige lived with his grandmother. (Dorsey 1890: 107.1 / Mary La Flesche)

(79) *Ní^{n}kashi^{n}ga ak^{h}á égo^{n}-xti égihá-xti áiátha=i t^{h}e sho^{n}ge utháha.*
person PX.SG like.it-INTENS headlong-INTENS go.away=PX EVID horse go.with
The man and his horse, too, went headlong. (Dorsey 1890: 345.5 / Ó^{n}p^{h}o^{n}-To^{n}ga)

2.4.5 Adverbs

The adverb is well known for being a difficult-to-define part of speech. The available descriptions of Umó^{n}ho^{n} assign to them the same diversity of functions and distribution as traditional grammars of western languages. Both Dorsey (n.d.a: 122 fol.) and Koontz (1984: 204 fol.) cite in the category of "adverb" words which are verb modifiers, NP modifiers, and clause modifiers. They distinguish "primitive adverbs", i.e. morphologically simple adverbs, from "derived adverbs"[31], the latter in most cases being old compounds of primitive adverbs with demonstrative markers.

It has been argued that the "adverb" is simply not a valid category, at least in the way it was used in traditional grammars (see e.g. Creissels 1988 for French; Huddleston & Pullum 2002 for English). In this dissertation, the concept of "adverb" is limited to verb-modifying words and clause-modifying words, the latter mainly conveying temporal information. Words denoting spatial information, like *théthu* 'here' and *dúda* 'on this side' are not considered adverbs, because they can be used as verb object (e.g., *dúda* is an incorporated object in *dudá_gthi^{n}* 'to sit on this side'; see Chapter 8).

[31] Koontz (1984) does not mention the derived adverbs; he only lists the primitive ones, which implies that he follows Dorsey's distinction.

Table 2.3: Some adverbs

Modifying verbs		Modifying clauses	
ch^{h}ábe	very much	*gó^{n}*	so, in like manner
pamú	downhill	*i^{n}ch^{h}o^{n}*	now
sabázhi	suddenly	*gasáni*	tomorrow
áthita	cutting across		
sagí	firmly		

Verb-modifying adverbs are sometimes difficult to distinguish from verbs. In some verb sequences, the first verb contributes information on manner, while the second acts as the main predicate (§2.5.6). In such cases, the first verb functions as a verb-modifier. For example, the verb *gaskí* 'to pant' is used as the main predicate of a clause in (80), while it takes a verb-modifier function expressing cause of death in (168).

(80) *Shí^{n}udo^{n} zhí^{n}ga ak^{h}a gaskí.*
puppy small PX.SG pant
The puppy is panting. (Saunsoci & Eschenberg 2016: 103 / Alice Saunsoci)

(81) *thé Sháthathégathík^{h}e u thi^{n}gé-xti, shó^{n} gaskí t'é amá.*
this S. wound lack-INTENS only pant die REPORT
This Middle Chief[32] died from sheer exhaustion, not having been wounded at all. (Dorsey 1890: 412.5 / Ó^{n}p^{h}o^{n}-To^{n}ga)

The words analyzed here as verb-modifying adverbs are only attested in a pre-verbal position with a modifying function. This is the case of *pamú* 'downhill', in the following example. It is nonetheless possible that such words will turn out to be verbs after further research.

(82) *pamú o^{n}g-átha=i t^{h}édi ú'e wí^{n} edí ak^{h}á.*
downhill A1PL-go=PL when field one there EVID
When we went, down hill, a field was there. (Dorsey 1890: 373.15 / Nudó^{n}-axa)

2.4.6 Demonstratives, possessives, quantifiers

The definite articles in Umó^{n}ho^{n} (§2.4.3) form a unitary category of grammatical words sharing a number of common functions, which is why they are treated as a particular part of speech. Other words sometimes function as determiners, including demonstratives, possessives, and quantifiers. Some of these are represented in Table 2.4.

Example (83) shows a noun modified by the stative verb *tó^{n}ga* 'to be big', by the quantifier *no^{n}ba* 'two' and the possessive *wiwíta* 'my'. Demonstratives, possessives, and quantifiers are

[32] The term *Sháthathégathík^{h}e* is not Umó^{n}ho^{n}, as it refers to a Pawnee man.

Table 2.4: Demonstratives, possessives, and quantifiers

Demonstratives		Possessives		Quantifiers	
thé	this	*wíta, wiwíta*	my, mine	*wí^{n}*	a, one
shé	that	*thíta, thithíta*	your, yours	*bthúga*	all
shéhi	that over there	*éta*	his, her, its, hers	*no^{n}ba*	two
gá	that over there	*o^{n}gúta*	our, ours	*dúba*	some, four
				etc. (all numbers)	

close to determiners, but as shown in (83) they can combine with each other and with the definite articles.

(83) *shinudo^{n} to^{n}ga no^{n}ba wiwita ak^{h}a*
dog big two my PX.SG
My two big dogs (Eschenberg 2005: 17 / Alice Saunsoci)

Demonstratives and possessives are almost always followed by articles, as if they formed complex determiners with them, as in (84) and (85), respectively.

(84) *páhe shé-k^{h}e*
hill that-HORIZ
That visible long hill (Dorsey n.d.b)

(85) *Izházhe wiwíta t^{h}e ...*
name my VERT
My name is ... (common introductory sentence in contemporary documentation)

Quantifiers, by contrast, are often used as determiners without any article. See for instance examples (204b) p. 164 and (307) p. 221.

All three categories can also be used without any head-noun, in which case they function as pronouns. This is illustrated in (86) and (87) for the demonstrative *shé*. As can be seen, it is sometimes followed by an article, and sometimes not.

(86) *Shé-ak^{h}a ukígthi'aga.*
that-PX.SG lazy
That one is lazy. (Saunsoci & Eschenberg 2016: 47 / Alice Saunsoci)

(87) *Shé t'é-the úmak^{h}a-xchi=bázhi*
that die-CAUS easy-INTENS=PX.NEG
It is not at all easy to kill that one. (Dorsey 1890: 24.9 / Frank La Flesche)

Demonstratives, possessives, and quantifiers can function as determiners and pronouns, but they can also combine with each other, unlike what is expected of determiners. We could

consider them noun modifiers, as Eschenberg (2005: 17) apparently does. Until a thorough study of Umó^{n}ho^{n} parts of speech is completed, I use the semantic characterizations "demonstrative", "possessive", and "quantifier" as labels. In Chapter 8, I consider the incorporated demonstratives as pronouns, because in this context they are equivalent to a noun or NP (nouns alone can serve as NPs; see §2.5.1.4 and §8.4).

2.4.7 Remarks on predication

Most parts of speech in Umó^{n}ho^{n} can act as predicates[33] without requiring a copula (although as seen in §2.4.3, copulas do exist). The predicate can be a noun as in (88), a location adverb as in (89), and the adverb meaning "a lot" as in (90), at least.

(88) *Shaó^{n}.*
Lakhota
They were Lakhota. (Dorsey 1890: 463.9 / Ó^{n}p^{h}o^{n}-To^{n}ga)

(89) *wabáxu théthu thi^{n}k^{h}é*
writer here REL:OBV.SG
the writer who is here (Dorsey 1890: 509.3 / Dúba-mo^{n}thi^{n})

(90) *Wamí hégа-zhi amá.*
blood little-NEG REPORT
There was much blood. (Dorsey 1890: 262.9 / Te-úko^{n}ha)

The examples above show that these words do not need any specific marker to act as predicates. They can be followed by evidential markers, as in (90), but this is not obligatory. When their subject is plural or proximate, they can take the post-verbal proximate-plural marker *=í*, as in the following examples:

(91) *wanó^{n}xa=i t^{h}e thé-ak^{h}á níkashi^{n}ga ak^{h}a.*
ghost=PL EVID this-SG.PX person SG.PX
These people were ghosts[34]. (Rudin et al. 1989-92: Tape 6 / Mary Clay)

(92) *i-hó^{n} amá shti gó^{n} té=i t^{h}e*
POSS:3-mother PX.MOV too thus buffalo=PX EVID
The mother was a Buffalo. (Dorsey 1890: 149.8 / Nudó^{n}-axa)

In consequence of the above-mentioned considerations, Umó^{n}ho^{n} and other Siouan languages display features of omnipredicativity, like Nahuatl (Launey 1994) or Salishan languages (Mithun 1999). However, for 1st person and 2nd person predicates, nouns require the conjugated article *thi^{n}* to be used as a person marker-bearing auxiliary, as seen in (93) and (94).

[33] By "predicate", I mean the function which is typically associated with verbs. See Muller (2013) for a review of the different understandings of the term "predicate" in linguistics.

[34] Why the singular article *ak^{h}á* is used here is not clear.

(93) *Ukéthi^{n} bthí^{n} t^{h}e ith<á>kizhu.*
ordinary 1SG.OBV.MOV COMP <A1SG>PROUD
I'm proud that I'm Native. (Saunsoci & Eschenberg 2016: 50 / Alice Saunsoci)

(94) *i^{n}sh'áge ní^{n}*
old.man 2SG.OBV.MOV
You are an old man. (Saunsoci & Eschenberg 2016: 31 / Alice Saunsoci)

In this respect, Umó^{n}ho^{n} differs from closely related Lakhota. Lakhota allows nouns to receive the verbal patientive markers to mark 1st and 2nd person nominal predication, as can be seen in (95).

(95) Predicate nominal in Lakhota

ma-lakȟóta
P1SG-Lakhota

I am Lakhota. (Ullrich 2008)

There is apparently one exception: the nouns *wa'ú* 'woman' and *wa'ú zhi^{n}ga* 'old woman' (literally 'little woman') take Patientive indexation markers, like stative verbs would. The place of indexation follows the usual pattern of stative verbs beginning with the prefix *wa-* (see Marsault 2016: 82). Many nouns in Umó^{n}ho^{n} begin with *wa-*, but this is the only one that refers to a human, and thus is susceptible to being used as a 1st or 2nd person predicate. The word *wa'ú* 'woman' is also attested with the article *thí^{n}* as a predicative copula (like all other nouns in Umó^{n}ho^{n}); both are recorded by Dorsey. Observe that in Dorsey's dictionary, the conjugated form of "I am a woman" follows a morphophonological rule which is usually restricted to the prefixal sequence: vowel assimilation (rule 8 in §3.5.1.2).

(96) Nominal predicates *wa'ú* 'to be a woman' and *wa'ú zhi^{n}ga* 'to be an old woman'

a. *o^{n}-wó^{n}'u wa'ú bthí^{n}*
P1SG-woman woman A1SG.COP
'I am a woman.' (Dorsey n.d.b)

b. *wa<thí>'u wa'ú ní^{n}*
<P2>woman woman A2.COP
'You are a woman.' (Dorsey n.d.b)

c. *o^{n}-wá'u zhí^{n}ga* 'I'm an old woman'
wa-thí-'u zhí^{n}ga 'You are an old woman'
wa-wá-'u zhí^{n}ga 'We are old women'
Saunsoci & Eschenberg (2016) and Dorsey (n.d.b)

2.4.8 Remarks on the noun-verb distinction

Nouns and verbs constitute distinct word classes in Umó^{n}ho^{n}, as can be seen in §2.4.1 and §2.4.2. There are, however, many similarities between them. In particular, many nouns display functional, morphological and distributional features similar to those of verbs. This led

Table 2.5: Umó^{n}ho^{n} verbs and nouns

	Umó^{n}ho^{n}	**Verb**	**Noun**
1	*hú*	to howl	voice
2	*shkó^{n}*	to move; to act	action; customs; habits
3	*tí*	to pitch the tent	tipi; lodge
4	*tó^{n}*	to have (a lot of) {x}	harvest; fall
5	*bishnáha*	to make {x} smooth by rubbing	sand
6	*bthó^{n}*	to smell of {x}	smell
7	*gaxthó^{n}*	to go to hunt	hunting party
8	*díxe*	to be scabby	smallpox
9	*nákо^{n}*	to shine	light
10	*úho^{n}*	to cook	kettle
11	*ugthí^{n}*	to sit in {x}	place; seat
12	*wathát^{h}e*	to eat (something)	food
13	*wazéthe*	to (medically) treat people	doctor
14	*wébaxu*	(*s/he writes with it)	pencil
15	*wéshno^{n}*	to be pleased	———
16	*wawémo^{n}xe*	to ask {x} about something	trial, question
17	*wawé'i*	he gave things to people	giving
18	*Umó^{n}ho^{n}*	———	Umó^{n}ho^{n}
19	*níkashi^{n}ga*	———	person (human)
20	*-tígo^{n}*	———	grandfather; godfather
21	*sihí*	———	foot
22	*dó^{n}be*	to look at {x}; to see {x}	———
23	*gáxe*	to make {x}; to pretend that …	———
24	*xagé*	to cry	———
25	*thadí^{n}di^{n}*	to speak loudly	———
26	*kipáaze*	to scare each other	———
27	*gidó^{n}be*	to look at/after {*one's own*}	———
28	*í'i^{n}*	to carry {x} by means of {y}	something used for carrying
29	*itígo^{n}thai*	(*they make / consider him their grandfather)	President

Helmbrecht (2002c) to closely investigate how to distinguish nouns from verbs in the related Hoocąk language (in particular, to check that presumed nouns are not verbs).

Table 2.5 shows 29 Umó^{n}ho^{n} words and their translations as nouns and/or verbs. An asterisk before the verbal translation means that the corresponding Umó^{n}ho^{n} form is only

attested as a noun. Building on the examples presented in this chart, I will review the similarities and differences between nouns and verbs in Umó^{n}ho^{n}.

Overlapping forms. We observe in Table 2.5 that many words function as both verbs and nouns, with related meanings. There are also, however, many instances of verbs that have no counterparts as nouns, as well as of nouns without verbal counterparts. Thus, the two classes are not coextensive. Moreover, although the meanings of verb/noun pairs are clearly related, they are not always totally predictable from one another, as can be seen in lines 1, 4 and 5.

Morphology. There are three derivational prefixes that can act as nominalizers: *u-*, *wa-*, and *wé-*. However, they also derive verbs. This polysemy is visible in lines 11 to 14 of Table 2.5, and the meanings of verbs and nouns are mutually predictable. As a result, the prefixes *u-*, *wa-*, and *wé-* can hardly be used as evidence of the nominal status of a given word.

- *U-* acts as a locative applicative prefix on verbs and derives nouns of location (line 11).
- *Wa-* acts as an "underspecified argument marker" or as an O3PL object marker on verbs. It also derives nouns which denote objects ("food", line 12) and is attested on nouns of agents ("doctor", line 13). The different functions of *wa-* are investigated in Chapter 7 (see in particular §7.1 and §7.3).
- *Wé-* is in fact a combination of *wa-*, already mentioned, and the applicative instrumental prefix *í-*. It functions as a derivational morpheme when it creates nouns of instruments, as I will argue in Chapter 7. It could, though, also be analyzed as a productive combination of two derivational morphemes on verbs (applicative instrumental and antipassive; line 14).

Instrument nouns such as "pencil" (line 14), however, are very scarcely attested as verbs, which leads me to assert in §7.3.3 that whatever the origin of the prefix *wé-*, it is synchronically used as a single morpheme to derive instrument nouns[35].

Besides these three prefixes, we find nominal-only morphology in the restricted class of kinship terms (line 20). By contrast, some prefixes, such as the instrumental prefixes (line 25 for the prefix *tha-* 'with the mouth'), the reflexive-reciprocal *ki(g)-* (line 26), the dative *gí-*, and the possessive *gi-* (line 27), are never found on nouns. Conversion of verbs with such morphology into nouns occurs (line 5, instrumental prefix *bi-* 'by rubbing'), but is rather scarce.

[35]Nominalizing *wé-* must not be confused with homonymous sequences. For instance, the third person plural animate object marker appears as *wé-* in the *í-* oblique paradigm and in dative paradigms. See morphophonological rules in §3.5.1, and conjugation charts in App. B.

Conversions. Conversion (or zero derivation) is a frequent means of creating deverbal nouns, and no formal marking is present to suggest the change of category. Moreover, conjugated verbs are occasionally converted into nouns complete with their verbal inflection:

- Line 17 of Table 2.5 typifies the conversion of a noun from a verb conjugated with generic third person plural object; *wawé'i* 'a giving' comes from a verbal form meaning "she/he/they gave things to people" or "she/he/they gave things away".

- We find in line 29 a noun, "president", which results from the conversion of the verb "they make/consider him their grandfather". The suffix *=í* is the verbal marker for plural subjects (and also marks proximate arguments, see §2.6.1). The noun "president" is thus converted from a conjugated verb (see §5.1.1 for a presentation of the morphological causative verbs).

Conversions are facilitated by the formal similarities between NPs and relative clauses, as seen below (p. 117; also §2.5.4), but despite the fact that many nouns are obviously converted from verbs, they have clearly acquired a nominal status with a conventional meaning. The nominal status of *wawéshi* 'pay' is plain in (97a) and (98a). This form also corresponds to the verb "they offered things as payment", but if it were still conceived as a verb in the speaker's mind, it would not be found in such constructions. Instead of "collected horses to be given as pay" in (97a), we would have "collected horses to pay with" (97b, not attested); and instead of "I receive pay in money" in (98a), we would have "they pay me with money" (98b, not attested).

(97) a. *éthe etá amá shó^{n}ge uthéwi^{n}-wa-thá=biamá, wawéshi wa'í*
relation POSS:3 PL.PX horse assembled-O3PL-CAUS=PL.REPORT pay(n.) ANTIP-give
ta=i égo^{n}.
IRR=PL like.it
His relations collected horses to be given as pay. (Dorsey 1890: 355.7 / John Springer)

b. **éthe etá amá shó^{n}ge uthéwi^{n}-wa-thá=biamá,*
relation POSS:3 PL.PX horse assembled-O3PL-CAUS=PL.REPORT
wa-wé-shi ta=i égo^{n}.
ANTIP-O3PL.AP:INS-pay(v.) IRR=PL like.it
His relations collected horses to pay (people/someone) with them. (not attested)

(98) a. *mó^{n}zeska wawéshi i^{n}-gáxa=i.*
money pay(n.) D1SG-make=PL
For this work I receive pay in money. (Dorsey 1891a: 92.13 / Masho^{n}-ska)

b. **mó^{n}zeska o^{n}thó^{n}-shi.*
money P1SG.AP:INS-pay(v.)
They pay me with money for it. (not attested)

Nominal predication. In Umó^{n}ho^{n}, nouns can be used as predicates in the 3rd person without requiring a copula or any other marking that would distinguish them from verbs (see example (88) above). When they are used as predicates, they can host inflectional affixes typically found on verbs. This is the case in (99), where the predicate "to be the morning" takes the aspectual marker *=no^{n}* HAB.

(99) *Hó^{n}egache=no^{n} i^{n}dádo^{n} gáxe ta=i k^{h}e uthá=no^{n}=bi é a-wá-no^{n}'o^{n}*
morning=HAB what make IRR=PL HORIZ tell=HAB=PL that A1SG-ANTIP-hear
Early in the morning they would tell what they were going to do, that's what I hear.
(Rudin et al. 1989-92: Tape 10, Old Times Powwows 26 / Clifford Wolfe)

However, the distinction between nouns and verbs is visible when the former designate human beings and are used as 1st person and 2nd person predications (of the "class inclusion" type, as Helmbrecht (2002c) calls it). This was illustrated in examples (93) and (94).

Relativization. Any verb can easily be made into a relative clause (RC) and used as a noun. The set of 11 articles (§2.4.3) can be used as relativizers for verbs and as definite determiners for nouns. Moreover, headless relative clauses (composed solely of the verb and its relativizer) are common in Umó^{n}ho^{n}. Thus, a noun phrase and a relative clause can be formally identical in construction. This fact is probably one of the reasons why conversions are so frequent in Umó^{n}ho^{n}. Relative clauses are presented in more detail in §2.5.4.

The formal resemblance of NPs and relative clauses creates many issues in the analysis of some words, particularly those whose morphology is ambiguous. Examples (100) and (101) show the equivalent structure of the NP and a headless RC. In this particular case, it is possible to distinguish between *wathát^{h}e* 'food' and *wathát^{h}e* 'to eat' because the verb receives the plural/proximate marker *=i*. In (101), the relative clause is delimited by curly brackets.

(100) NP: Noun + article as determiner

wa-thát^{h}e t^{h}e
NMLZ-eat DEF

the food

(101) RC: Verb + article as relativizer

{*wa-thát^{h}a=i t^{h}e*} *hébe*
{ANTIP-eat=PL DEF} part

a part of {what they ate} (Dorsey 1890: 43.7 / Nudó^{n}-axa)

Sometimes, we find unexpected headless relative clauses instead of nouns, as in (102): the A1SG personal indexation marker clearly identifies the form *wabthíto^{n}* as a verb, and hence also the sequence *wabthíto^{n} t^{h}e* as a relative clause. If this sentence had a 3rd person subject, would not be able to distinguish between the noun *wathíto^{n}* 'work' and the verb "to work (on) {x}".

(102) RC: conjugated verb + article (function: relativizer)

shó^{n} {*wa-bthíto^{n}* *t^{h}e*} *í^{n}-udo^{n}-xti* *a-nó^{n}zhi^{n}.*
CON:now {ANTIP-A1SG.work REL:VERT} D1SG-good-INTENS A1SG-stand

I have been very prosperous with my work. (Dorsey 1890: 495.1 / Ishtáthabi)
Literally: I have been prosperous with what I am working on.

Related verbs and nouns used in the same clause. The example (102) above can give the impression that *wathíto^{n}* 'work', along with many other nouns (especially those beginning with *wa-*), can always be interpreted as relativized verbs. Example (103) shows that this is not the case. In (103a) the noun *wathíto^{n}* 'work' serves as an object of the verb *thitó^{n}* 'to work (on) {x}'; if a form like *wathíto^{n}* were always to be considered an antipassive verb, such a construction would make no sense, and we would find a sentence like (103b) instead.

(103) a. *shó^{n} edádo^{n}* *wa-thíto^{n}* *thitó^{n}=i* *k^{h}e* *bthúga a-ná'o^{n}* *kó^{n}btha.*
and what NMLZ-work work=PL REL:HORIZ all A1SG-hear A1SG.wish
I wish to hear of all the kinds of work which they do [=work on]. (Dorsey 1891a: 50.8 / Nudó^{n}-axa)

b. **shó^{n} edádo^{n}* *wa-thíto^{n}=i* *k^{h}e* *bthúga a-ná'o^{n}* *kó^{n}btha.*
and what ANTIP-work=PL REL:HORIZ all A1SG-hear A1SG.wish
I wish to hear about everything they are working on. (not attested)

Examples (104) and (105) show further examples of the same stem used in the same clause as both the verb and the verb object. In both cases, the noun is derived with the nominalizing prefix *wa-*.

(104) {*wa-thát^{h}e* *pí-azhi-azhí-xchi*} *that^{h}é* *amédego^{n}* *eduéhe*
{NMLZ-eat good-NEG-NEG-INTENS} eat those(?) I.follow(?)
OBJ VERB
"I have joined those who eat very bad food", said he. (Dorsey 1890: 64.12 / Páthi^{n}-no^{n}pázhi)

(105) {*Ishtínik^{h}e* *ak^{h}á*} {*wá-thaha* *t^{h}e*} *á-thaha* *a-k^{h}í=bi*
{I. PX.SG} {NMLZ.AP:SUPESS-dress VERT} AP:SUPESS-dress PX-arrive.back=PX
SBJ OBJ VERB
egó^{n}, ...
as

[W]hen Ishtinike returned home wearing the magic garments ... (Dorsey 1890, 600.1 / George Miller)

Conclusion. Although verbs and nouns definitely constitute two distinct parts of speech in Umó^{n}ho^{n}, ambiguities often exist regarding the category to which a particular form belongs.

These ambiguities result from different aspects of Umó^{n}ho^{n} grammar that blur the line between nouns and verbs. Conversions from verbs to nouns are frequent; additionally, verbs are often relativized to be used as verbal arguments, and the structure of relative clauses is similar to that of noun phrases. Conversely, nouns can be predicates without needing a copula. Finally, a couple of derivational prefixes are shared by both categories.

The exact category of ambiguous forms is of little relevance for most of this dissertation, though in Chapter 7 it is needed for identifying the nominalizing function of the prefix *wa-*. When dubious examples arise regarding the category of a word, I mostly rely on Dorsey's gloss.

2.5 Syntax

Umo^{n}ho^{n} is a head-final and head-marking language; verbs are generally placed at the end of the clause, and all the morphology is realized on them. Similarly, articles (§2.4.3) are placed at the end of the NPs and relative clauses (§2.5.4) that they introduce. Subordinators are located at the right edge of the clauses they introduce. Argument coding is expressed exclusively by verbal morphology and displays split intransitivity (§2.5.2.2).

In this section, I first describe the word order in §2.5.1 (from argument order to the internal structure of NPs). I then focus on argument coding on the verb in §2.5.2, including the distinct grammatical roles that are encoded and the typological alignments to which they correspond to. In §2.5.3 I distinguish core arguments, peripheral arguments, and adjuncts. Relative clauses and clausal complements are presented in §2.5.4 and §2.5.5, respectively. Finally, §2.5.6 presents different kinds of verb sequences, and §2.5.7 presents the different ways to encode possession.

2.5.1 Word order and NPs

2.5.1.1 Basic argument order

Like most (if not all) Siouan languages, Umo^{n}ho^{n} is considered an SOV language (Rudin & Shea 2005, Dryer 2013b). When both arguments of a transitive verb are expressed by NPs, the SOV order does seem to be the unmarked order. Rudin (1998) notes that it is the basic order given in elicitation, when sentences are provided without any context. Below are a few examples, with each argument in brackets. Note, however, that NPs are often omitted when they are retrievable from the context. Examples like (106) are thus relatively rare.

(106) a. *Gó^{n}ki* {*zhábe ak^{h}á*} {*zhábe zhí^{n}ga dúba*} *wa-tó^{n}.*
and {beaver SG.PX} {beaver small four} O3PL-have
SBJ OBJ VERB
Now, {the Beaver} had {four young beavers}. (Dorsey 1890: 552.5 / Frank La Flesche)

b. *ki* {*wó^{n}gíthe*} {*mó^{n}de*} *g-thíza=biamá.*
and {all} {bow} POSS-take=PX.REPORT
SBJ OBJ VERB

{All} took {their bows}. (Dorsey 1890: 359.5 / Frank La Flesche)

Peripheral arguments also usually precede the verb. Example (107) shows an SOXV sentence, where X is a peripheral argument realized by a postpositional phrase. In double object constructions, both objects are also realized pre-verbally (see §2.5.1.2).

(107) {*Wa'ú dúba*} {*wat^{h}ó^{n}zi*} {*tó^{n}de mó^{n}t^{h}e*} *xa=í.*
{woman some} {corn} {ground inside} bury=PL
SBJ OBJ PERIPH VERB

{Some of the women} had buried {corn} {in the ground} (...). (Dorsey 1890: 452.4 / Kaxé-Tho^{n}ba)

However, this basic SO(X)V order is flexible. Rudin (1998) writes that between 8% and 14% of sentences from randomly selected conversations and narratives are not verb-final. She suggests several possible explanations for this, including afterthoughts or discourse-related functions. Gordon (2007) shows that arguments that are at the center of attention and are non-contrastive, what I call "recoverable" entities, tend to be realized post-verbally. Later, she specifies that such post-verbal arguments are also deaccented (Gordon 2016)[36]. The following two examples are cited in Gordon (2007). In (108), the subject is recoverable, and in (109), both objects are recoverable.

(108) *ku'é a-thá-b[i] egó^{n} wamí ubít^{h}o^{n}=biamá* {*Táxti-gí-kidá=bi ak^{h}á.*}
rushing PX-go=PX as blood press.downPX.REPORT {deer-DAT-shoot=PL PX.SG}

So they say They-kill-deer-for-him rushed over and pushed Rabbit down in the blood. (Dorsey 1890: 23.16, cited in Gordon 2007 / Frank La Flesche)

(109) *shó^{n}* {*ní^{n}kagahi úzhu ak^{h}á*} *'í=biamá* {*wáxe-sábe thi^{n}k^{h}é*} {*wa'ú thi^{n}k^{h}é.*}
and {chief principal PX.SG} give=PX.REPORT {White-black OBV.SIT.SG} {woman OBV.SIT.SG}.

And the head-chief gave the woman to the Black man. (Dorsey 1890: 112.10 / Frank La Flesche)

Comment: it had already been said that the chief would offer his daughter in marriage to whoever had killed the monsters. The few lines before this particular sentence focus on how the Black man declares that he is the one who did it. Consequently, the new information of this sentence is that the head chief *did* offer his daughter to the Black man.

[36] In 2007, Gordon used the term "antitopic" for arguments which are both at the center of attention and non-contrastive (see also Gordon 2008). In 2016, she used the term "recoverable", which comprehends the cognitive status of "in focus" (= at the center of attention) and "inferrable" in Gundel et al. (1993).

2.5.1.2 Double object constructions

Ditransitive verbs in Umó^{n}ho^{n} have "double object constructions" in which there is no distinction between a direct and an indirect object, or between a primary and a secondary object. Both objects can be realized as NPs, with no case marking, and both can be encoded on the verb as a P argument in the appropriate context. Double object constructions of "oblique" applicative verbs are studied in detail in §6.2.3.

The verb *'í* 'to give {x} to {y}' is one of the few non-derived ditransitive verbs, taking as objects a theme and a recipient. Both objects can be realized as NPs, with no preferred order. In (110), both objects are realized as NPs, first the theme, secondly the recipient. In (111), both objects are realized also, with the recipient coming first.

(110) {*Mó^{n}zeska zhí^{n}ga akígthathi^{n} thí^{n}ge*} {*zhi^{n}gá i-túshpa wiwíta thi^{n}k^{h}e*}
{money small REFL.have gone} {small POSS:3-grandchild POSS:1SG OBV.SIT.SG}
'í.
give
They gave {whatever little bit of money they had} {to my little grandchild}. (Rudin et al. 1989-92: Grandaughter's graduation / Bertha Wolfe)

(111) {*Wáxe-sábe thi^{n}k^{h}é*} {*ní^{n}kagahi i-zhó^{n}ge thi^{n}k^{h}é*} *'í=i t^{h}e*
{white.people-black OBV.SIT.SG} {chief POSS:3-daughter OBV.SIT.SG} give=PX COMP
no^{n}'ó^{n}=biamá.
hear=PX.REPORT
He heard that {the chief's daughter} had been given to {the black man}. (Dorsey 1890: 112.12 / Frank La Flesche)

Since the arguments in these examples are 3rd person singular, none is indexed by the verb. When arguments are 1st person, 2rd person, or 3rd person plural animate, though, either of them or even both can be indexed, although the latter case is very rare. (The verb generally encodes up to two arguments, and only one object. See §4.1.4.)

2.5.1.3 Appositive NPs

In Umó^{n}ho^{n}, and especially in the documentation of contemporary Umó^{n}ho^{n}, the same referent is frequently expressed twice in a sentence. Rudin notes:

> It is very common in Omaha, especially in the story-telling style of certain individuals, for an appositive phrase meaning something like "that one" to appear before (or less frequently after) a noun phrase. This appositive phrase consists of a demonstrative and an article.
>
> (Rudin 1991b)

This feature is particularly frequent in the oral recordings made by Catherine Rudin (Rudin et al. 1989-92), as in example sentences (112) and (113). It is also found, though much less frequently, in Dorsey (1890, 1891a), as in (114). This difference could be due to the type of text (legend vs. personal stories and conversations), or the means of recording (writing down vs. tape recording), or the date (19th century vs. contemporary Umó^{n}ho^{n}). Rudin (1991b) specifies that appositive NPs are particularly frequent when the main NP (i.e., the one with a head noun) is a relative clause, which is the case in example (114)[37].

(112) {*Dú-ak^{h}a*} {*ní ak^{h}á*} *ábixe no^{n}zhí^{n}=biama.*
{DEM-SG.PX} {water SG.PX} boil stand=PX.REPORT
APP SBJ VERB

The water was really boiling. (Rudin et al. 1989-92: Two Ghosts Story, 71 / Mary Clay)

(113) {*Shé-ak^{h}á*} {*nikashi^{n}ga ak^{h}á*} *wi-négi ak^{h}á* {*Charlie Parker ak^{h}á.*}
{DEM-SG.PX} {person SG.PX} POSS:1SG-uncle EVID {C. P. SG.PX}
APP SBJ PREDICATE APP

This person [was] my uncle Charlie Parker (Rudin et al. 1989-92: T6, Discussion / Mary Clay)

(**Comment**: This sentence is composed of 4 units formally identical to NPs, and where at least one noun of the last two is used predicatively. Although it is clear that some of these units are appositions, the exact identification of subject, apposition, predicate, and second apposition is not certain.)

(114) {*É waxúbe etá ak^{h}á,*} {*Hó^{n}ga,*} {*gáxa=i ak^{h}á,*} *wa'ó^{n} gthí^{n}=hno^{n}=i,*
{this sacred.thing POSS:3 PX.SG} {H.} {make=PX PX-SG} sing sit=HAB=PX
that^{h}a=í t^{h}édi.
eat=PL when

He whose sacred thing it was, Ho^{n}ga, he who had made the feast, sat singing as the others ate. (Dorsey 1890, 469.8 / Ó^{n}p^{h}o^{n}-To^{n}ga)[38]

Note that appositive NPs always share the same article with their co-referent NP. For other examples from Dorsey's texts, see (223) p. 171, (554) p. 357, (562) p. 359.

2.5.1.4 Internal structure of Noun Phrases (NPs)

Noun phrases (NPs) can have many different structures. Rudin (1993) notes that all components of the NP are optional, including the head noun. Examples (115) through (120) are a non-exhaustive list of possible NPs, from Rudin (1993).

[37] Rudin rules out the possibility that the apposition of a demonstrative phrase before a relative clause would be due to the influence of English (as a way to provide a kind of external head to the relative clause). She points out that these appositions arise precisely in contexts of spontaneous speech (discussions and stories) and not in elicitation, with very fluent speakers, and that they were recorded by Dorsey also. She also rules out the possibility of analyzing an apposition followed by an NP or a relative clause as a single NP (or DP, in her framework).

[38] I have added commas to the original Umó^{n}ho^{n} version, for easier comprehension of the sentence structure.

(115) Noun alone

{*Níkashi^{n}ga*} *nída=bazhi* *shteo^{n}.*
{person} burned=PX.NEG even

The person wasn't burned at all. (Rudin et al. 1989-92: Two Ghosts Story, 81 / Mary Clay)

(116) Noun + article

{*Níkashi^{n}ga ak^{h}á*} *a-thá=i.*
{person PX.SG} PX-go=PX

The person went. (Rudin et al. 1989-92: Two Ghosts Story, 76 / Mary Clay)

(117) Noun + quantifier

égithe {*táxti wí^{n}*} *'í^{n}* *a-gthí.*
finally {deer one} carry PX-arrive.back

At length he came back, carrying a deer. (Dorsey 1890: 455.4 / Kaxé-Tho^{n}ba)

(118) Quantifier alone

{*wí^{n}*} *ó^{n}'í-ga.*
{one} P1SG-give-IMP.M

Give me one. (Rudin et al. 1989-92: T4, elicitation / Clifford Wolfe)

(119) Demonstrative alone

{*thé*} *kó^{n}btha.*
{this} A1SG.want

This is what I need. / I need this. (Rudin et al. 1989-92: T13, elicitation / Clifford Wolfe)

(120) Demonstrative + article

{*shé ak^{h}á*} *zhi^{n}gá.*
{this PX.SG} small

That one is young. (Rudin et al. 1989-92: T2, side A elicitation)

A NP with a noun modified by a stative verb becomes structurally equivalent to a relative clause, as in (121). Relative clauses are presented in more detail in §2.5.4.

(121) *Níashi^{n}ga to^{n}gá ak^{h}a* *ágthi^{n} tho^{n} bi-xó^{n}.*
person big PX.SG chair RND INS:press-break

The big man broke the chair. (Saunsoci & Eschenberg 2016: 70 / Alice Saunsoci)

2.5.2 Grammatical roles and morphological alignment

In Umó^{n}ho^{n}, the only formal identification of arguments rests upon verbal morphology; there is no case marking on nouns, and the word order is too flexible to be a means of argument identification. The verb indexes up to two arguments, however only 1st person, 2nd person, and 3rd person plural animate objects are overtly encoded.

In §2.5.2.1 I present the four grammatical roles that can be identified by verbal indexation, and their relation to subjecthood and objecthood. Sections §2.5.2.2 and §2.5.2.3 present the morphological alignment; the verb displays split intransitive alignment, but also has some minor nominative/accusative features.

This section is restricted to a basic presentation of the grammatical roles encoded by the verb. Verbal morphology is extensively described in Chapter 3, and a classification of verbs according to their valency is provided in §4.1.

2.5.2.1 Grammatical roles indexed by the verb

Table 2.6 shows the four grammatical roles that are distinguished by inflectional morphology in Umó^{n}ho^{n}. These are called Agentive, Patientive, Dative, and Benefactive-Possessive, and are marked by verbal indexation. The first column shows which semantic roles are usually encoded by each grammatical role, the second column lists the grammatical roles, the third column indicates their gloss, and the last column indicates what kind of arguments they encode in terms of subject/object opposition.

As shown in Table 2.6, Agentive (A) typically encodes agents or agent-like arguments (most often, animate entities performing and controlling the action). It also encodes the experiencer in verbs like *dó^{n}be* 'to see $\{x\}$'. Patientive (P) typically encodes patients, or patient-like arguments. It also encodes the theme and the recipient of verbs of giving (but not at the same time), people being talked to, and the stimulus with psychological verbs. Dative (D) is called this because it typically encodes semantic roles corresponding to the dative case in other languages[39] beneficiaries, maleficiaries, recipients, or more generally persons affected by the process. Remarkably, the semantic role of recipient can be encoded either by P or by D, the latter being used in order to carry meanings of benefaction (see §4.4.1). Benefactive-possessive encodes a very specific kind of semantic role, which has no cross-linguistic label; it encodes a beneficiary who is also the possessor of the object acted upon (e.g., 1st person in "She found my horses for me").

[39] Although the term DATIVE was originally used to describe a declension case, it is now regularly used in descriptive and typological works to refer to grammatical roles encoding the same kind of arguments as the Latin dative declension does: beneficiaries, maleficiaries, recipients, goals or other arguments deviating from the prototypical patient (e.g., Palmer 1994, Dixon & Aikhenvald 2000b, Peterson 2007, Mithun 2001).

Table 2.6: Umo^{n}ho^{n} core arguments indexed on the verb

Semantic roles	**Grammatical roles**	**Gloss**	**Subject/object roles**
often: agent or agent-like; experiencer…	Agentive	A	(subject of a transitive verb; subject of an intransitive verb)
often: patient or patient-like; theme; recipient; stimulus; instrument; location…	Patientive	P	(subject of an intransitive verb; object of a transitive or ditransitive verb)
beneficiary; maleficiary; recipient; persons perceived as affected…	Dative	D	(subject of an intransitive verb; object of a transitive or ditransitive verb)
beneficiary & possessor	Benefactive-possessive	B	(object of a ditransitive verb)

Agentive and Patientive are the only original verbal indexation paradigms. Dative (D) and Benefactive-possessor (B) come from the homonymous derivational prefixes which are still productive as applicative markers. However, they have undergone a fusion with A and P markers, creating opaque forms that can now be considered distinct indexation paradigms (see §3.6). Agentive, Patientive, Dative and Benefactive-Possessive markers typically encode animate entities, since they only exist for 1st and 2nd persons. Third person is never encoded on the verb, except for third person plural animate objects, encoded by *wa-*, glossed O3PL (see §2.5.2.3 and §3.1.3).

Umó^{n}ho^{n} has a split intransitivity system. Instead of distinguishing subject and object as grammatical roles, it distinguishes Agentive and Patientive. Intransitive verbs index their sole argument with the Agentive or the Patientive person markers (and at least one verb encodes it with Dative), depending mainly on semantics. However, there are also some characteristics of nominative/accusative alignment. In this dissertation, I call the arguments encoded by A and the sole arguments of a verb SUBJECTS. I call the arguments encoded by P, D or B in bivalent and trivalent constructions OBJECTS.

2.5.2.2 Split intransitivity

Umó^{n}ho^{n} has a split intransitivity system, also known as "agentive marking" (Palmer 1994) or "active case marking" (Mithun 1991). Split intransitivity basically means that intransitive verbs are inflected either with person markers corresponding to the subject of transitive verbs, or with person markers corresponding to the object of transitive verbs. Example (122) shows

a few intransitive active verbs, while (123) shows a few intransitive stative verbs. These can be compared to the person marking of transitive verbs in (124). It should be noted that in Umó^{n}ho^{n}, split intransitivity is not visible when the verb indexes a 3rd person singular argument. This makes the classification of many intransitive verbs difficult.

(122) Intransitive active verbs

a-bó^{n}	*a-gthí*	*tha-gthí^{n}*	*a-ó^{n}he*
A1SG-call	A1SG-arrive.back.here	A2-sit	A1SG-flee
I give a call	I arrive back here	you sit	I fled

(123) Intransitive stative verbs[40]

o^{n}-gíni	*o^{n}-shí^{n}*	*o^{n}-wo^{n}k^{h}ega*	*ó^{n}-baniuski*	*u-thí-xpathe*
P1SG-recover	P1SG-fat	P1SG-sick	P1SG-hiccup	(1)-P2-fall(2)
I have recovered	I am fat	I am sick	I hiccupped	you fell

(124) Transitive verbs

a-sithe	*o^{n}-sitha*	*o^{n}-thá-sithe*
A1SG-remember	P1SG-remember	P1SG-A2-remember
I remember him/her	S/he remembers me	You remember me

In Umó^{n}ho^{n}, each intransitive verb is either active (selecting A person markers) or stative (selecting P person markers or D person markers). That is to say, Umó^{n}ho^{n} has a lexically-based split intransitivity system (like all other Siouan languages)[41]. There is generally a correlation between the intransitive verb membership and its semantics: it depends, for example, on the aktionsart denoted by the verb (event vs. state) or agency (Mithun 1991). In Siouan languages, agency seems to be the main criterion by which membership is assigned (Mithun 1991, Pustet 2002). The agent prototypically "performs, effects, instigates, or controls the situation denoted by the predicate" (Foley & Van Valin 1984: 29, cited in Mithun 1991). In (122) the verbs' sole arguments generally match this definition (except perhaps for *gthí^{n}* 'to sit'); while (123) shows actions which are not controlled by the subject. Stative verbs can denote dynamic events, like *uxpáthe* 'to fall'. The stative intransitive verbs include property words. The split intransitivity system of Umó^{n}ho^{n}, together with the semantic criteria that generally assign the membership of verbs, explain why the glosses A for "agentive" and P for "patientive" are used here instead of the more usual labels of S or SBJ and O or OBJ for "subject" and "object". A and P are the abbreviations used by Koontz in his many papers,

[40] The verb "to be sick" is *wak^{h}éga*. The first vowel changes from *a* to *o^{n}* under the influence of the indexation prefix *o^{n}*- P1SG. See §3.5.

[41] At least one verb is attested with both A and P markers: *níta* 'to be alive'; 'to live'. Different sources (Dorsey n.d.b, Saunsoci & Eschenberg 2016, OLIT-UNL 2018) propose different conjugated forms. It is presented in (612) of §7.3.3.

and I follow this convention here.

It is widely known that the semantic features generally governing verb membership do not hold for all cases, however. Pustet (2002) notes that lexically-based split-S languages tend to exhibit a "A domination" or "P domination" depending on the number of verbs pertaining to each class. The closely related Osage language is a A-dominated, and Umó^{n}ho^{n} is probably also A-dominated[42]. A few intransitive active verbs whose semantics (states, absence of control) would rather predict a P argument marking are listed in (125). Rankin (c. 2005) explains that this apparent inconsistency is due to diachronic evolution, in which phonological and morphological factors played a major role, which is the reason why one cannot find a unique conditioning factor for case marking in synchrony. This also explains why several cognates ended up with different case markings in different Siouan languages. The verb *gísho^{n}* can apparently be used as a transitive verb or an intransitive stative verb: 'to approve $\{x\}$' or 'to be satisfied' (DD). This could be an instance of ongoing diachronic evolution.

(125) Unexpected intransitive active verbs[43]

í-tha-no^{n}de	*a-t'é*	*a-xáge*	*pa'ú*
(1)-A2-replete(2)	A1SG-die	A1SG-cry	A1SG.belch
you are full	I fainted	I cried	I belched

Verb classes are presented in detail in §4.1.

2.5.2.3 Nominative/accusative features

Despite its split intransitivity alignment, the Umó^{n}ho^{n} verbal system also displays secondary nominative/accusative features as well. As Mithun (1991) notes, it is not unusual for a language to display different types of case marking in different domains.

The nominative/accusative features concern the negation marker *=(a)zhi*, the auxiliary *=o^{n}*, which may mark imperfective, the 3rd person plural object marker *wa-* used on verbs, and the plural/proximate marker *=i~bi~b*. The realization or inflection of these markers is only explainable with the notions of the subject and object of the verb, rather than agentive and patientive grammatical roles.

The SUBJECT of a verb in Umó^{n}ho^{n} corresponds to the agentive argument of a bivalent verb, and to the sole argument of a monovalent verb, independent of the grammatical role associated with it. The OBJECT of a verb is a patientive argument in a bivalent or trivalent verb.

[42]Pustet (2002) only takes into account verbs actually attested with person markers, which rules out a great number of state-denoting verbs that are only found with 3rd person subjects – since they only have inanimate subjects. In my lexicographic database, such verbs are classified as stative, which means that I cannot compare my data with Pustet's results.

[43]The verb *ba'ú* 'to belch' belongs to the "athematic *b*-stem" inflectional class. The change from initial *b* to initial *p* marks the A1SG argument. See §3.7.1.

The negation marker *=(a)zhi* takes an initial *m* when the negation applies to a verb with a 1st person subject. It accordingly becomes *=mazhi* for 1SG.NEG. In (126), the 1sg person marker *m* agrees with the subject of transitive verbs (126a), as well as with the sole argument of intransitive verbs, regardless of whether it is encoded with A (126a,b), P (126c) or D (126d).

(126) a. *e-wé-ko^{n}btha=mazhi*
A1SG-D3PL-A1SG.want=1SG.NEG
I do not wish (it) for them. (Dorsey 1890: 663.8 / Lion)

b. *ith-á-a=mázhi.*
(1)-A1SG-speak(2)=1SG.NEG
I didn't speak (Dorsey 1890: 467.9 / Frank La Flesche)

c. *o^{n}-wó^{n}heha=mazhi*
P1SG-faint_hearted=1SG.NEG
I am brave (Dorsey n.d.b)

d. *i^{n}-údo^{n}=mazhi*
D1sg-good=1SG.NEG
I don't feel well (Saunsoci & Eschenberg 2016: 145 / Alice Saunsoci)

The auxiliary *=o^{n}* comes from the verb *'ó^{n}* 'to use {x}' and follows the same conjugational paradigm to encode the subject of the main verb. See first person *=mo^{n}* acting as an auxiliary of an active verb in (208) p. 166, and of a stative verb in (563) p. 359.

Transitive (or ditransitive) verbs index 3rd person plural animate objects with the prefix *wa-*, as illustrated in (127).

(127) *wa-dó^{n}ba=i*
O3PL-see=PX
They saw them (Dorsey 1890: 369.19 / Nudó^{n}-axa)

This prefix *wa-* O3PL is the only prefix that encodes the object of a transitive verb but not the subject of an intransitive stative verb. In (128), the stative verb *no^{n}pé_hi^{n}* 'to be hungry' does not take any prefix to index its plural subject. This is why the prefix *wa-* is glossed O3PL instead of P3PL. Despite this, it will be included in paradigm tables along with the Patientive markers (e.g., see App. B).

(128) *ki thé-ma shét^{h}o^{n} díxe i^{n}ch^{h}o^{n} giní^{n} t^{h}e no^{n}péhi^{n}=i t^{h}e Umó^{n}ho^{n} amá;*
and DEM-OBV.PL that.far small.pox now recover EVID hungry=PL EVID Umó^{n}ho^{n} PX.PL
And these Omahas, who had now recovered from the small-pox, were hungry, (...)
(Dorsey 1890: 399.2 / Ó^{n}p^{h}o^{n}-To^{n}ga)

Note that the same phenomenon is observed in Lakhota with its prefix *wičha-*. However, while the prefix *wičha-* unequivocally comes from *wičhaša* 'man', the origin of the prefix *wa-* in Dhegiha languages is still uncertain. See section 3.1.3 for more details about the behavior

and semantic features of *wa-* as a third person plural object marker.

Finally, the enclitic *=i~bi~b* encodes proximacy of the subject. The obviation system of Umó^{n}ho^{n} is described in section 2.6.1. Note that *=i~bi~b* also encodes plurality. See section 3.1.2.

2.5.3 Core arguments, peripheral arguments, adjuncts

As seen in the previous section, core arguments are indexed on the verb by person markers which can correspond to four grammatical roles: Agentive (A), Patientive (P), Dative (D), and Benefactive-possessor (B). Third persons do not have indexation markers, however (except O3PL, as seen in §2.5.2.3; see also §3.1.3). Thus, some kinds of core arguments that are not likely to be SAP are never indexed by the verb (unless we posit a zero morpheme). For instance, a group of applicative markers called the "oblique applicatives" typically introduce locations and instruments as applicative objects, which are therefore generally not encoded on the verb (see description in §4.5 and in Ch. 6). Many intransitive stative verbs as well only combine with inanimate subjects, for example *téga* 'to be new' (Saunsoci & Eschenberg 2016: 51). Section 4.1 presents all the verb categories of Umó^{n}ho^{n} according to their number of core arguments and the grammatical roles they use.

I consider peripheral arguments to be those that are realized as adpositional phrases (here, PP), although Chapter 6 shows some shortcomings of such an analysis. As we have seen in §2.4.4, there are few postpositions in Umó^{n}ho^{n}, and they all have a spatial interpretation (which can sometimes be extended to a time interpretation). Peripheral arguments selected by the verb and expressing locations are exemplified in (129) and (130), in curly brackets and with the postposition underlined. Peripheral arguments are not encoded on the verb.

(129) {*máxa-ta*} *bihítha ithé-tha=biamá.*
{sky-ALL} blow go(?)-CAUS=PL.REPORT
He blew him up {into the sky} with sudden force. (Dorsey 1890: 23.20 / Frank La Flesche)

(130) *égithe* {*páthi^{n} tí=i thó^{n}-di*} *ahí=biamá Umó^{n}ho^{n} amá nudó^{n} t^{h}e.*
finally {Pawnees camp=PL RND-LOC} arrive=PL.REPORT Umó^{n}ho^{n} PX.PL war.path EVID
The Omaha war party [...] arrived at length at the Pawnee village. (Dorsey 1890: 396.6 / Joseph La Flesche)

Two clauses with the same verb (*bixó^{n}* 'to break {x} by bearing on it') are shown in (131) and (132). In the first one, a PP expresses the location, while in the second one, there is no PP. This is a typical example where the distinction between peripheral argument and adjunct is not straightforward. A full illustration and elucidation of the differences between peripheral and adjunct PPs is beyond the scope of this dissertation.

(131) {*zhó^{n} wí^{n}*} {*ní* *mó^{n}t^{h}e*} *bi-xó^{n}=biamá.*
{wood one} {water inside} INS:press-break=PX.REPORT
OBJ PERIPH VERB

He broke a stick under the water by bearing on it. (Dorsey 1890: 281.12 / Nudó^{n}-axa)

(132) *ki édi thé ki* {*zhó^{n} k^{h}e*} *bi-xó^{n},* *á=biamá* *(Sí^{n}snedewágithe*
and there go when {wood HORIZ} INS:press-break say=PX.REPORT Muskrat
OBJ VERB
ak^{h}á).
PX.SG

"And when he went thither, he broke the stick by bearing on it," said the Muskrat. (Dorsey 1890: 281.16 / Nudó^{n}-axa)

Adjuncts are phrases which do not qualify as verb arguments and which express time, manner, place, reason, etc. Adjuncts can be expressed by PPs (like peripheral arguments) and NPs (like core arguments). Examples of adjuncts are shown from (133) to (135).

(133) {*Ugáhanapáze*} {*sigthé*} *wé-o^{n}-tha=bázhi.*
{dark} {trail} O3PL(1)-A1PL-find(2)=PL.NEG
ADJUNCT PATIENT POSS-AGENT-VERB

We could not find their trail in the dark. (Dorsey 1890: 453.4 / Kaxé-Tho^{n}ba)

(134) {*ho^{n}égó^{n}ch^{h}e*} *páho^{n}* *wat^{h}é gthí'a=hnó^{n}=i t^{h}e.*
{morning} wake.up dress fail=HAB=PL EVID
{ADJUNCT} VERB

They had not been able to fasten their garments when they arose so early in the morning. (Dorsey 1890: 403.7 / Ó^{n}p^{h}o^{n}-To^{n}ga)

Examples (135) and (136) illustrate the same NP functioning as an adjunct and as a core argument, respectively. The sentences are very similar, as they have the same ditransitive verb *'í* 'to give {x} to {y}' indexing the subject and one of the objects (the recipient). The NP *wazhí^{n} thithíta* 'your temper', 'your mind' is an adjunct in (135), where it expresses something close to manner: 'of your own mind' (= 'spontaneously'). In (136), conversely, the NP *Wazhí^{n} thithíta* is the second verb object, the theme.

(135) {*Wazhí^{n} thithíta*} {Ø} *wa-thá-'i* *'í-tha-the.*
{temper POSS:2} P1PL-A2-give (1)-A2-promise(2)
ADJUNCT OBJ1 OBJ2-SBJ-VERB

Of your own mind you promised to give them to us. (Dorsey 1890: 639.5 / Hexaga-sabe)

(136) {*Wazhí^{n} thithíta*} *o^{n}-thá-'i* *ta=í,* *wí-bthi^{n}wi^{n},* *ehé.*
{temper POSS:2} P1SG-A2-give IRR=PL A1SG/P2-A1SG.buy A1SG.say
OBJ1 OBJ2-SBJ-VERB

Please give me {your temper}. I buy it of you [said I]. (Dorsey 1890: 439.2 / Páthi^{n}-no^{n}pázhi)
Context: The speaker is offering things in order to recruit people to a war party.

2.5.4 Relative clauses (RCs)

Like other Siouan languages, including Lakhota (Williamson 1987, Ullrich & Black Bear 2016, Ullrich 2018)[44], Osage (Quintero 2004), Hoocąk (Helmbrecht in progress)[45], Hidatsa (Boyle 2016) and Crow (Graczyk 1991), Umó^{n}ho^{n} has internally headed relative clauses (Rudin & Shea 2005, Rudin 1991b, Koontz 1984). Internally headed relative clauses are cross-linguistically rare (occuring in less than 3% of Dryer's 2013a sample of 824 languages).

Koontz (1984: 171) writes: "In [Umó^{n}ho^{n}- Pa^{n}ka] the technique for forming relative clauses involves substituting for the head NP in the matrix clause the entire modifying clause, with its own version of the head NP intact". This corresponds to the definition of internally headed relative clauses that we find in Creissels (2006b: 244), for example.

In Umó^{n}ho^{n}, the head noun almost always appears at the beginning of the relative clause (RC). Rudin (1991b) provides evidence that the RC is actually internally headed from her elicitation work (Rudin et al. 1989-92); both sentences in (137) were provided as a translation of "The boy wants the man who lives here to leave". Clifford Wolfe proposed (137a) first, and then (137b) when asked to repeat. In (137a), the head noun is preceded by the adjunct *théthudi* 'here', and we see that the RC has the same structure as an independent clause.

(137) a. *Núzhi^{n}ga ak^{h}a* {*théthudi* *níkashi^{n}ga* *gthí^{n} thi^{n}k^{h}e*} *thé gi-gó^{n}tha.*
boy PX.SG {here person sit REL:OBV.SIT.SG} go POSS-want

b. *Núzhi^{n}ga ak^{h}á* {*níkashi^{n}ga* *théthudi* *gthí^{n} thi^{n}k^{h}e*} *éshti thé gi-gó^{n}tha.*
boy PX.SG {person here sit REL:OBV.SIT.SG} too go POSS-want
The boy wants {the man who lives here} to leave. (Rudin et al. 1989-92: Tape 3, 35'26 / Clifford Wolfe)

Since property words are verbs in Umó^{n}ho^{n}, any noun modified by a property stative verb should be analyzed as a RC in Umó^{n}ho^{n}. This is the analysis followed by Koontz (1984: 175), who illustrates it with (138). See Ullrich (2018) for an in-depth analysis of <Noun-Stative Verb> collocations in Lakhota.

(138) {*Mó^{n}ze* *ná-zhide* *thé-k^{h}e*} *ú* *t^{h}e* *í-pistásta* *ki (...)*
{iron INS:temp-red DEM-REL:HORIZ} wound VERT AP:INS-A1SG.press.down when
When I press {these heated irons} repeatedly against the wounds, (...) (Dorsey 1890:231.19 / Páthi^{n}-no^{n}pázhi)

[44] Lakhota is not described as having internally-headed relative clauses by every scholar. Taylor & Rood (1996) state that RCs precede the head noun, while Van Valin (1977) states that they follow the head noun.
[45] Helmbrecht shows that both externally-headed and internally-headed RCs exist in Hoocąk, and that the latter are infrequent.

Literally: When I press against the wounds those {irons which are heated by fire}, (...).

I will illustrate below the following characteristics, most of which are already documented in Koontz (1984) and Rudin (1991b).

1. Several kinds of verb arguments can be relativized: agentive and patientive arguments of both transitive and intransitive verbs, all kinds of objects in transitive and ditransitive constructions, and adjuncts.
2. Within the RC, the head noun never takes an article.
3. The head noun is not necessarily expressed.
4. Contrary to Rudin (1991b), there seem to be instances of RCs without a relativizer. (The relativizers are the definite articles described in §2.4.3; it is one of their functions.)

2.5.4.1 Relativized arguments

Example (137) above illustrates the relativization of the subject of an intransitive active verb (the relativized syntactic role is visible within the RC: 'the man lives here'. It must not be mistaken for the syntactic role of the RC in the matrix clause[46]). Other relativized syntactic roles are exemplified below. In each case, the RC is between brackets, and the head noun is in blue.

(139) Relativization of the subject of an intransitive stative verb

shó^{n} wabágtheze uxthé-xchi thé, {wabáxu théthu thi^{n}k^{h}é}, éskana tha-'í
and letter soon-INTENS go {writer here REL:OBV.SIT.SG} OPT A2-give
gthí-tha-the ko^{n}bthégo^{n}.
arrive.back-A2-CAUS A1SG.hope

I hope that, as this letter goes very soon, you will give one and send it to {the writer who is here}. (Dorsey 1890:509.2-3 / Dúba-mo^{n}thi^{n})

Example (140) shows the relativization of the object (patientive argument) of a monotransitive verb. See (151) below for another example, with a relativized O3PL animate object cross-referenced by *wa-* on the verb.

(140) Relativization of object of a transitive verb

{Waxí^{n}ha gthí-tha-the thó^{n}} bthíze.
{paper arrive.back-A2-CAUS REL:RND} A1SG.take

I have received {the letter which you sent home}. (Dorsey 1890:511.1 / Ishtáthabi)

[46] In (137), the RC is the subject of the verb *thé* 'to go', and the clause composed of the RC and 'go' itself serves as the object of *gó^{n}tha* 'to want'.

Example (141) shows the relativization of the theme of *ɣ́* 'to give {x} to {y}'. Example (142) shows the relativization of the recipient of the same verb, but the RC is in apposition to the N *mí^{n}zhi^{n}ga* 'girl'. It is a headless relative clause[47].

(141) Relativization of the theme in a ditransitive clause[48]

{*shó^{n}ge shéna o^{n}-thá-'i tho^{n}k^{h}á*} *t'a=í*
{horse no.longer(?) P1SG-A2-give OBV.SIT.PL} die=PL

{The horses which you gave me} have died. (Dorsey 1890: 480.2 / Pí-zi-thí^{n}ge)

(142) Relativization of the recipient in a ditransitive clause

{*Mí^{n}zhi^{n}ga thi^{n}k^{h}é*} *tó^{n}be,* {Ø *úwi a'-í thi^{n}k^{h}e.*}
{girl OBV.SIT.SG} A1SG.see { earring A1SG-give OBV.SIT.SG}
OBJ SBJ+VERB APP = RC

I saw the girl {that I gave the earrings to.} (Rudin et al. 1989-92: Tape 17 / Mary Clay)

Example (143) illustrates the relativization of an applicative object indicating a location (inessive locative "in", introduced by the applicative prefix *u-*). The applicative verb *utí* 'to camp in {x}' is exemplified in non-relative clauses in (549) and (550), Chapter 6.

(143) Relativization of an applicative object

Gó^{n} {*wach^{h}íshka zhí^{n}ga o^{n}g-ú-ti=i k^{h}e*} *híde-ata shó^{n}ge ma*
and {stream small A1PL-AP:INESS-camp=PL REL:HORIZ} base-ALL horse OBV.PL
thé-o^{n}-wo^{n}-tha-í.
go-A1PL-O3PL-CAUS=PL

We sent the horses towards the mouth of {the small stream by which we camped}. (Dorsey 1890:438.3 / Páthi^{n}-no^{n}pázhi)

(144) Relativization of an adjunct of time

ki {*ó^{n}ba wi-tó^{n}be t^{h}e*} *ét^{h}o^{n}do^{n} wa-shtó^{n}be tat^{h}é ebthégo^{n}.*
and {day A1SG/P2-A1SG.see REL:VERT} by.that.time(?) ANTIP-A2.see IRR A1SG.think

I think that you shall see it by {the day that I see you}. (Dorsey 1890, 741.7 / Fred Merrick)

[47] An alternative analysis would be that what I identify as a RC is in fact an independant clause, with *thi^{n}k^{h}e* acting as an auxiliary rather than a relativizer (see §2.4.3). However, the sentence here does not have the same semantic features as the sentences illustrating the auxiliary function of *thi^{n}k^{h}e* in Eschenberg (2005: 136).

[48] Note that the matrix verb *t'ai* encodes the plurality of its subject *shó^{n}ge* 'horse'. Conversely, the verb inside the RC does not encode 'horse', which is an O3PL animate argument. The conditions under which *wa-* O3PL and *=i~bi~b* PX/PL are realized are not yet well understood. The O3PL *wa-* seldom cross-references the theme of *ɣ́* 'to give {x} to {y}', as shown in §4.1.4.1. The proximate/plural *=i~bi~b* is sometimes missing. It may be optional in contexts where the plurality is made explicit in another way (§3.1.2).

Example (145) shows a RC corresponding to an adjunct of place. I assume that the RC is headless, and precedes *pamú ámusta* 'right above the descent of the hill', and that both together form the adjunct. The literal translation would be: "When he goes, where they surrounded the herd, on the hill on top of it, I will lie looking at you". The RC can be recognized from the relative pronoun that introduces it[49].

(145) Relativization of an adjunct of place

thé t^{h}e {Ø *wá-na~náse* *tho^{n}*} *pamú* *ámusta* *wi-tó^{n}be*
go when { ANTIP-REDUP~surround REL:RND} downhill top A1SG/P2-A1SG.see
a-zhó^{n} *tá* *mi^{n}k^{h}e,* *á=biamá.*
A1SG-lie IRR 1SG.AUX say=PX.REPORT

When he goes, I will lie looking at you, right above the descent of the hill {where they have surrounded the herd from time to time}. (Dorsey 1890:45.10 / Nudó^{n}-axa)

2.5.4.2 Head nouns are never followed by articles

The preceding examples show that the head nouns (underlined) are never followed by articles, as noted by both Koontz (1984) and Rudin (1991b). This is rather logical, as it is well known that internally-headed relative clauses always have a morphologically indefinite head (see Williamson 1987, Basilico 1996), and thus this head cannot be determined by any article (all articles being definite in Umó^{n}ho^{n}). Instead, the RC as a whole is determined by a single article (§2.4.3), which in this case functions as a relativizer. In (146), the head noun *wa'ú* 'woman' has no article, and the whole clause is at the same time both relativized and determined by the article *ak^{h}á*.

(146) {*wa'ú* Ø *dúda a-i* *ak^{h}á*} *í-ko^{n}* *wiwíta.*
{woman here PX-come REL:PX.SG} POSS:3-grandmother POSS:1SG
{The woman who's coming over here} is my grandmother. (Rudin et al. 1989-92: Tape 17 / Clifford Wolfe)

The articles used as relativizers apply their semantics to the entire RC. When the head noun is inanimate, the article used will be the same as would be used if it was not relativized. For instance, the inanimate noun *wach^{h}íshka* 'stream' is determined by *k^{h}e* in (550), and is relativized in a clause determined by *k^{h}e* in (143).

Articles for animate beings include pragmatic information of obviation (proximate/obviative opposition). Rudin (1991b) shows that the relativizer provides information situating the whole

[49]Helmbrecht (p.c.) comments that this kind of structure is similar to an adverbial clause and may not be a RC.

RC in the matrix clause, and not the head noun in the relative clause. Proximate and obviative arguments often correspond to subject and object (especially in transitive clauses), though not always (see §2.6.1). There are several examples of head nouns which are the subject of the verb inside the RC, and where the RC itself is the object in the matrix clause. In cases such as (147) (repeated from (139)) and (148) (used by Rudin 1991b), the relativizer is an obviative article, as is usually expected of an object.

(147) Relativization of the patientive argument of an intransitive verb

shó^{n} wabágtheze uxthé-xchi thé, {wabáxu théthu thi^{n}k^{h}é}, éskana tha-'í
and letter soon-INTENS go {writer here REL:OBV.SIT.SG} OPT A2-give
gthí-tha-the ko^{n}bthégo^{n}.
arrive.back-A2-CAUS A1SG.hope

I hope that, as this letter goes very soon, you will give one and send it to {the writer who is here}. (Dorsey 1890:509.2-3 / Dúba-mo^{n}thi^{n})

2.5.4.3 Headless relative clauses

In Umó^{n}ho^{n}, numerous RCs lack an overt head noun, as in (148). The absence of a head noun is highlighted by "Ø".

(148) { Ø *wa-mó^{n}tho^{n}=no^{n} thi^{n}k^{h}e* } *íbaho^{n}*
{ ANTIP-steal=HAB REL:OBV.SIT.SG} know
They know the one {who steals}. (Rudin et al. 1989-92: Tape 3 / Mary Clay)

This kind of RC is common in Umó^{n}ho^{n}[50]. Note that when the head noun is null, it sometimes implicitly is taken to refer to any entity that would match the description of the RC. This is the case of the second RC in (152).

Sometimes the head noun is expressed by a generic term like *i^{n}dádo^{n}* 'what' in (149), with the same semantic result. Those headless RCs, or RCs with generic heads, correspond to free relative clauses in English (Rudin 1991b; see also Creissels 2006b:208).

(149) {*I^{n}dádo^{n} i^{n}-wí^{n}-go^{n}za=i t^{h}e*} *gáxe go^{n}tha=bazhi=no^{n}.*
{what A1PL-D3PL-show=PL REL:VERT} make want=PL.NEG=HAB
They don't want to do what {we teach them}. (Rudin et al. 1989-92: 7 – from Tape 15 / Bertha Wolfe)

The fact that the relativizers and definite determiners are the same set of morphemes, and the head noun is regularly missing, explains why in many contexts nouns are difficult to distinguish from verbs, especially when the supposedly relativized verb takes the prefix *wa-*, as in (145) earlier and (148)[51]. See 2.4.8 for the noun-verb distinction and 7.3.3 for the nominalizing function of *wa-*.

[50] For instance, see (211) p. 166 and (533) p. 351.
[51] In (148) we know that *wamó^{n}tho^{n}=no^{n} thi^{n}k^{h}e* is a relative clause due to the post-verbal marker *=no^{n}*.

2.5.4.4 Some RC lack a relativizer

I argue that Umó^{n}ho^n relative clauses can also lack a relativizer, though it occurs infrequently. This is the case in (150) for the relativization of an applicative object (an instrument), and probably in (151) for an object.

(150) {*edádo^n* *í-shko^{n}shko^n* Ø} *thi^{n}gé.*
{what AP:INS-REDUP~act REL} to.lack
He has nothing {by means of which he can act often} (?)[52]. (Dorsey 1891a: 75.4 / To^{n}wo^n-gaxe-zhi^{n}ga)

(151) *shé-ama* {*níkashi^{n}ga* *a-wá-to^{n}be*} *úzhawa XXX*
that-PX.PL {person A1SG-O3PL-A1SG.see} enjoy
These people I see are having a good time (Rudin et al. 1989-92: Tape 19 / Coolidge Stabler; transcribed with Octa Keen)
(The end of the sentence is inaudible. The RC seems to be an apposition to *shé-ama* 'these ones'. The translation is mine (Octa gave a word-for-word translation).)

Example (152) shows two relative clauses, the first lacking a relativizer, and the second lacking a head-noun (another good example of the tricky noun-verb distinction).

(152) {*shó^{n}ge* *wa-'í^n-k^{h}ithé* Ø } *wébthi^n=hno^n=mó^n* {Ø *wa-náse*
{horse ANTIP-carry-DAT.CAUS REL } D3PL.have=HAB=1SG.AUX { ANTIP-surround
amá }.
REL:PX.PL }
But I used to take care of {the packhorses} for those {who surrounded the herd}. (Dorsey 1890: 466.2 / Frank La Flesche)

The reason why some RCs lack a relativizer remains to be understood. However, it can be noted that NPs also sometimes lack determiners. Inasmuch as RCs externally act as NPs, the reason why some RCs lack a relativizer could be linked to the reason why some NPs lack a determiner, and thus further be linked to bare object constructions (see §8.4). This topic requires further investigation.

At the typological level, Rudin (1991b) notes that internally-headed relative clauses are a feature that often appears cross-linguistically with other types of nominalized clauses (Culy 1990: cited in Rudin 1990). See §2.5.5 for a description of clausal complements. Creissels (2006b: 246) provides a list of features often found in languages that have internally headed RCs, among which are the clause-final position of the verb, that the relativizer is typically present at the right edge of the clause, and that it is not uncommon to find constructions without any relativizer (which supports my point here)[53].

[52]The question mark in parentheses is in Dorsey's original translation.
[53]Conversely, Creissels claims that all languages with internally headed RCs also have prenominal RCs, and

2.5.5 Clausal complements

I follow Hopper & Traugott's (1993) distinction between three types of clause-combining constructions: "parataxis", with relative independence; "hypotaxis", where a "margin" clause is dependent but not embedded (e.g., clauses introduced by conjunctions such as *égo^{n}* 'as'); and "SUBORDINATION", where a clause is dependent and embedded into the matrix clause. The clausal complements described here are of the latter type. They are headed by verbs, while RCs are embedded clauses headed by nouns.

A restricted number of verbs very frequently or always have clausal complements as objects. Example (153) illustrates a clausal complement introduced by the complementizer *t^{h}e*[54]. The square brackets mark the matrix clause, and the curly brackets mark the clausal complement of *uthí'age* 'not to want {*CL*}'.

(153) [{*Mó^{n}zeska ut^{h}éthe k^{h}e-ta bthé t^{h}e*} *ubthí'age.*]
[{bank HORIZ-ALL A1SG.go COMP}$_{CL}$ A1SG.not.want]$_{CL}$
I don't want to go to the bank. (Saunsoci & Eschenberg 2016: 146 / Alice Saunsoci)

Clausal complements are not always introduced by a complementizer. For instance, in contrast to the example above, the clausal complement in (154) has no complementizer, while it is embedded in the argument structure of the same verb. The same variation is attested with other verbs, like *gó^{n}zhi^{n}ga* 'not to know {*CL*}'. This variation possibly reflects different degrees of grammatical integration.

(154) [*shi wí^{n} shó^{n}ge t^{h}o^{n}* {*nó^{n}ge*} *uthí'aga=i.*]
[again one horse OBV.STD {run}$_{CL}$ not.want=PX]$_{CL}$
Another one was on a horse that refused to run. (Dorsey 1890: 463.19 / Ó^{n}p^{h}o^{n}-To^{n}ga)

A few verbs attested with clausal complements are presented in Table 2.7. (Verbs of speech are not included in this survey.) Most of them are attested with either clausal complement or NPs as objects, while others, like *uthí'age*, are frequently attested with no object at all. The third column of the table indicates whether the embedded verb has the same subject as the matrix verb, or a different one. "Yes" means that all the attested embedded verbs share their subject with the matrix verb. Otherwise, the case is marked as "not always" or "never". When the subjects are different, the subject of the embedded verb is sometimes encoded as the object of the matrix verb. This is what is labeled "Subject raising"[55] in the last column

that internally headed RCs are only used "to relativize syntactic roles situated at the top of the hierarchy of accessibility to relativization." (Creissels 2006b: 246). This is not the case for Umó^{n}ho^{n}, which only has internally headed RCs. According to Rudin (p.c.), many languages with internally headed RCs do not have prenominal RCs, starting with other Siouan languages, as shown in Culy (1990).

[54]The complementizers are articles (§2.4.3). The article *t^{h}e* seems to be the most frequent one with this function.

[55]This label is used for convenience, as a compact way to refer to the fact that the subject of the embedded verb is also encoded as the object of the matrix verb. I do not use it in the context of any particular syntactic framework.

of Table 2.7. As can be seen, only a few matrix verbs encode as their object the subject of the embedded verb. Subject raising suggests a higher degree of embedding. Embedded clauses with subject raising are never introduced by a complementizer.

Table 2.7: Some Umó^{n}ho^{n} verbs with embedded clauses as objects

Verb	Gloss	Same subject	Subject raising
ethégo^{n}	to think	not always	no
gígo^{n}tha	to want for $\{x\}$	never	yes
go^{n}zhi^{n}ga	not to know	yes	–
no^{n}'ó^{n}	to hear	never?	yes
shí	to ask, employ	never	yes
sho^{n}_gáxe	to stop	yes	–
thi'á	to be unable	yes	–
thishtó^{n}	to finish	yes	–
uthí'age	not to want	not always	no

In almost all cases surveyed thus far, the embedded verb is independently inflected. In (153), (155), and (156), the matrix verb and the embedded verb have coreferent 1st person subjects, and each verb is inflected accordingly. In (153), the subject is encoded with A on both verbs. In (155), the subject is encoded with P on the embedded verb (intransitive stative), and with A on the matrix verb. In (156), the subject is encoded with A on both verbs, and the embedded verb takes an object which is not encoded on the matrix verb. Thus, there is no "object raising".

(155) [{*Wa-wák^{h}ega=i*} *shó^{n}-o^{n}-gáxa=i,*] *o^{n}-gíni=i.*
[{P1PL-sick=PL} enough-A1PL-make=PL] A1PL-recover=PL
We have brought our sickness to an end; we have recovered. (Dorsey 1890: 511.7 / Ishtáthabi)

(156) [{*T'é-o^{n}-wó^{n}-the*} *o^{n}-thíshto^{n}=i*] *ki,* *o^{n}g-ági=i.*
[{die-A1PL-O3PL-CAUS} A1PL-finish=PL] A1PL-come.back=PL
When we finished killing them, we were coming [back] this way. (Dorsey 1890: 457.7 / Kaxé-Tho^{n}ba)

In (157), the matrix verb and the embedded verb have different subjects. However, the subject of the embedded verb is not encoded on the matrix verb as an object. Morphologically speaking, *uthí'age* 'not to want $\{CL\}$' behaves like an intransitive verb. In contrast, some verbs like *gígo^{n}tha* 'to want $\{x\}$ $\{to\ V\}$' typically take as objects the subject of the clausal complement, as illustrated in (158). This is what I refer to as "subject raising". Note that in such cases the embedded verb still encodes this argument as its subject.

(157) [{*Mazhó^{n} k^{h}e u-thá-gasho^{n} hné ta=í t^{h}e*} *ubthí'age,*] *a=i (wáxe ak^{h}á).*
[{land HORIZ (1)-A2-travel(2) A2.go IRR=PL COMP} A1SG.not.want] say=PX white PX.SG
"I am unwilling for you to wander over this land," said the white man. (Dorsey 1890: 435.10 / Páthi^{n}-no^{n}pázhi)

(158) [*ki* {*Iho^{n}kto^{n}wí^{n} tíi tho^{n}-tá shné*} *wí-ko^{n}btha.*]
[and {Yankton village RND-ALL A2.go} A1SG/D2-A1SG.want]
I wish you to go to the Yankton village. (Dorsey 1890: 737.4 / John Springer)

Other examples of embedded clauses with subject raising are illustrated in (159) and (160), with *no^{n}'ó^{n}* and *shí* as matrix verbs, respectively.

(159) [*shó^{n}* {*e'ó^{n} ni^{n} t^{h}e*} *wi-nó^{n}'o^{n}*] *kó^{n}btha, k^{h}agé-ha.*
[and {how A2.be COMP} A1SG/P2-hear] A1SG.want friend-VOC
My friend, I wish to hear from you how you are. (Dorsey 1891a: 15.2 / No^{n}zadazhi)

(160) *Xúga i-zhí^{n}ge ní^{n}kagahi i-zhó^{n}ge k^{h}igthé-degó^{n}* [{*thixé*} *awa-shí,*]
Badger POSS:3-son chief POSS:3-daughter go.back.again-but [{pursue} P1PL-ask]
á=biamá.
say=px.report
"Oho! The Badger's son has gone again with the chief's daughter, so he has asked us to pursue," said they. (Dorsey 1890: 295.6-7 / Sho^{n}ge-ska)

Interestingly, the embedded verb in (160) is not conjugated. This seems to be the case for all clausal complement of *shí* 'to employ {x} for {CL}'. There are few examples of this kind. Again, this may indicate a higher degree of integration of the clausal complement into the matrix clause.

See §6.2.5 for examples of clausal complements introduced by the applicative prefix *í-*. See examples (498) p. 328 and (501) p. 332 for other examples of constructions with the verb *shí* 'to employ {x} to {CL}'.

Clausal complement and relative clauses whose head is an object are similar in form, given that both can be introduced by the same articles (especially *t^{h}e*). The difference is that the relative clause has a head noun, while the clausal complement is headed by a verb. Example (161) shows a clausal complement introduced by the complementizer *t^{h}e*, which can also be analyzed as a RC with the following meaning: "and he snatched from the Orphan {the bird which he [=the Orphan] had killed}"[56].

[56]Dead animals and humans are often determined by the article *k^{h}e* for horizontal inanimate, though. So, although clausal complements and RCs are structurally very similar, and seem ambiguous to a learner of the Umó^{n}ho^{n} language, they may not be ambiguous to a native speaker. Further investigation is required to find more potentially ambiguous examples and see if the choice of article is always disambiguating.

(161) *gó^{n} Wahó^{n}thishíge {wazhí^{n}ga t'é-tha=i t^{h}e} gí-nashá=biamá.*
and Orphan {bird die-CAUS=PX COMP} DAT-*deprive=PX.REPORT
[and] he snatched the honor of the occasion {the killing of the bird} from the Orphan. (Dorsey 1890: 588.16 / George Miller)

2.5.6 Verb sequences

Sequences of two verbs frequently occur where no relationship of subordination is observed. Four types of such sequences are presented below. It is not always easy to distinguish between them, and the precise typology of verb sequences in Umó^{n}ho^{n} needs further investigation[57].

1. Aspectual-like sequences. The position verbs *gthí^{n}* 'to sit' and *no^{n}zhí^{n}* 'to stand' are very frequently placed after event verbs, with which they share their subject, and specify whether the subject is sitting or standing. This construction is often translated into English as "s/he sat V+ing" or "s/he stood V+ing". Many examples of this type can be found throughout this dissertation: e.g., in examples (186) p. 147, (215) p. 168, (370a) p. 247, (759) p. 532, and (845f) p. 555, among others.

Example (162) clearly establishes that the position verb *gthí^{n}* 'to sit' has evolved into a durative aspectual marker; twice in this sentence, *gthí^{n}* follows an action verb which is not compatible with the sitting position. Thus, *gthí^{n}* cannot mean 'to sit' in (162). Evidence of a similar development with *no^{n}zhí^{n}* 'to stand' is found in the sentence "the water was boiling", in (112) p. 122.

(162) *But mo^{n}k^{h}ó^{n} thát^{h}e-di gthi^{n} t^{h}edi shkó^{n} gthi^{n}=no^{n} waó^{n}=no^{n}-di no^{n}t^{h}é gthi^{n}=no^{n}.*
medecine eat-LOC sit when move sit=HAB sing=HAB-LOC dance sit=HAB
But when he eats peyote, he moves around, when(?) he sings, he dances. (Rudin et al. 1989-92: Handgame discussion 18 / Clifford Wolfe)

2. Adverbial sequences. In other sequences, the first verb acts like the modifier of the second verb, as in (163b). Such cases are very similar to the adverbial modification of the verb presented in §2.4.5. The fact that *ágazhade* can act both as a main verb meaning "to stride over {x}" in (163a), and as a verb modifier meaning "making strides" in (163b) illustrates how difficult the category of verb-modifying adverbs can be to establish. Other examples of this kind of sequence can be seen in examples (631) p. 405 and (595) p. 376, among others.

(163) a. *ishtá thip'í^{n}ze-do^{n} ágazhade athá=biamá.*
eye close-while to.stride go=PX.REPORT
Having closed his eyes, he made a stride and departed. (Dorsey 1890:144.12 / Páthi^{n}-no^{n}pázhi)

[57] I avoid the term "serial verb construction", since the definition of this construction is subject to debate (Aikhenvald & Dixon 2006, Haspelmath 2016) and the precise semantics and structure of verb sequences in Umó^{n}ho^{n} is not fully described.

b. *ágazhade* *mo^{n}hní^{n}*
stride A2.walk
You walk with the legs wide apart (Dorsey n.d.b)

Verbs of motion very often follow other verbs, and together they indicate simultaneous actions in a way that looks like adverbial constructions; the subject is moving, and while he moves he does something else. This is illustrated in (164). By contrast with (163), the first verb of (164) is transitive and its object is overtly expressed. Thus, no confusion with adverbs is possible in such cases.

(164) *égithe táxti wí^{n} 'í^{n} agthí.*
finally deer one carry arrive.back
At length he came back, carrying a deer. (Dorsey 1890: 455.4 / Kaxé-Tho^{n}ba)

3. Resultative constructions. Some verb sequences indicate a process or an action leading to a result. The most obvious cases of such resultative constructions involve *t'é* 'to die' as the result, as in (165).

(165) *Má ágaspe t'é te a=í éthe, á=biamá.*
snow weight.on die IRR say=PL indeed(?) say=PX.REPORT
"They say that he will die from the snow that will press down on him," said she. (Dorsey 1890: 236.6 / Páthi^{n}-no^{n}pázhi)

Example (166) is very similar to sentences where a clause expressing the cause is subordinated (with *égo^{n}* 'as') to the clause expressing the result (see (366), (391c), (415c), among many others). However, *égo^{n}* is missing in (166), leaving a verb sequence.

(166) *Wi-tó^{n}ba=mázhi o^{n}-wó^{n}xpani hégа=mázhi.*
A1SG/P2-A1SG.see=1SG.NEG P1SG-poor a.little=1SG.NEG
As I do not see you, I am very poor. (Dorsey 1890: 507.2-3 / Te-úko^{n}ha)

4. Sequential actions. Finally, some verb sequences clearly describe sequential actions or processes, including actions that take place almost simultaneously, as in (167). The causative construction *waxúbe gáxe* 'he made it sacred' is followed by *thishká* 'he untied it'.

(167) *Makó^{n} waxúbe gáxe thishká=biamá dubó^{n}.*
medicine sacred make untie=PX.REPORT four.times
Four times he untied the medicine which he had made sacred. (Dorsey 1890: 402.15 / Ó^{n}p^{h}o^{n}-To^{n}ga)

Verb sequences are very frequent in Umó^{n}ho^{n}, and as can be seen from the previous account, their interpretation depends on context and the semantics of the verbs involved. Although I have given clear cases of the four types of verb sequences identified thus far, most verb

sequences allow for several analyses. Miscellaneous verb constructions which allow for several interpretations are exemplified in (168) through (171).

Example (168) is special because the verb sequence *gaskí t'é* 'to die of exhaustion' is not entirely predictable from the meanings of *gaskí* 'to pant' and *t'é* 'to die'.

(168) Possible analyses: adverbial; resultative

thé Sháthathégathík^{h}e u thi^{n}gé-xti, shó^{n} gaskí t'é amá.
this S. wound lack-INTENS only pant die REPORT

This Middle Chief[58] died from sheer exhaustion, not having been wounded at all. (Dorsey 1890: 412.5 / Ó^{n}p^{h}o^{n}-To^{n}ga)

(169) Possible analyses: adverbial; resultative; sequential

shaó^{n} amá á-no^{n}ge no^{n}-t'á=biamá ní^{n}kashi^{n}ga k^{h}e.
Dakota PX.PL AP-run INS:foot-die=PL.REPORT person HORIZ

The Dakotas killed the fallen man by riding over him. (Dorsey 1890: 411.6-7 / Ó^{n}p^{h}o^{n}-To^{n}ga)

(170) Possible analyses: aspectual; adverbial

édi p^{h}í kízhi te-núga ak^{h}á shkó^{n}=azhi nazhí^{n} ak^{h}á.
there A1SG.arrive when buffalo-male PX.SG move=NEG stand PX.SG

When I arrived there the buffalo bull was standing motionless. (Dorsey 1890: 467.2 / Frank La Flesche)

Verbs of motion are sometimes used in sequences where they are not necessary, as in (171). They are extremely frequent, and it is possible that, like position verbs, they have acquired some aspectual value. They may indicate a durative or an imperfective aspect. Example (171) can be compared with (559) p. 358, where the verb *ó^{n}he* 'to flee' is used without any motion verb.

(171) *Hídeata o^{n}-ó^{n}he ó^{n}ga-tha=i*
down.stream A1PL-flee A1PL-go=PL
We fled southward[.] (Dorsey 1890: 443.19 / Páthi^{n}-no^{n}pázhi)

2.5.7 Possession

Possession is expressed partly with NPs and partly with associated verbs (Koontz 1984: 185). Table 2.8 summarizes the two ways to encode possession on NPs, and two inflectional/derivational ways to encode it. What is called possession refers to possession of a good

Table 2.8: Possessive constructions

Type of possessive link	**Construction**
	ON NP
inalienable possession (kinship terms)	*wi-* 1SG, *thi-* 2, etc. (possessed)
alienable possession	*wiwíta* 1SG, *thithíta* 2, etc. (possessed)
	ON VERB
P is possessed by A	*gi-* POSS
P is possessed by someone other than A	NP (possessed) + P person marker (possessor)
	NP (possessed) + D person marker (affected possessor)

on the one hand, and kinship relations on the other hand.

As mentioned in §2.3.2, inalienable possession is the only inflectional morphology of nouns. It applies to kinship terms and to the noun *k^{h}agé* 'friend'. See example (62) p. 101. Other nouns encode possession with alienable possessive markers described in §2.4.6 (excluded for kinship relations), as exemplified in (172).

(172) Nominal morphology: alienable possession

shó^{n}ge	*wiwíta*	*t^{h}e*	*shó^{n}ge*	*thithíta*	*t^{h}e*	*shó^{n}ge*	*éta*	*t^{h}e*
horse	POSS:1SG	VERT	horse	POSS:2	VERT	horse	POSS:3	VERT
my horse			your horse			her/his/	their horse	

Possession can also be encoded on the verb. Transitive verbs where A possesses P or is related to P take the possessive marker *gi-*, as typified in (173). The possessive marker is described in more detail in §4.4.3. It applies both to alienable and inalienable constructions.

(173) Verbal morphology: A possesses P

Gó^{n} shó^{n}ge wa-gí-k^{h}o^{n}tó^{n}=biamá.
and horse P3PL-POSS-tie=PP.REPORT

And they tied their horses. (Dorsey 1890: 91.7)

[58]The term *Sháthathégathík^{h}e* is not Umó^{n}ho^{n}, as it refers to a Pawnee man.

Finally, possession can be encoded by P and D person markers. This occurs when an action is directed towards a possessed object; like the possessive marker *gi-*, it is attested in transitive constructions. The marker P often encodes alienable possession, as in (174). This example instantiates the verb *íbat'u* 'to come against {x} suddenly, striking against it'.

(174) *Mo^{n}zhó^{n} pa* *o^{n}tho^{n}-bat'u*
land head AP:INS?.P1SG-*strike
'The land hits me on the head' or 'My head comes suddenly against the land' (Dorsey n.d.b: headword *íbat'u*)

The dative prefix encodes affected arguments, most of the time beneficiaries and maleficiaries. There is a semantic link between benefaction and possession, since one is easily affected by events happening to one's possessions or kin. The dative marker is used to highlight the possessor's affectedness (whether positive or negative), as in (175) and (176). Since the dative prefix is an applicative marker, these examples can alternatively be analyzed as applicative constructions with the addition of a beneficiary or maleficiary. The functions of the dative prefix are described in more detail in §4.4.1.

(175) *wamúske sí* *ge* *wé-na-t'éga* *ha.*
wheat seed SCT D1PL-INS:temp-whitered DECL.M
Our wheat has been withered by the heat (Dorsey 1890: 680.6 / Joseph La Flesche)

(176) *Ikó^{n}* *k^{h}e* *wé-thi^{n}ga.*
grandmother HORIZ D1PL-gone
Our grandma is gone (deceased). (Saunsoci & Eschenberg 2016: 40 / Alice Saunsoci)

Apart from the four constructions presented thus far, possession can also be expressed with the verb *athí^{n}* 'to have {x}', and sometimes for kinship relations with the causative stem *-the* (although to me the causative stem seems to convey the idea of considering someone as one's kin, rather than being a neutral possessive construction).

See Koontz (1984: 185 ff.) for a detailed presentation of alienable and inalienable possessive marking on nouns, constructions with *athí^{n}* 'to have {x}', and constructions with *-the*. See Helmbrecht (2003) for a detailed description of possession in Hoocąk.

2.6 Discourse and pragmatics

In §2.6.1 I present the obviation system of Umó^{n}ho^{n}, and in §2.6.2 some features of gendered speech. Pragmatic considerations also have an impact on word order (§2.5.1), noun incorporation (Chapter 8, especially 8.3.4) and determiner drop (§8.4).

2.6.1 Obviation system

Obviation systems were first described in Algonquian languages, in relation to the inverse system. Both systems are still generally described together (e.g., in Givón 2001b). An obvia-

tion system typically marks one topical or discursively prominent argument as PROXIMATE, in contrast to one or more other arguments which are considered to be OBVIATIVE. The Umó^{n}ho^{n} obviation system is described in Koontz (1989b), Eschenberg (2005), Rudin & Shea (2005). It is different from what is typically expected and complex due to various factors. Formally, it is encoded by various exponents, one of which has three allomorphs and is polyfunctional. Functionally, the obviation system of Umó^{n}ho^{n} is very distinct from what is found in Algonquian languages.

2.6.1.1 Formal marking

The obviation system in Umó^{n}ho^{n} is expressed by the animate articles and by a verbal enclitic. Umó^{n}ho^{n} has seven definite animate articles which are either proximate or obviative, as seen in Figure 2.1 (§2.4.3). In bivalent constructions, the proximate and obviative arguments almost always correspond to the subject and object of the verb respectively, as typified in (177). Inanimate arguments cannot be proximate.

(177) *tígaxe a-thá=bi egó^{n} {Mo^{n}ch^{h}ú ak^{h}á} {i^{n}sháge thi^{n}k^{h}é} gí-bo^{n}=biamá.*
play PL-go=PL as {Grizzly.Bear PX.SG} {old.man OBV.SIT.SG} DAT-call=PX.REPORT
[The children] having gone to play, the Grizzly Bear called the old man. (Dorsey 1890: 84.2 / Nudó^{n}-axa)

Proximate subjects are encoded on the verb with the enclitic *=i~bi~b*, almost always realized as *=i*. Additionally, they are encoded with the prefix *a-* with motion verbs. The enclitic *=i~bi~b* encodes proximacy and plurality and has three allomorphs which are not phonetically conditioned. It is sometimes realized twice, and its positioning among other post-verbal markers requires specific description. See §3.1.2 for more detail about plural marking, and §3.2.3 for more detail about the allomorphs and positioning of *=i~bi~b*.

In (178), one proximate subject is expressed by two NPs with the proximate article *ak^{h}á*: *ní^{n}kashi^{n}ga ak^{h}á* and *Uk^{h}íabi ak^{h}á* (the second being an apposition). Both verbs (in separate clauses, with coreferent subjects) take the proximate enclitic *=i*. As the subject is singular, no ambiguity about the plural function of *=i* is possible.

(178) *Gó^{n} {ní^{n}kashí^{n}ga ak^{h}á}$_{i}$ xuba=í t^{h}e, wa-thípi=no^{n} át^{h}a=i t^{h}e,*
and person PX.SG mysterious=PX EVID ANTIP-do.well=HAB beyond=PX EVID
{Uk^{h}íabi ak^{h}á}$_{i}$.
U. PX.SG
Ukiabi was a mysterious person, exceeding all others in performing wonderful deeds. (Dorsey 1890: 609.1 / Yellow Buffalo)
Literally: And {the person}$_{i}$ was mysterious, he exceeded all, {Ukiabi}$_{i}$.

In (179), the subject of the verb is a singular third person marked as obviative by the article *thi^{n}k^{h}e* in the NP. Accordingly, the proximate marker is absent from the verb.

(179) *nó^{n}zhi^{n}shché-xchi wí^{n} wat^{h}é í-gaxthí-Ø amá {ikó^{n} thi^{n}k^{h}é}.*
barely-INTENS one robe AP:INS-kill-~~PX~~ REPORT grandmother OBV.SIT.SG
{The old woman} barely killed one by hitting it with her skirt. (Dorsey 1890: 578.11 / George Miller)

The enclitic *=i~bi~b* only encodes proximate subjects, and not proximate objects. As seen in §2.5.2.3, the "subject" includes the A argument of a transitive verb and the sole argument of an intransitive verb (encoded with A, P or D). In (180), two intransitive stative verbs encode their subjects as proximate. The first verb encodes its subject as P (thus, Ø here for 3SG), while the second one encodes its argument as D (with *gí-* DAT).

(180) *thi-tó^{n}de wak^{h}éga=i.*
POSS:2-sister sick=PX
Your daughter's husband was sick.

i^{n}ch^{h}o^{n}-xchi gí-udó^{n}=i.
now-INTENS DAT-good=PX

He is better now. (Dorsey 1890: 479.2 / Mo^{n}ch^{h}ú-No^{n}ba)

In (181), the intransitive stative verb *wak^{h}éga* 'to be sick' has an obviative subject, as can be seen from the obviative article *thi^{n}k^{h}é* 'OBV.SG' in the NP. As a consequence, the verb does not take the proximate enclitic *=i*.

(181) *Ki thé-thi^{n}k^{h}e i-gáxtho^{n} thi^{n}k^{h}é wédathé-de-go^{n} wak^{h}éga=Ø.*
and this-OBV.SIT.SG POSS:3-wife OBV.SIT.SG give.birth-but-as sick=~~PX~~
This man's wife has given birth to a child, and she is ill. (Dorsey 1891a: 45.4 / Cyrus Phillips)

Proximate objects are very rare. The only example found thus far is reproduced in (182). As previously specified, the enclitic *=i~bi~b* only encodes proximate subjects. Thus, the proximate object in (182) is only encoded with the article *amá*.

(182) *ó^{n}ba théthu {shaó^{n} amá} wa-tó^{n}be ha, Umáha tíi thó^{n}di.*
day here {Dakotas the.PL} O3PL-A1SG.see DECL.M Umó^{n}ho^{n} village the.RND-LOC
On this day I have seen the Yanktons at the Umó^{n}ho^{n} village. (Dorsey 1890:707.1 / Unázhi^{n}-ska)

The obviation system sometimes disambiguates the subject from the object in clauses with two 3rd person arguments. In (183), we know that the NP *ní^{n}kagahi úzhu ak^{h}á* 'the head-chief' is the subject because of the proximate article it receives and the proximate marking on the verb. The two NPs with obviative articles are the objects.

(183) *shó^{n} {ní^{n}kagahi úzhu ak^{h}á} 'í=biamá {wáxe-sábe thi^{n}k^{h}é} {wa'ú thi^{n}k^{h}é.}*
and {chief principal PX.SG} give=PX.REPORT {skin-black OBV.SIT.SG} {woman OBV.SIT.SG}.

And the head-chief gave the woman to the black man. (Dorsey 1890: 112.10 / Frank La Flesche)

Motion verbs (see presentation in Koontz 1984: 236-9) have the particular feature of marking proximate arguments with the unaccented prefix *a-* in addition to the enclitic *=i*. Interestingly, *a-* has the same double function as *=i*, encoding both plural and proximate subjects, as illustrated in the following two examples.

(184) *áshi* *a-hí=bi* *egó^{n}, tizhébe t^{h}e* *égaxé-xti* *zhá=bi=amá*
outside PX-arrive=PX as door VERT around-INTENS defecate=PX=REPORT
mashchí^{n}ge *ak^{h}á.*
Rabbit PX.SG
Having gone outside, the Rabbit(PX) dunged all around the door. (Dorsey 1890: 15.11 / Joseph La Flesche)

(185) *áshi* *hí-Ø* *wíuto^{n}gá-xti* *Wasábe* *t'étha=bi=amá* *Mashchí^{n}ge* *ak^{h}á.*
outside arrive-OBV as.soon.as(?)-INTENS Black Bear kill=PX=REPORT Rabbit PX.SG
The Rabbit(PX) killed (wounded) the Black Bear(OBV) just as soon as he [the Black Bear] got outside. (Dorsey 1890: 16.5 / Joseph La Flesche)

2.6.1.2 Pragmatic functions

In the following, I briefly describe the system of obviation in Umó^{n}ho^{n}, building on Eschenberg (2005: 78-100) and also on some comments by Dorsey (1890) and Koontz (1989b).

First of all, only animate arguments (or personified inanimates) can be proximate. As Eschenberg (2005: 80) notes, the Umó^{n}ho^{n} obviation system deviates from what is generally understood by the term. First, Umó^{n}ho^{n} lacks the passive and inverse voices, which are often associated with obviation because they can be used for syntactic pivots[59]. Moreover, the Umó^{n}ho^{n} obviation system is not used as a referent-tracking system, because the argument marked as proximate can change between one clause and the next. Example (186) illustrates such a switch of proximate argument between the first and the second clauses:

(186) a. *Wá-gat^{h}a* *gthí^{n}=i ki,*
ANTIP-aim sit=PX when
When he$_{x}$(PX) sat aiming(PX) at the foe ...

b. {*shaó^{n}* *ak^{h}á*}$_{y}$ *ét^{h}o^{n}thi^{n} k^{h}ída=i$_{y}$*
{Dakota PX.SG} first(?) shoot=PX$_{y:proximate}$
... a Dakota$_{y}$(PX) was the first to shoot(PX) at him$_{x}$ ...

[59] The syntactic use of the passive for pivots is illustrated in (25), p, 68, for English.

c. *á* *k^{h}e* *ú=i*
arm HORIZ wound=PX
... wounding(PX) him$_x$ in the arm.
When he$_x$ sat aiming at the foe, a Dakota$_y$ was the first to shoot at him$_x$, wounding him$_x$ in the arm. (Dorsey 1890: 421.16 / Kaxé-Tho^{n}ba)

In the same way, in reported dialogue the person speaking is usually proximate, and so the proximate argument changes with each conversational turn. Eschenberg (2005: 84-5) reproduces an interaction between two sisters where only the relation names ("elder sister" vs. "younger sister") disambiguate who is speaking. This is probably why obviation was first described as distinguishing between subject arguments and object arguments, especially with regard to the articles (Dorsey n.d.a, Hahn c. 1930s)[60].

Eschenberg proposes to explain the obviation system in Omaha with Duchan et al.'s (1995) Deictic Centering Theory. In a narrative, we imagine a focal area, like with a camera, and people performing actions inside (proximate) or outside (obviative) the area of focus. Several persons can be marked as proximate in turn. In dialogues, the focus usually changes at each conversational turn, "mimicking actual focus of attention in conversation" (Eschenberg 2005: 91). This is why indirect speech is almost always marked by the proximate form *á=biamá* 'say=PX.REPORT'.

This theory seems to accurately explain the use of the proximate marker *=i* on verbs. It is consistent with Koontz's explanation (1989b, building on comments by Dorsey 1891a) that proximate arguments are in the speaker's field of vision, while obviative arguments are not.

Conversely, Dorsey (1891a: 26-27) comments that obviation can be used to describe actions performed at the request or with the permission of another. He also reports that *t'é* 'to die' is usually used with obviative subjects, because this is seldom a voluntary action[61]. One of the few exceptions to this rule is found in a sentence saying "When a person wishes to die at any place, he dies" (Dorsey 1890: 325.12). These data do not match Eschenberg's explanation very well, and instead indicate that the obviation system combines different features and requires further research. See §4.8 for a possible use of obviation to favor a passive interpretation.

In conclusion, we see that Eschenberg (2005) provides a consistent explanation of the obviation system of Umó^{n}ho^{n}, one which seems to work in most cases. Dorsey (1890, 1891a) and Koontz (1989b), however, provide other restrictions that can slightly modify the conditions of selection of proximate or obviative marking. As the morpheme *=i* also encodes plurality (of

[60] Dorsey's analysis does not mention "subjects" and "objects", but describes the animate proximate articles as being "nominative" (n.d.a: 20-22). See Eschenberg (2005) for a review of the literature on the subject.

[61] However, (1) *t'é* is regularly found followed by *=i* for plurality of subject; and (2) *wak^{h}éga* 'to be sick' is reported with proximate marking in (180), although it is not a voluntary action either.

subjects and objects), it is extremely difficult to describe its different functions and the rules governing its presence or absence on the verb. Throughout this dissertation, the gloss =PP 'plural/proximate' is used whenever there is any ambiguity or overlap between its functions.

2.6.2 Gendered speech

Another noteworthy feature of Umó^{n}ho^{n} is its use of gendered speech, which is morphologically encoded in a small set of discourse markers or mood markers. It further affects kinship terms and a few expressions. Table 2.9 shows a few examples of gendered speech, divided into sections for different domains of the language.

Table 2.9: Sample of gendered grammatical markers and vocabulary

	Male	**Female**	**Examples / sources**
		MOODS / DISCOURSE MARKERS	
declarative	*ha*	*he*	(206) vs. (352)
emphasis	*a*	*e*	(220) vs. DD:*e*
exclamative	*ahó^{n}*	*ehó^{n}*	(316) vs. DT:36.12
imperative	*ga*	*a*	(118) vs. (355)
		KINSHIP TERMS	
'elder brother!'	*zhi^{n}théha*	*tinuhá*	For all kinship terms: Fletcher & La Flesche (1911: 315-316)
'grandfather!'	*tigó^{n}ha*	*tígo^{n}ha*	
'nephew!'	*to^{n}shkáha*	*wítushkeha*	
'son!'	*nisíha*	*wízhi^{n}geha*	
		EXPRESSIONS	
greeting	*ahó!*	*eyó^{n} ní^{n} a?*	U: p. 310
		INTERJECTIONS	
exclamation of surprise	*xá-i-na*	*íthiach' íshiach'éee*	(464b) vs. DT: p. 29

The mood and discourse markers in Table 2.9 are taken from Koontz (1984: 48). This is not an exhaustive list, and more examples can be found in Dorsey's dictionary (n.d.b). With the exception of the imperative, these markers display a constant opposition between use of the vowel *a* for male speech and *e* for female speech.

The Umó^{n}ho^{n} kinship system also exhibits gendered speech. Many kinship terms vary according to the speaker's gender, for instance the names of elder and younger brothers and sisters, children, and nephews/nieces. Alongside the differences in the kinship terms themselves, there are systematic differences in word stress in the address forms, as exemplified

by "Grandfather!" in Table 2.9. The kinship terms are taken from the work of Fletcher & La Flesche (1911: 315-316). Contemporary materials record a few changes in the vocabulary used and show a systematic opposition between male and female address forms, with the male vocative being written *-ho* and the female vocative *-ha* (ULCC 2018, OLIT-UNL 2018). This is one of the few occasions where the vowel /o/ is used as a phoneme in contemporary materials (see §2.2.2).

The expression for greeting is also a famous example of gendered speech. I have seen it used as a key example by community members to point out the fact that learning Umó^{n}ho^{n} is not only about learning vocabulary, but also implies learning cultural ways as well. While male speakers greet people with the expression *ahó*, females ask *eyó^{n}ní^{n}a?*, which means "How are you?"

Finally, interjections often seem to be gendered in Dorsey's documentation. The example given in Table 2.9 is explicitly quoted as a male/female equivalent in Dorsey (1890: 29).

2.7 Comparison of "19th-century Umó^{n}ho^{n}" with "Contemporary Umó^{n}ho^{n}"

Many differences can be observed between Umó^{n}ho^{n} as recorded by Dorsey, which I labeled "19th-century Umó^{n}ho^{n}" in §2.1.2, and Umó^{n}ho^{n} as recorded in contemporary materials (for documentation and teaching). It is often difficult to say whether an overt difference really corresponds to language change, or if it is due to other factors (e.g., speech style, methods and tools of documentation, authors and speakers' goals, variation among speakers). Below, a list of observed differences is presented. Some general comments on these differences will then be given.

- Phonology / morphophonology / spelling:
  - Dorsey often documents an alternation between the sequences /shn/, /hn/ and /n/, while contemporary materials record only /n/. This concerns at least the "habitual" marker *-shno^{n}~hno^{n}~no^{n}* (§3.2), and the A2 person marker of verbs of the athematic *th*-stem conjugational paradigm (§3.7.1).
    - Dorsey: *shnát^{h}e~hnát^{h}e~nát^{h}e* 'you eat'
    - Contemporary: *nát^{h}e* 'you eat' (Saunsoci & Eschenberg 2016: 74)
  - Currently, the glottal stop is often dropped. There seems to be free variation in its realization (B. Gordon, p.c.). As observed in §2.2, no variation is recorded in Dorsey's writings.
  - Some words are systematically spelled with the vowel /a/ in Dorsey's texts, and with the vowel /o^{n}/ in contemporary materials. This arises in particular when the vowel follows a nasal consonant and precedes a syllable with a nasal vowel. Thus,

as Catherine Rudin (p.c.) points out, there could be an assimilation of the nasality feature from the consonant and the following syllable. This could be a diachronic change since the time of Dorsey. However it is also possible that these were already pronounced as nasal vowels in Dorsey's time, but that he decided to write an oral vowel in accordance with, for instance, his knowledge of the word's etymology.

  * Dorsey: *nazhí^{n}* 'to stand', *na'ó^{n}* 'to hear it', *mazhó^{n}* 'earth'
  * Contemporary: *no^{n}zhí^{n}*, *no^{n}'ó^{n}*, *mo^{n}zhó^{n}*

- Grammar
  - In current materials (Saunsoci & Eschenberg 2016, ULCC 2018, OLIT-UNL 2018), the proximate/plural enclitic *=i~bi~b* has disappeared in the most frequent contexts. It is not longer used as a proximate marker, but it is used as a plural marker in imperative forms, and is sporadically used as a plural marker in other forms (e.g., Saunsoci & Eschenberg 2016: 133), as well as being retained in certain traditional speech styles (Marsault & Gordon 2018). However, the Ablaut triggered by *=i~bi~b* stills occurs, so the change from final /e/ to final /a/ has replaced *=i~bi~b* as a proximate and plural marker in all ablauting verbs (see §3.5.2).
    This seems to be a very recent development, since *=i~bi~b* is still frequently used both as a proximate and as a plural marker by Mary Clay, Clifford Wolfe, and Bertha Wolfe in Rudin et al. (1989-92). It is sporadically found in Saunsoci & Eschenberg (2016) and ULCC (2018), too.
    * Rudin et al. (1989-92): *that^{h}é* 'he ate' (SG.OBV), *that^{h}ái* 'they ate' (PL)
    * OLIT-UNL (2018): *that^{h}é go^{n}tha* 'he wants to eat', *that^{h}á* 'they eat'.
  - Umó^{n}ho^{n} has many different conjugational paradigms, which are presented in §3.7. There is a tendency in contemporary Umó^{n}ho^{n} to encode A1SG and A2 persons with the "regular" person marker in addition to initial consonant alternation in the "athematic" paradigms. The best example is the verb *dó^{n}be* 'to see $\{x\}$', which only encodes A1SG and A2 persons with initial consonant alternation in Dorsey's texts, and with both initial consonant alternation and the regular prefixes in the most recent documentation (Saunsoci & Eschenberg 2016, ULCC 2018, OLIT-UNL 2018). Koontz (2001b) calls these the "old" and "new" patterns of the verb. Rudin et al. (1989-92) mainly exhibit the new patterns, but the old pattern is also attested.
    * Dorsey: *tó^{n}be* 'I see it', *íshpaho^{n}* 'you know it'
    * Rudin et al. (1989-92): *tó^{n}be~ató^{n}be* 'I see it', *íshpaho^{n}* 'you know it'[62]
    * Contemporary teaching materials: *ató^{n}be* 'I see it'; *íshpaho^{n}~íthashpaho^{n}* 'you know it'[63]

[62]The form *tó^{n}be* is provided by Mary Clay on Tape 17, side A, during an elicitation session where she is alone with Catherine Rudin. Clifford Wolfe and Bertha Wolfe only provide *ató^{n}be*. Mary Clay also uses the form *thashtó^{n}be* 'you know it' once; so she used both patterns. All three speakers were recorded saying *íshpaho^{n}* 'you know it'. Note that to date (October 16, 2020), the recording tapes have not been entirely transcribed.

[63]ULCC (2015) and ULCC (2018) provide both *íshpaho^{n}* and *íthashpaho^{n}* forms, while OLIT-UNL (2018)

- Co-referential NPs are very numerous in Rudin et al. (1989-92), especially in spontaneous speech (discussions and stories). Most of the time, a demonstrative marker and articles are followed by an NP with a head noun. Co-referential NPs are also found in Dorsey's texts, though less frequently. Teaching materials, which most of the time present isolated sentences, also show a reduced number of co-referential NPs.
- The Umó^{n}ho^{n} sentence structures which are closer to English seem to be more frequent in contemporary documentation. For instance, alienable possession on the NP (*wiwíta* 'my', *thithíta* 'your', etc) seems to be more frequently used; and there is less determiner drop in written documentation materials (Gordon 2016: 406). See discussion below.

- Vocabulary
  - Differences are observed in the address forms of kinship terms. In Fletcher & La Flesche (1911), both male and female address forms are encoded with final *-ha*, but the accent patterns are different (see Table 2.9). In ULCC & OLIT (2018), there is also a different accent pattern for male and female address forms, but in addition the male address form is *-ho*.
    * Dorsey and Fletcher & La Flesche: *tigó^{n}ha* (M) vs. *tigo^{n}há* (F): 'grandfather'
    * ULCC & OLIT (2018): *tigó^{n}ho* (M) vs. *tigo^{n}há* (F): 'grandfather'
  - A few words are different in Dorsey's texts and in contemporary materials. Each time, the old and new versions are similar.
    * Dorsey: *gasáni* 'tomorrow'; *ugáhanapáze* 'darkness'
    * Contemporary documents: *gasó^{n}thi* 'tomorrow'; *ugáno^{n}paze* 'darkness'

Some of the oppositions described above certainly are the result of language change that has taken place at some point or is still ongoing. These are the change from /shn-/ to /n-/ in some environments, the dropping of *=i~bi~b*, and the introduction of regular A1SG and A2 person markers in athematic paradigms[64].

Otherwise, the variations observed could be the result of diverse factors. On the one hand, it is possible that Dorsey failed to record some existing variations due to the reduced number of speakers he worked with. It is also possible that some information was lost because he had to write as quickly as the speakers spoke, or ask them to repeat themselves, which possibly

uses only *íthashpaho^{n}* and Saunsoci & Eschenberg (2016) only use *íshpaho^{n}*. All of them only use the modern paradigm of the verb 'to see'.

[64]The fact that Dorsey worked with a small number of speakers representing a particular group within the tribe could cast doubt on this conclusion. The three changes I have just listed, however, concern pervasive forms, and Dorsey's Umó^{n}ho^{n} and Pa^{n}ka letters, which record the words of many speakers, show the same grammatical features as the rest of the tales.

modified the data[65]. As an example, the high number of co-referent NPs found in stories and discussions from Rudin et al. (1989-92), in comparison with other materials, might be explained by the fact that speakers produce fewer of them if they are asked to repeat themselves (in Dorsey), or if they are asked to provide isolated sentences (in elicitation, or during working sessions to produce teaching materials). See §2.1.1 for a detailed presentation of Dorsey's work.

On the other hand, contemporary teaching and documention materials may also sometimes be biased. Writing about determiner drop, Gordon (2016: 406) notes that "at the Title VII Umó^{n}ho^{n} Language and Cultural Center we often 'reinsert' dropped determiners into transcripts and materials, and this is described as a correction. I believe that this move may emerge in part from the influence of the 'rule'-based project of documentary linguistics upon community-based programs. Documentary linguistics has set in motion rapid codificational change to community language ideologies, and has privileged questions of speaker skill and grammaticality (heard as 'correctness' by most audiences) over descriptions of legitimate variation. Determiner drop has not, however, disappeared from fluent spoken language, and may be viewed as itself correct." This comment might apply to other differences observed in the list above.

Additionally, Gordon (p.c.) points to the possibility that sentence structures that more closely resemble English, such as *Izházhe wiwíta t^{h}e...* 'my name is...', are not new and are not "distortions" of an older, purer language form. Rather, many variations have always existed, and the syntactic structures which are closest to English structures are privileged by speakers in teaching environments, as she has witnessed herself.

Distinguishing differences caused by language change from differences in the methods of documentation requires further investigation.

[65]Regarding this, see his presentation of the speakers from whom he obtained tales and personal stories (Dorsey 1890: 1-4).

Chapter 3

Verbal morphology

Umó^{n}ho^{n} is a head-marking language, and almost all its morphology is centered on the verb. It presents several polysynthetic features, like the encoding of up to two core arguments on the verb, applicative markers and noun incorporation. Verbal morphology is complicated for several reasons: the high number of inflectional and derivational morphemes involved, their respective ordering which is not always the same, morphophonological rules which apply to prefix sequences and yield opaque surface forms, and many different conjugational paradigms which result from these opaque surface forms and from historical phonetic changes involving the initial consonant of the stems.

Table 3.1 shows a simplified verb template. The verb is generally constituted of a root (some verbs have two roots, both of them inflected - see §3.4 and Koontz (2001b: 27)), which can be followed by a variety of markers encoding aspects, modes or negation, as well as a marker of plural and proximate. Many different prefixes can be added to the root, including personal indexation markers, derivational prefixes and some incorporated nouns or other unanalyzable elements called "preverbs". However, there are no tenses in Umó^{n}ho^{n} (but there are irrealis markers and evidential markers, see §3.2). The material inserted before the root presents difficulties in its description. The prefixes are numerous, they change slots, and they undergo morphophonological changes. The markers coming after the root, on the other hand, follow each other in an agglutinative way.

Several features of Umó^{n}ho^{n} verbal morphology stand out: (1) the existence of an enclitic having three allomorphs, at least two overlapping functions, and which is realized at different places in the template; (2) several kinds of multiple exponence; and (3) derivational prefixes which have undergone a reanalysis and have acquired inflectional features. Most of the morphological complexity is situated in the prefixal domain, where the person markers and most of the derivation are found.

Table 3.1: General template of Umóⁿhoⁿ verbs

derivational prefixes person markers “preverbs” incorporation	**root**	mood and aspect markers (irreal, imperative, habitual, etc); plural/proximate; negation

This chapter aims at presenting Umóⁿhoⁿ verbal morphology, in order to shed light on the many valency changing operations which are morphologically encoded, and on core argument marking on the verb. After the present introduction, **§3.1** presents the person markers of the regular paradigm, and the semantic features associated with them. Post-verbal markers are then presented in **§3.2**. Verb derivation is briefly introduced in **§3.3**. As most derivations are valency-changing, they will be addressed in more detail in Chapter 4.

Sections 3.4 to 3.7 focus on the prefix sequences (except §3.5.2). In **§3.4**, the verb template is presented, as well as the cases of multiple exponence (§3.4.5). The morphophonology is then introduced in **§3.5**. This explains changes undergone by prefix sequences presented in the verb template. Section **§3.6** explains why two prefixes which are originally derivational applicative prefixes are analyzed as person markers encoding their own grammatical role. The chapter concludes with a presentation of the main conjugational paradigms of Umóⁿhoⁿ, in **§3.7**.

This chapter is completed by Appendix B, which presents 24 different conjugational paradigms with comments about the sources used and the variations attested.

3.1 Verb inflection: introduction to person and number marking

As previously mentioned (§2.5.2), core arguments are indexed on the verb by prefixes. Four grammatical roles are encoded on the verb: A (Agentive), P (Patientive), D (Dative), and B (Benefactive-Possessive). A and P are the two original grammatical roles encoded by the verbs, and D and B are the result of fusion of dative and benefactive-possessive derivational prefixes with the inflectional prefixes for P (see §3.6). In fact, the dative and benefactive-possessive derivational prefixes also fuse with the A prefixes. See §3.6.

The verb morphologically encodes one or two arguments. Table 3.2 shows A and P person markers, and how they combine in the regular paradigm. Columns stand for P arguments, and rows stand for A arguments. Thus, the different cells indicate the possible combinations of A and P arguments which can be found in a transitive verb. For example, the equivalent of English “you V us” is found in the cell where the A2 row crosses the P1PL column: *(a)wa-tha-*

Table 3.2: A & P person markers and their combinations

	P1SG	P1PL	P2	P3SG	O3PL	Active intr.
A1SG			*wi-*	*a-*	*awá-*	*a-*
A1PL			*o^n-thí-*	*o^n(g)-*	*o^n-wó^n-*	*o^n-*
A2	*o^n-thá-*	*(a-)wa-thá*		*tha-*	*wa-thá-*	*tha-*
A3	*o^n-*	*(a-)wa-*	*thi-*	*Ø*	*wa-*	*Ø*
Stative intr.	*o^n-*	*wa-*	*thi-*	*Ø*		

[1]. Gray cells correspond to impossible combinations. The last row and the far right column illustrate the conjugational paradigms of intransitive verbs, following the split intransitivity system (see §2.5.2.2).

In the following, I will present some basic semantic and syntactic features of personal indexation in Umó^{n}ho^n: The personal categories distinguished by the Umó^{n}ho^n verb are introduced in §3.1.1, with special focus on the "1st person inclusive". I then present the plural marking (§3.1.2). Finally, I present some specificities of the 3rd person plural object marker, which clearly stands out from the others in a number of ways (§3.1.3). This section avoids presentation of complex prefixal sequences, discontinuous stems, multiple exponence and "irregular" conjugational paradigms. Those more complex aspects of verbal morphology will be treated in subsequent sections of this chapter.

3.1.1 The person category of first dual and plural

Koontz (1984: 59) claims that the personal categories encoded by the prefixes represent only persons, not numbers. According to him, the indexation prefixes *o^n(g)-* and *wa-*, glossed A1PL and P1PL in this dissertation, are inclusive markers representing the speaker and the addressee (he glosses them "A12" and "P12" rather than "A1PL" and "P1PL"). In view of this, the indexation prefixes *o^n(g)-* and *wa-* would be dual markers (speaker + addressee) and would not encode plurality. Plurality is marked by the clitic *=i~bi~b* after the verbal complex (see §3.1.2 and §3.2.3). Rankin (1998: cited in Jacques (2011)) proposes a similar analysis of Proto-Siouan, identifying 4 or 5 personal categories: 1SG; 2; 3; 1DU.INCL and maybe 1PL.EXCL. We find these categories in most of the Siouan languages. In Lakhota, for instance, there is a clear distinction between dual inclusive on the one hand, and plural exclusive on the other hand. Dual inclusive is obtained by the prefix *ṵ(k)-* alone, cognate of Omaha *o^n(g)-*, and plural exclusive is obtained through prefix *ṵ(k)-* + suffix *-pi* cognate of Umó^{n}ho^n *=i~bi~b* (Ullrich 2008: 710). For example, in Ullrich (2008: 710), *uŋ-hí* is translated as "you and I came", and *uŋ-hí-pi* as "we came".

[1]The (a-) in the P1PL column is present only when the prefixal sequence is found word-internally (in discontinuous stems or in causative stems).

The prefixes *o^n(g)-* in Umó^{n}ho^n and *ụ(k)-* in Lakhota come from the same protoform **wąk-* **wą•k-* in Proto-Siouan, designating the "1st inclusive actor prefix" (Carter et al. 2006: 3). It seems, then, that the distinction between the inclusive and exclusive 1st person did exist in Proto-Siouan. However, Rankin (2005: 480) observes that "only in Dakotan and Winnebago is the true dual inclusive meaning clear".

The following example shows that the prefix *o^n(g)-* is not an inclusive person marker in Umó^{n}ho^n, since it co-occurs with a patientive marker of 2nd person (*thi-*), with the meaning of "we V you". However, it seems that *o^n(g)-* alone (i.e., when there is no clitic *=i~bi~b* after the verb) still refers to a dual agentive person (see §3.1.2).

(187) *zhi^{n}thé-ha, xt<o^n-thi>the ch^{h}ábe.*
elder.brother-VOC <A1PL-P2>love INTENS
"O elder brother (Rabbit), we two love you very much". (Dorsey 1890: 26.6 / Nudó^n-axa)

The first person plural patientive marker is not inclusive either, as shown by numerous examples of verbal forms combining this prefix with a 2nd person agentive marker:

(188) *Wabágtheze wa-thá-'i=azhi.*
letter P1PL-A2-give=NEG
You have not corresponded with us. (Dorsey 1891a: 33.1 / John Springer)
Literally: You have not given us any letter.

3.1.2 Plural marking

The enclitic *=i~bi~b* encodes at least plurality and proximacy[2]. The obviation system has been described in §2.6.1. In this section, I describe how *=i~bi~b* encodes plurality. More detail about the morphological features of this prefix (nature and allomorphy conditioning) is provided in §3.2.3.

The presence or absence of *=i~bi~b* as a plural marker seems to obey complex rules depending on which combination of persons are involved in the predicate. According to Koontz (1984: 96 ff.), *=i~bi~b* encodes plurality for all subjects, and for 1st person and 2nd person objects, but not third person objects. The enclitic *=i~bi~b* only appears once, even when both arguments of the verb are plural and/or proximate. It is possible that other factors are at play too: whether plurality is explicitly encoded in another way or not, and maybe issues

[2]The prefix *a-* does the same with movement verbs, in addition to *=i~bi~b*. Koontz (1984: 100) says that *a-* is used for plurality on motion verbs "in a commitative sense". There is evidence that *a-* encodes proximacy, too, because it very often appears on verbs with 3rd person singular subjects. Koontz (1984: 100) diachronically links unaccented *a-* with the locative applicative *á-* (see §4.5 and Chapter 6). Examples of plurality with motion verbs are not provided here.

of volition or politeness[3]. In view of all this, the precise operation of *=i~bi~b* as a plural marker is difficult to single out.

In the following, I will present evidence that *=i~bi~b* can act as a plural marker for both subjects and objects. In order to avoid ambiguities with its function as a proximate marker (for 3rd person arguments), examples only involving 1st and 2nd persons are provided.

1st person. The enclitic *=i~bi~b* is used together with the agentive prefix *o^n(g)-* to mark first person plural person. The distinction between dual and plural for this person was effective in Dorsey's time, at least partially. This follows the same logic as the cognate affixes *ṵ(k)-* and *-pi* in Lakhota (§3.1.1): *o^n(g)-* is used alone as a 1st person dual marker, and in combination with *=i~bi~b* as a 1st person plural marker. Dorsey (1890: 526) states it explicitly in his appendix, while correcting a mistake: "*O^{n}gáthe tai*, 'let us (all) go', should be changed to the dual, *O^{n}gáthe te* (...)". Below is another example of the opposition between dual/plural for the 1st person agentive, with the verb *íbaho^n* 'to know sb/sth'.

(189) *o^{n}th<ó^n>bahó^n=zhi* *o^{n}th<ó^n>baho^n=bázhi*
<A1PL>know=NEG <A1PL>know=PP.NEG
We both don't know it. We don't know it.
(Dorsey 1890: 708.1 / Unázhi^n-ska) and (Dorsey 1890: 748.8 / Mo^{n}ch^{h}ú-No^{n}ba)

Finally, (187) above illustrates a 1st person dual subject, by contrast with (190) where the subject is plural.

(190) *Xt<ó^n-thi>the héga=bázhi, k^{h}agé-ha.*
<A1PL-P2>love little=PP.NEG friend-VOC
My friend, we have great love for you. (Dorsey 1890: 735.17 / Hupetha)

Koontz (1984: 60) notes that the distinction between dual and plural has been lost in Umó^{n}ho^n, and that now the marker *o^n(g)-* "may only occur with [the suffix *=i~bi~b*]". Indeed, several modern materials (ULCC 2015, Saunsoci & Eschenberg 2016) do not mention any dual/plural distinction. OLIT-UNL (2018: 350) mentions that there may have been a dual/plural distinction, but that "at least some of our speakers at present maintain that this ablaut [linked to the presence of *=i~bi~b*][4] always occurs, no matter how many people are included in 'we'." It is likely that the distinction was already not systematic in Dorsey's time, because counterexamples are found[5].

[3]Koontz's 1984 hypothesis about explicitly encoded plurality is mentioned at the end of the present section. Issues of volition are mentioned in §2.6.1 on the obviation system.

[4]The enclitic *=i~bi~b* has disappeared in many contexts in contemporary Umó^{n}ho^n, but the Ablaut alternation triggered by it remains and is productively used as a proximate/plural marking. See §2.7 for a comparison between old Umó^{n}ho^n and contemporary Umó^{n}ho^n; and §3.5.2 for a presentation of the Ablaut.

[5]At least one counterexample is found in Dorsey (1890: 347.10): the sentence *shí^{n}gazhí^{n}ga o^{n}tó^{n}i éde, ...* means "We had one child, but ..." (speaker: Ó^{n}p^{h}o^n-To^{n}ga). The subject apparently is dual (both parents), but the verb nonetheless receives the plural marker *=i*.

The distinction between dual and plural for the 1st person object marker *wa-* has never been described. This prefix almost always co-occurs with *=i~bi~b*, but here again, several counterexamples are found. More investigation is needed in order to check why *=i~bi~b* is absent[6].

2nd person. The clitic *=i~bi~b* distinguishes 2nd person singular subject and 2nd person plural subject. One explicit example is given in Dorsey's dictionary (n.d.b) in (191) (see also examples (196) and (197) below, showing A2/O3PL prefixes combinations).

(191) a. *Shó^{n}ge ma wa-thá-'i ma*
horse OBV.PL O3PL-A2-give OBV.PL
The horses which you (sg.) gave to them. (Dorsey n.d.b)

b. *Shó^{n}ge ma wa-thá-'i=i ma*
horse OBV.PL O3PL-A2-give=PL OBV.PL
The horses which you (pl.) gave to them. (Dorsey n.d.b)

Example (192) shows plural marking for the second person subject of an intransitive stative verb. The subject is then encoded with a patientive person marker.

(192) *Ní t^{h}e nákade a-nó^{n}bixó^n ní^{n}kashi^{n}ga áhigi ná-thi-t'é ta=í, á=biamá.*
water VERT hot A1SG-scatter.by.feet person many INS:temp-P2-die IRR=PL say=PL.REPORT
When the water is hot, and I scatter it by kicking, many of you will be scalded to death. (Dorsey 1890: 264.13-14 / Te-úko^{n}ha)

Plurality of the second person object is also encoded by *=i~bi~b*. This clearly appears in combinations of A1SG and P2, where *=i~bi~b* can only encode plurality of P2. Evidence of this is reproduced in (193).

(193) *Másho^n Hexága-sábe ethó^{n}ba, ak^{h}íwa wa-wí-paxú=i.*
Feather Black.Elk too both ANTIP-A1SG/P2-A1SG.write=PL
Feather and Black Elk, I write to you both. (Dorsey 1891a: 79.1 / Ishtáthabi)

Plurality of P2 in the A1SG/P2 combination is sporadically attested in contemporary materials, too, as can be seen in (194).

(194) *U-wí-bthixida=i.*
(1)-A1SG/P2-A1SG.look.for(2)=PL
I looked for all of you. (Saunsoci & Eschenberg 2016: 133 / Alice Saunsoci)

[6]Two hypotheses at least can be investigated: (1) as *wa-* overtly encodes plurality, *=i~bi~b* is used to encode the subject argument plurality or proximacy instead. (2) the opposition between dual and plural 1st person object exists but is only visible when the subject argument does not trigger the presence of *=i~bi~b* on the verb. One example supporting this hypothesis can be found in Dorsey (1891a: 61.17).

3rd person. Koontz (1984: 96) notes that plural marking seems to be restricted to animate arguments. This would be consistent with the fact that inanimate articles encode forms and positions, but not number (§2.4.3). It is also consistent with animacy restrictions on the O3PL prefix *wa-* (see §3.1.3).

Plurality of 3rd person objects is never expressed by *=i~bi~b* because it is already marked by prefixes, as can be observed in (195) and (196) with different singular subjects.

(195) *Pó^{n}ka ní^{n}kagáhi zaní-xti a-wá-sithe.*
Ponca chief all-INTENS A1SG-O3PL-remember
I remember all the Ponca chiefs. (Dorsey 1890: 512.9 / Waníta-wáxe)

(196) *nó^{n}de gí-udo^n-xti wa-shkáxe kó^{n}btha.*
heart DAT-good-INTENS O3PL-A2.make A1SG.want
I hope that you will treat them kindly and make them very glad. (Dorsey 1890: 704.3 / Sho^{n}ge-ska)

In contrast with the example above, (197) shows a combination of A2/O3PL prefixes on the verb, with the enclitic *=i~bi~b* encoding A2 plurality.

(197) *... shó^n waníta bthúga tó^n=i gó^n wé-udo^n go^n, t'é-wa-thá-tha=i.*
and animal all abound=PL thus D1PL-good thus die-O3PL-A2-CAUS=PL
You [pl.] have killed (...) all the animals which abounded for our good. (Dorsey 1891a: 38.8-9 / Hupetha)

However, examples of A2SG/P3PL encoded with *=i~bi~b*, and of A2PL/P3PL without *=i~bi~b* are attested. This suggests that either *=i~bi~b* can encode plurality in redundancy with the prefix *wa-*, or that other functions are at work alongside plurality[7].

Third person subjects are often proximate, so verbs with third person subjects often take the enclitic *=i~bi~b* regardless of number. An unambiguous example of *=i~bi~b* marking plurality of a 3rd person subject is shown in (198): the subject of this sentence is obviative (see the obviative article), thus the *=i* clitic cannot encode proximacy.

(198) *shó^{n}ge=má shti wathíto^n=i.*
horse=OBV.PL too work=PL
The horses, too, are working. (Dorsey 1891, 63.9 / Une-mo^{n}thi^n)

[7]For instance, one instance of A2SG/P3PL with *=i~bi~b* can be found in Dorsey (1891a: 76.6): *nó^{n}de waxpáthi^n-wa-thá-tha=i* (heart poor-O3PL-A2-CAUS=PP) 'you make them anxious'. One instance of A2PL/P3PL without *=i~bi~b* can be found in Dorsey (1890: 711.13): *wabágtheze á-thade-wa-thá-k^{h}ithe=Ø* 'you cause them to read books' (= to get educated).

Optionality? Koontz (1984: 96) writes that plurality is not encoded with *=i~bi~b* when it is already explicitly expressed in the nominal phrase. This proves to be true in many cases, as in (199) cited by him, but not always, as (200) attests. It may be that the plural marking is optional when the plurality is explicitly expressed elsewhere.

(199) *shaó^n dúba tí amáma.*
Dakota some camp EVID
Some Dakotas camped. (Dorsey 1890, 362.1 / Joseph La Flesche)

(200) *Níashí^{n}ga sáto^n t'a=í.*
person five die=PL
Five men have died. (Dorsey 1890, 677.1 / Joseph La Flesche)

3.1.3 The specificity of third person plural object

Table 3.2 above (p. 157) shows that the third person plural object is encoded on the verb by the prefix *wa-*. This prefix has several peculiarities that distinguish it from the other indexation prefixes:

1. Syntactic restrictions: it is restricted to the object of transitive verbs; that is to say, it does not index patientive arguments of intransitive stative verbs.

2. Semantic restrictions: it seems restricted to animate objects. (But unlike Hoocąk and maybe other Siouan languages, there is no restriction on definiteness or specificity.)

3. Morphological behavior: it is one of the most complex prefixes to analyze: it is attested in different slots of the verb prefixal sequence, depending on the presence or absence of other derivational prefixes; it is attested in different places of discontinuous stems or incorporating verbs; and it some verbs with oblique prefix *u-* it seems to reduplicate (following Koontz (2001b), I refer to such forms as O3PL′; see §3.4.4).

Morphophonological properties of *wa-* will be presented in §3.4, §3.5, and §7.2[8]. Here, I focus on the syntactic and semantic restrictions of this prefix.

Restriction on valency features Intransitive stative verbs use the patientive person markers to encode their subjects. The prefix *wa-* is the only one which encodes objects of transitive verbs, but not subjects of intransitive stative verbs. In example (128), repeated below as (201), the subject of the stative verb *no^{n}pé_hi^n* 'to be hungry' is plural. Nevertheless, the verb does not take the prefix *wa-*[9]. The "bivalent stative" verbs do not have *wa-* either (see §4.1).

[8]See §3.4 for a description of the verb template, and in particular Table 3.7 (p. 184) for the verb template of person markers in combination with different "oblique" prefixes. See §3.4.4 for a presentation of the peculiar morpheme O3PL′. See §7.2 for a description of the common and distinct properties of *wa-* as O3PL and *wa-* as an underspecified argument marker.

[9]Another very clear piece of evidence comes from Saunsoci & Eschenberg's verb charts (2016): many intransitive stative verbs are listed without any reference to third person plural.

(201) *ki thé-ma shétʰoⁿ díxe iⁿchoⁿ giníⁿ tʰe noⁿpéhiⁿ=i tʰe Umóⁿhoⁿ amá;*
and DEM-PL so.far small.pox now recover EVID hungry=PL EVID Omahas PX.PL
And these Omahas, who had now recovered from the small-pox, were hungry, (...) (Dorsey 1890: 399.2 / Óⁿpʰoⁿ-Toⁿga)

This explains why *wa-* is the only person marker glossed as an object, rather than a patientive marker: O3PL. This contrast with Koontz's works (e.g., 2001b) and my earlier works (e.g., Marsault 2016), where *wa-* is glossed P3PL. As observed in §2.5.2.3, the prefix *wa-* shows accusative features, in contrast with the overall split intransitivity alignment in Umóⁿhoⁿ.

Semantic restrictions. The prefix *wa-* seems to be restricted to animate objects only. This is consistent with the fact that animate articles show number features, while inanimate articles show form or position features (see §2.4.3). This restriction is explicitly stated in OLIT-UNL (2018: 355). Dorsey refers to this distinction at least once, in his dictionary entry for the non-plural compound formant *agí-*: "to come or go for any **one animate** object, or for **several inanimate** objects, not his own" (bolding mine Dorsey n.d.b). However, this restriction has not been explicitly pointed out by Koontz (1984), nor by Hahn (c. 1930s) about Paⁿka. Note that the same semantic restriction is found in Jiwere, according to Goodtracks (2018).

Chapter 7 analyzes in detail the different functions of the prefix *wa-*, among which is O3PL. For this purpose, a quantitative survey has been made of 14 texts of the restricted corpus[10]. I have looked for instances of *wa-* on verbs, but also for instances of verbs where *wa-* is missing while the object is marked as plural, or can be conceived as a plural entity. This brief survey concludes that *wa-* is restricted to animate objects, as specified by OLIT-UNL (2018) and Dorsey (n.d.b). No example of *wa-* marking a plural inanimate object has been found in this survey, nor anywhere else in the corpora.

Example (202) shows that *wa-* does not appear when the object is inanimate, even when it is quantified as plural.This contrasts with (203) where an animate plural object (with quantifier) is encoded by *wa-* on the verb.

(202) *wégoⁿze gthébahíwiⁿ nóⁿba Ø-abthíⁿ.*
measure hundred two Ø-A1SG.have
I have two hundred bushels. (Dorsey 1890, 644.6 / Maxpíya-xága)

(203) *Géthishoⁿtáthishoⁿ níⁿkagahi dúba a-wá-xixíxe ha, á=biamá.*
towards.one.side chief four A1SG-O3PL.INS:force-crush DECL.M sayPX-REPORT
He said, "I break in the skulls of four chiefs at one side." (Dorsey 1890, 107.8 / Mary La Flesche)

[10]The list of texts surveyed is presented in App. E.5.

3rd person plural animate objects are indexed by *wa-* on the verb whatever is their formal expression in the sentence (overtly expressed or referred to by zero anaphora, with or without quantifier or plural article). A few examples that seem to contradict with this statement are commented on below.

Collective plurals exist in Umó^{n}ho^{n}, as illustrated in (204). The chiefs are mentioned several times in this letter. In (204a), they are mentioned with a plural article, and they are indexed by *wa-* O3PL on the verb. By contrast, the name *ní^{n}kagáhi* 'chief' is followed by the inanimate article *t^{h}e* in (204b), and in this case no *wa-* appears on the verb. Dorsey translates the NP *níkagahi t^{h}e* as 'the chieftainship' rather than 'the chiefs'. This can explain why *wa-* is sometimes absent from the verb in transitive constructions where the patient denotes several animate objects.

(204) a. *í^{n}t^{h}o^{n} ní^{n}kagahí=ma weát'abtha=mázhi ha.*
now chief=OBV.PL O3PL.A1SG.hate=1SG.NEG DECL.M
now (...) and I do not hate the chiefs. (Dorsey 1890, 644.10 / Maxpíya-xága)

b. *ní^{n}kagáhi t^{h}e téxi-gi-tha=í shénuzhí^{n}ga bthúga.*
chief VERT precious-POSS-CAUS=PL young.man all
All the young men prize their chiefs. (Dorsey 1890, 645.3 / Maxpíya-xága)

Another apparent counterexample is reproduced in (205). This sentence directly follows inquiries about three people, first named then referred back to with *shé-thabthi^{n}* 'those three'. The verb *no^{n}'ó^{n}* 'to hear {x}' is regularly used with the meaning 'to hear about {*someone*}', and the possessive prefix indicates a kinship relation between the subject and the object (the possessive prefix is perfectly compatible with *wa-* O3PL). It is possible that the object is considered to be a collective plural.

(205) *Gi-nó^{n}'o^{n} gó^{n}tha=i Zhábe-ska.*
POSS-hear want=PX Z.
Zhabe-ska desires to hear about his own. (Dorsey 1890:505.3 / Zhábe-ska)

Other counterexamples could be explained by specificities linked to relative clauses, or by noun incorporation effect (a bare noun forming a unitary concept with the verb, see Chapter 8). Clearly more research on this prefix is needed.

In contrast with Hoocąk (Helmbrecht in progress: §6.2.3), *wa-* O3PL in Umó^{n}ho^{n} is not restricted to definite objects. The examples below show verbs with *wa-* encoding an indefinite plural object (206); and an nonspecific object in (207).

(206) *Wíshti, ukíte dúba í^{n}ch^{h}o^{n} wa-tó^{n}be ha.*
1-too foreigner some now O3PL-A1SG.see DECL.M
I, too, have just seen some nations. (1890, 652.7 / Mo^{n}ch^{h}ú-No^{n}ba)

(207) *shó^{n}ge dó^{n}shte wáni^n ki, ...*
horse soever O3PL-A2.have if
If you have horses, ... (Dorsey 1890, 698.16 / To^{n}ga-gaxe)

3.2 Verb inflection: post-verbal markers

There are numerous post-verbal markers in Umó^{n}ho^n, which differ from pre-verbal markers in a number of ways. Rankin et al. (2003: 195) state about Siouan: "Unlike the complex, sometimes conflicting morphotactics of elements that precede the verb root, post-verbal grammar follows strict syntactic ordering principles." Thus, post-verbal markers do not display typical features of (arbitrary) templatic morphology like pre-verbal markers do (see §3.4). Moreover, they do not undergo morphophonological changes yielding opaque surface forms. Finally, while pre-verbal markers are definitely prefixes, it is not clear if post-verbal markers should be considered suffixes, enclitics, or free forms. In this section, I will provide a rapid overview of what can be said of the different Umó^{n}ho^n post-verbal markers, building mainly on previous literature.

Table 3.3: Ordering of several post-verbal markers

rad	diverse	HAB	AUX(?)	IRR	PL/PX	AUX	MOOD/EVID	DISC
1	2&3	4	5	6	7	8	9	10
x	*=(a)zhi* NEG	*=(sh)no^n* HAB	*=o^n* (3)	*te*	*=i∼bi*	*thi^{n}k^{h}e*	*=ga/=a*	*ha/he*
	=mazhi 1SG.NEG		*=mo^n* (1SG)			*k^{h}e*	*t^{h}e*	*ahó^n/ehó^n*
	=bazhi PP.NEG		*=zho^n* (2)			*amá*	*ama*	etc
	-xti INTENS					*t^{h}e*	etc	
	-shte even(?)					etc		
	-shti again(?)							

Table 3.3 presents a basic template of post-verbal markers, which are presented as free or bound forms, following the writing conventions used by Dorsey and Rudin. The choice of "-" or "=" as a linker of bound forms is explained in §3.2.1.

The verbal stem (slot 1) is directly followed by the markers *=(m/b)(a)zhi* NEG, *-xti* INTENS or *-shte* even(?) (slot 2&3). They are not mutually exclusive, and the ordering of the negation and intensifier (at least) depends on scope (see §3.2.2). The habitual marker *=(sh)no^n* always follows the negation and/or the intensifier markers. It has three free variant forms in 19th century Umó^{n}ho^n: *=shno^n*, *=hno^n* and *=no^n*. In contemporary Umó^{n}ho^n, it is realized only as *=no^n* (see §2.7 for comments on old and contemporary Umó^{n}ho^n). The marker *=o^n* (slot 5) comes from the verb *'ó^n* 'to use {x}' (Koontz 1996), and it retains its conjugation patterns. In the related Quapaw language, Rankin (2005) analyzes it as a marker of imperfective. In this dissertation, it will be glossed AUX for want of a better label, following Koontz's analysis

(1996) [11]. *Te* (slot 6) is an irrealis marker, used to express future, possibilities, and requests. The morpheme *=i~bi* [12] (slot 7) marks both plurality and proximacy. Its polyfunctionality, alternative forms and mobility make it a very complex marker to describe. It is presented with more detail in section 3.2.3. Auxiliaries (slot 8), imperative mode and evidential markers (slot 9) are positioned after the marker *=i~bi*. Note that articles (see §2.4.3) can function as determiners, auxiliaries, evidentials, and copulas, at least (even if not all of them are attested in all those functions). Finally, the template ends with discourse markers in slot 10. These markers are not verb inflections, as they modify the whole clause rather than the verbal complex by giving information about the speaker's position in relation to what he or she says (exclamative, declarative, emphatic...). They are included here for better comprehension of post-verbal markers in general[13].

(208) through (213) typify possible combinations of these markers, following the template provided in Table 3.3.

(208) *ádo^n éta pí=mazhi=no^n=mó^n shet^{h}ó^n=no^n.*
therefore there arrive=1SG.NEG=HAB=1SG.AUX so.far=HAB
1(stem)=2=4=5
therefore I have not been going thither. (Dorsey 1890: 645.11 / Maxpíya-xága)

(209) *thúdi í=bazhi=i=ga*
here come=PL.NEG=PL=IMP.M
1(stem)=2=7=9
Don't come here (Rudin et al. 1989-92: Monkey Cooks a turtle / Clifford Wolfe)

(210) *Hi^{n}dak^{h}é! thé-shte~shte=ó^n=i=ga há!*
really! go-RED~even(?)=AUX=PL=IMP.M DECL.M
1(stem)-2=5=7=9 10
Well then! Go as you have said and we shall see what will happen! (Dorsey 1890: 618.12 / Frank La Flesche)

(211) *ki wáxe gáxa=zhi amá umó^{n}thi^{n}ka thé sha-hí=no^n tá amá, ní^{n}kagáhi*
and White make=NEG PX.PL season this DIR-arrive=HAB IRR AUX:PX.PL chiefs
1(stem)=2 1(stem)=4 6 8

[11] The marker *o^n* is difficult to gloss, due to uncertainties concerning its meaning. Koontz (1996) considers it an auxiliary, without specifying what its function or meaning could be. It comes from the verb *'ó^n* 'to use {x}', and it still follows its conjugational pattern for 1SG and 2 person subjects. The corresponding forms are *=mo^n* and *=zho^n*, the latter being very rare (e.g., Dorsey 1891a: 16.4). As Rankin (2005) considers it as a marker of imperfective in the closely related Quapaw language, it may have the same value in Umó^{n}ho^n, but more research is needed to confirm it. It seems to be partly fossilized in several suffixal sequences, mainly *-xti=o^n* and *=no^n=mo^n* (the latter only in 1SG subject verbs).

[12] As shown in §3.2.3, it has in fact three allomorphs, the third being *=b*. However, this third allomorph only appears in front of the negation marker, in slots 2&3, which is why it is not included in slot 7 of Table 3.3.

[13] Note also that in example (537), p. 352, the declarative marker *ha* immediately follows the verb, and occurs before the post-verbal argument. This shows that it is part of the verb complex.

amá.
PX.PL

The chiefs and those who do not live as white men will be coming to you this year. (Dorsey 1890: 645.5 / Maxpíya-xága)[14]

(212) *Mónzeska thin bthí'a-xti=món tá minkhe.*
money OBV.MOV A1SG.fail-INTENS=1SG.AUX IRR 1SG.AUX
1(stem)-2=5 6 8

My effort to earn some money has been a total failure. (Dorsey 1891a: 120.7 / George Miller)

(213) *ki níashinga píazhi akhá zhón win snéde-xti múza=bi=thé=ama,*
and person bad PX.SG wood one long-INTENS to.stick=PL=AUX:VERT=REPORT
1(stem)=7=8=9

shná-xchi.
smooth-INTENS

And the bad men had planted in the ground a very tall and smooth pole. (Dorsey 1890: 162.6 / Joseph La Flesche, cited in Eschenberg 2005:132)

In the remainder of this section, I tackle the issue of the nature of these post-verbal markers (§3.2.1), then give more detail about the markers of slot 2 and their combinations (§3.2.2), the plural/proximate marker *=i~bi~b* (§3.2.3), and finally the evidentials and discourse markers (§3.2.4).

3.2.1 Suffixes, enclitics or free forms?

Post-verbal markers have been treated variously as suffixes, enclitics or free (unbounded) forms in Siouan linguistics and language teaching programs. Linguists tend to analyse most of them as enclitics (see e.g. Koontz 1984, de Reuse 1982, Rankin et al. 2003), but few explicitly tackle the issue of their nature. Taylor & Rood (1996) observe that the most common post-verbal elements of Lakhota are treated as clitics "based on semantics and on native-speaker intuition rather than on phonological criteria. Speakers recognise these words as independent, isolable, and as meaningful. But one-syllable enclitics are frequently not stressed, so they do sound as if they are suffixed to the verb". Rankin et al. (2003) argue that Siouan "post-verbal grammar follows strict syntactic ordering principles", which matches Sadock's description of what a clitic is (in Sadock 1991).

[14]Two things are unusual and unexplained in this sentence: first, the use of *sha-* instead of *shu-* as a translocative meaning "towards you". Second, the NP *ínkagáhi amá* 'the chiefs' looks like appositive NP sharing the same referent as *wáxe gáxazhi amá* 'those who do not live as white men'. Instead, they are treated in the translation as two different subjects. There are no notes by Dorsey explaining this.

On the other hand, a short paper by Zwicky (1985) about Hidatsa "mood markers"[15] demonstrates that they rather display affixal properties. Other studies outside Siouan show that items traditionally thought to be clitics can, on closer examination, instead prove to be affixal in nature (e.g., about Romance personal pronouns, Miller & Monachesi 2003).

Zwicky & Pullum (1983) propose a list of criteria to distinguish affixes and clitics, but they are difficult to apply to Umóⁿhoⁿ without an extensive study of the syntactic behavior of each post-verbal marker, which is beyond the scope of this dissertation. Moreover, the exact semantic and/or pragmatic content of some of the post-verbal markers is still to be surveyed.

One of the most clitic-like markers in Table 3.3 is the plural/proximate marker *=i~bi~b*. It is treated as a clitic in the literature on Umóⁿhoⁿ (Rudin & Shea 2005, Eschenberg 2005, Koontz 1989b), and so are its cognates in other Siouan languages (Taylor & Rood 1996, Rankin 2005). Like other post-verbal markers, its nature as an enclitic has not been explicitly analyzed, but we can assume that its mobility is the main reason why it has been thought of as a clitic.

The template in Table 3.3 positions *=i~bi~b* PP among other post-verbal grammatical markers. It is positioned after negation and aspectual markers, but before auxiliaries and evidential markers. However, in serial verb constructions, *=i~bi~b* PP is marked on the second verb. Examples (214) and (215) illustrate two kinds of pervasive serial verb constructions of Umóⁿhoⁿ: with a motion verb and with a position verb. In (216), *=i~bi~b* PP is realized on the adverbial modifier *shóⁿshoⁿ*.

(214) *Hídeata* *oⁿ-óⁿhe* *óⁿga-tha=i*
down.stream A1PL-flee A1PL-go=PL
We fled southward[.] (Dorsey 1890: 443.19 / Páthiⁿ-noⁿpázhi)

(215) *Góⁿ oⁿgá-tha=bázhi; édi* *oⁿ-wóⁿ-doⁿbe* *oⁿ-názhiⁿ=i.*
and A1PL-go-PL.NEG there A1PL-O3PL-look.at A1PL-stand=PL
Then we did not depart; we stood looking at the dead. (Dorsey 1890: 419.12 / Kaxé-Thoⁿba)

(216) *Móⁿzeská shti wa-'í=bazhi* *shóⁿshoⁿ=i.*
money too P1PL-give=PL.NEG always=PL
They continue to give us no money. (Dorsey 1890: 665.10 / Maxpíya-xága)

Interestingly, it seems to be realized before the article auxiliaries, according to example (213) above, but co-occurrence of article auxiliaries and *=i~bi~b* PP is rare[16]. It is also

[15] From what Zwicky says about these markers, they seem to correspond to Umóⁿhoⁿ discourse markers, and/or evidentials, and some moods like imperative. That is, they correspond to markers in slots 8 and 9 of Table 3.3.

[16] Another example of it is provided by Eschenberg (2005).

realized in the middle of the complex irrealis marker *tait^{h}e*. This marker has apparently frozen and has a meaning of strong certainty comparatively to the simple irrealis marker *te* (for things that are certain to happen, or for strong suggestion like "we shall", in the following example)[17]

(217) *shó^n sháo^n-áta* *o^{n}gá-the* *ta=i=t^{h}é* *ebthégo^n*
now Dakota-ALL A1PL-go IRR=PL=EVID(?) A1SG.think
I think that we shall go to the Dakotas. (Dorsey 1890: 517.2 / Hé-wo^{n}zhítha)

Finally, *=i~bi~b* is realized twice when there is a negation marker followed by another marker, as in (216).

If we follow Zwicky & Pullum (1983) criteria, *=i~bi~b* show no affixal criteria: there are no arbitrary gaps, no morphophonological nor semantic idiosyncrasies[18] , for example. It can attach to any lexical item with predicative function: not only verbs, but also nouns or other words used predicatively (see §2.4.7). In the verb complex, it is realized after the auxiliary *=o^n*, the irrealis marker *te*, and after the second verb of a serial verb construction.

For lack of strong evidence about the nature of these post-verbal markers, the glossing conventions chosen in this dissertation mainly follow earlier conventions, and also take into account gloss readability. I follow Dorsey and all other sources in writing *te* IRR as an independent word, although it should probably be considered to be a clitic. Discourse markers are also treated as free forms. The markers *-xti*, *-shte* and *-shti* from slots 2/3 are attached to the previous material with an hyphen "-", as affixes. This follows Dorsey's convention of separating them from the stem they attach to, and it shows strong coherence with what precedes. The remaining markers are linked to the previous morpheme/stem with "=", showing more independence. This, too, is consistent with Dorsey's choice of using a hyphen to separate them from the main verb (he did not break down the verb with prefixes and *-xti*.

Moreover, some sequences of morphemes are written without separation in order to show their strong interdependence. This is the case for the reportative evidential marker *=biamá*, glossed PP.REPORT. It almost always occurs with *=bi* for plural/proximate, and it is not certain that *=bi* retains its functions in this sequence. Another example is the negation marker with *=b* for plural/proximate. While in these contexts *=b* retains its functions, it is realized with a special allomorph (it is the only context where it appears as /b/) and not in its usual slot, and it can be duplicated by *=i* at the end of the verb complex (see (209) above). This shows the strong interdependence of *=b* with the negation marker, which suggests that

[17]See also example (845c) in Appendices for a clear distinction between *te* and *tat^{h}e*, often both glossed as IRR.

[18]In fact, there can be morphophonological idiosyncrasy, depending on how we define it. Zwicky & Pullum (1983) cite as example English past-tense markers which take special form on a few verbs. The marker *=i~bi~b* takes the allomorphs *=bi* and *=b* when certain morphemes follow it. It also becomes *=bi* in songs: can this be considered a morphophonological idiosyncrasy?

=bazhi has become the plural/proximate form of the negation, and does not prevent the plural/proximate marker *=i~bi~b* from being expressed by its more usual allomorphs later in the verb complex.

3.2.2 Markers *=(a)zhi* and *-xti*

The negation marker and intensifier are realized close to the stem, and in various instances they are lexicalized with it, forming new lexical units. Note that Koontz (1984) describes them as enclitics[19] which are not restricted to the verbal system.

The negation marker has the particularity of marking 1st person singular subjects[20] with an initial *=m*. When the verb has a second person or third person subject, the negation encodes proximacy/plurality with the marker *=i~bi~b* , realized as *=b* in this case. The realization of plural/proximate *=b* with the negation marker does not prevent it from also being realized in slot 7, resulting in multiple exponence (see §3.2.3). Examples (218) through (220) illustrate the various forms taken by the negation marker.

(218) *o^{n}ho^n, a-nó^n'o^n=mázhi, á=biamá núzhi^{n}ga ak^{h}á.*
yes A1SG-hear=1SG.NEG say=PX.REPORT boy PX.SG
"Yes, it is true that I have not heard," said the boy.(Dorsey 1890: 120.15 / Joseph La Flesche)

(219) *íe t^{h}eó^n-no^n'o^n=bázhi*
word VERT P1SG.OBL-hear=PX.NEG
He (...) would not listen to my words (Dorsey 1891a: 33.4 / John Springer)

(220) *Kagé-ha, íe t^{h}e pí=azhi a.*
friend-VOC word VERT *good=NEG EMPH.M
My friend, the woman's words were bad! (Dorsey 1890: 614.6 / Yellow Buffalo)

Combinations of the negation and intensifier markers occur sometimes. They combine in different order according to their scope. The negation follows the intensifier with the meaning "not very":

(221) *ní^{n}kagáhi amá gí-sho^n-xti=bázhi ebthégo^n thó^{n}zha*
chiefs PX.PL AP:DAT-fit-INTENS=PL.NEG A1SG.think although
[Although] the chiefs were not very well satisfied about it. (Dorsey 1890: 715.5 / Louis Sanssouci)

[19] Koontz (1984) calls them "postclitics".

[20] For comments about the notions of "subjects" and "objects", and how they are applied to Umó^{n}ho^n description, see §2.5.2.3.

On the contrary, the intensifier follows the negation with the meaning "not at all" (222). It also follows verbs which have lexicalized with the negation, like the verb *gípiazhi* 'to be bad for {x}' (223).

(222) *shó^n Wallace a-nó^n'o^n=mazhí-xti=mó^n*
and W. A1SG-hear=1SG.NEG-INTENS=1SG.AUX
I have not heard at all from Wallace. (Dorsey 1891a: 116.1 / George Miller)

(223) *ki ádo^n thé-ak^{h}a ik^{h}áge ak^{h}á nó^{n}de*
and therefore DEM=PX.SG POSS.3-friend PX.SG heart
gípi=bázhi-xti=ó^n=i
AP:DAT-*good=PX.NEG-INTENS=AUX=PX
Therefore this person, his friend, is sorely grieved (Dorsey 1890: 772.6 / Nudó^n-axa)

3.2.3 Enclitic *=i~bi~b*

The post-verbal marker *=i~bi~b* encodes at least plurality and proximacy of the subject. Thus, its functions have been described partly in §2.6.1 about the obviation system, and partly in §3.1.2 about plurality of verbal arguments. It should be noted that given its polyfunctionality, allomorphic variation and various positions in the post-verbal sequence, *=i~bi~b* presents characteristics requiring an in-depth analysis which is beyond the scope of this dissertation. In this section, I summarize previous descriptions of this morpheme, add more examples, and sometimes show counterexamples.

This marker is the reflex of the Proto-Mississippi Valley plural marker **(a)pe*, **(a)pi* (Carter et al. 2006: 354), cognate with *=pi* in Lakhota and *=wi* in Hoocąk. Koontz (1989b) explains that in Umó^{n}ho^n, this enclitic "is extended to occur with proximate subjects, too."[21] The variation between the three allomorphs *=i*, *=bi* and *=b* cannot be explained by phonetic or phonological context.

The most frequent form is *=i*, which seems to be realized by default. Koontz (1984: 99) identifies at least three contexts where this marker is realized as *=bi*:

- Before the quotative marker *amá*, yielding *=biamá* (see end of §3.2.1)
- Before subordinating conjunctions like *égo^n* 'as', 'having' and *ki* 'when', yielding *=bi egó^n* (numerous examples, for instance (105) p. 118) and *=bi ki* (see (619), p. 394). It should be noted, however, that the selection of the allomorph *=bi* in these contexts is not obligatory. For instance, counterexamples are found in (779), (802), (853b) in the Appendices. (There is also an unexpected *=bi* in (824).) Moreover, other subordinating conjunctions are attested with both *=bi* and *=i* preceding them. This is the case, for instance, of *éde* 'but' and *thó^{n}zha* 'despite', 'though'.

[21] Koontz (1989b) notes that *=i~bi~b* is also attested on verbs with singular arguments in other Dhegiha languages, so the innovation towards a proximate marker is probably common to the whole group.

- Sometimes in songs: Koontz provides an example of a minimal pair, which is from Text 18 of the restricted corpus: example (224).

(224) a. *"No^n-há, théama níashi^{n}ga=i ha."*
mother-VOC those people=PL DECL.M
"O mother, these are men", said the Fawn. (direct speech)

b. *"No^n-há niáshi^{n}gá=bi" ehé*
mother-VOC people=PL A1SG.say
"O mother, they are men", said I (translation adapted. direct speech in a song)
(Dorsey 1890: 358 / Joseph La Flesche)

As for the allomorph *=b*, it is systematically (and only) selected by the negation marker *-(a)zhi*, yielding *bazhi* (and never **=bzhi*). Note that double marking of plural/proximate is possible in such cases, as typified in (225). This supports an analysis according to which *=bazhi* is a frozen form.

(225) *wéthito^n shte gó^{n}tha=bázhi=nó^n=i*
D1PL-work even want=PL.NEG=HAB=PL
They have not shown any desire to act in our behalf. (Dorsey 1890: 759.2 / Kaxé-Tho^{n}ba)

The expression *=biamá* as an evidential marker for hearsay information is omnipresent in the corpus. Such forms as **íama* or **bama* are not found. The form *amá* alone as an evidential is also found, but much less frequently. The frequency of the sequence *=biamá* is such that it is not certain whether *-bi* should still be analyzed as a proximate/plural marker in this context.

From these observations, we can conclude the following:

- *=i* is the default form of the plural/proximate marker.
- *=bi* is apparently used for style purposes in songs. Style effects could explain why *=bi* and *=i* are both attested before subordinating conjunctions. A likely hypothesis is that it is an old-fashioned realization, retained in songs, names, the frozen sequence *=biamá*, and optionally before subordinating conjunctions.
- *=b* is only realized with the negation marker. It is still functional in this position, but it can be repeated as *=i* or *=bi* later in the verb complex.

3.2.4 Auxiliaries and evidential markers

I rely on Eschenberg's 2005 analysis of the articles' functions. She provides examples of auxiliary uses and evidential uses (among others like copulas and clause linkers). She has identified auxiliary functions for all articles except *ge*. She has identified evidential functions for the articles *k^{h}e*, *tho^n*, *t^{h}e*, *amá*. She also identifies copula functions for several articles, and not all these functions had been described before her dissertation. For example, Koontz

(2000) identifies three "evidentials": *k^{h}e*, *tho^n*, *t^{h}e*, and mentions that they can be followed by "quotative" *amá*. That is, he does not identify an auxiliary function for these articles, which leads him to distinguish "evidential" and "quotative" as two distinct categories. In (213), he would identify *=t^{h}é=ama* as an evidential marker followed by a quotative, while Eschenberg identifies it as an auxiliary followed by an evidential.

The evidential marker *amá* is by far the most frequent one. It implies that the speaker is repeating what they have heard, and it is the mode usually used in narratives, which is why it is omnipresent in Dorsey's texts and the tales recorded by Rudin: it is repeated in almost every sentence. However, evidential *amá* is also found to report information in conversation, as in (226).

(226) *Mo^{n}shte k^{h}e-ta tado^{n}he to^{n}ga=biama.*
south HORIZ-ALL tornado big=PP.REPORT
I guess there was a big tornado in Oklahoma. (Eschenberg 2005: 160 / Oswald(?) Cayou)
Context: Information not experienced directly, but heard, e.g. on tv.

Evidential *t^{h}e* seems to be the second most frequent one. It typically denotes information that the speaker vouches for, and it seems to be only used with 3rd person subjects (Hahn c. 1930s). It has sometimes been analyzed as a past marker (e.g., Dorsey n.d.b). Example (227) shows a sentence from Text 16 of the restricted corpus. Unlike *amá*, which is pervasive in narratives, *t^{h}e* is less frequently used and speakers reporting personal stories do not use it very often (see texts 13 and 16 of the restricted corpus).

(227) *wa'ú amá ak^{h}í=i ki, wé-naxítha=i t^{h}e, no^{n}bá*
woman PX.PL arrive.back=PL when O3PL(1)-attack(2)=PL EVID two
t'é-wa-tha=i wa'ú tho^{n}k^{h}á.
die-O3PL-CAUS=PL woman OBV.SIT.PL
And when the women reached there, they were attacked by the Dakotas, who killed two of the women. (Text 16 / Kaxé-Tho^{n}ba)

3.3 Verb derivation

Almost all the derivational verbal morphology in Umó^{n}ho^n implies valency alternation, which will be extensively described starting from Chapter 4. Example (228) shows a few derivational morphemes modifying verbal valency: in (228a-b) the valency increases through causative markers and applicative markers, and in (228c-d) the valency decreases because of the antipassive marker and the reflexive/reciprocal marker.

(228) a. *t'é* *t'é-the* *bi-t'é*
die die-CAUS INS:press-die
to die to kill $\{x\}$ to kill $\{x\}$ by pressure

b. *í-bat^{h}e* — AP:INS-sew — to sew {x} with {y}
gí-bat^{h}e — AP:DAT-sew — to sew {x} for {y}
á-gthi^n — AP:SUPESS-sit — to sit on {x}

c. *that^{h}é* — eat — to eat {x}
wa-thát^{h}e — ANTIP-eat — to eat

d. *uk^{h}ié* — talk — to talk to {x}
u-kí-k^{h}ie — (1)-REFL-talk(2) — to talk to oneself
báaze — scare — to scare {x}
ki-páaze — RECP-scare — to scare each other

Valency can also be reduced by the incorporation of the object into the verb. However, this is not a productive morphological process in Umó^{n}ho^n. See Chapters 4 and 8.

Another derivational prefix is the possessive marker *gi-* (unaccented, unlike the dative applicative *gí-*). *Gi-* denotes a kinship relation or a relation of possession between the agentive and patientive argument of a transitive verb, as in (229). It could arguably be considered a valency-changing marker, if one considers that it creates a new grammatical role. See §4.4.3 for more detail on this prefix.

(229) *'í^n* — carry — to carry {x}
gi-'í^n — POSS-carry — to carry {*one's own*}
sithé — remember — to remember {x}
gi-síthe — POSS-remember — to remember {*one's own*}

Finally, reduplication of the root is a productive derivational process. Most of the time, it conveys an aspectual value of iteration of action or movement, or distribution over time and space (Rudin 2012). Only one syllable is reduplicated each time, and only from the verbal root. It most of the times corresponds to the whole root or to the first syllable of a disyllabic root. A few examples are presented in (230), from Rudin (2012). Among them, (230a) and (230c) illustrate the iterative meaning of reduplication and (230b) illustrates its distributive meaning. Example (230c) shows that only the verbal root is subject to reduplication, and not derivational prefixes. Note that reduplication is also attested on nominal entities, although less frequently (see Rudin 2012).

(230) a. *bó^n* — call — to call or halloo (once)
bó^n~bo^n — REDUP~call — to call or halloo often

b. *sábe* — black — black
sá~sabe — REDUP~black — black here and there; black in spots or stripes

c. *ga-'ábe*
INS:force-*cut
to cut a notch in wood, etc, with an ax
ga-'á~'abe
INS:force-REDUP~*cut
to cut many notches in wood, as with an ax

Some examples of post-reduplication are also attested, where the second syllable of the root is reduplicated. Interestingly, one of them constitutes a minimal pair with prereduplication, as shown in (231). Another example can be observed in (506) p. 340. Post-reduplication must not be confused with reduplicated monosyllabic roots preceded by an instrumental prefix, like *másasa* 'to cut {x} repeatedly'.

(231) *thi-ó^{n}ba~ba* — INS:NEU-day~REDUP — to be shiny, sparkly (Saunsoci & Eschenberg 2016: 56)
thi-ó^n~o^{n}ba — INS:NEU-REDUP~day — to flash repeatedly(?) (Dorsey 1890: 214.2)

3.4 Prefixal template

The morphological complexity of the verb is a common feature of Siouan languages, which "do not lend themselves to description in terms of templatic morphology" (Rankin et al. 2003). Indeed, it is not possible to capture the totality of the template in one table, mainly because prefixes change their relative order according to various criteria. Several case studies of related languages face the same problems (Helmbrecht & Lehmann 2008, Kasak 2019). However, the Umó^{n}ho^n prefixal template displays a few features of templatic morphology, such as arbitrary ordering of the prefixes, and the encoding of the same category (here, person markers) in different slots (see in particular §3.4.4).

In the following, I propose a general template of Umó^{n}ho^n derivational prefixes and incorporated elements. Deviations from this template are described afterwards, in complementary tables. The following templates will be presented:

- General ordering of derivational morphology (Table 3.4, p. 176)
- General ordering of derivational morphology with inflectional prefixes included (Table 3.5, p. 178)
- Detailed ordering of inflectional prefixes (Table 3.6, p. 182)
- Detailed ordering of inflectional prefixes and oblique prefixes (Table 3.7, p. 184)

I follow the usual distinction between derivational and inflectional morphology (Haspelmath & Sims 2010 [2002], Bickel & Nichols 2007), although in some cases the distinction is difficult to make, especially for the dative prefix *gí-*, which displays characteristics of both

types (see §3.6).

Post-verbal markers are presented in §3.2.

3.4.1 Template of derivational prefixes

Table 3.4: Template of derivational prefixes and preverbs

Undersp. **-7**	Obliques **-6**	Dative **-5**	Outer Instr. and preverbs **-4**	**-3**	Reflexive Possessive **-2**	Intern Instr. **-1**	Root 1 **0**	Root 2 **1**
wa-	*í-* *á-* *u-* *ithá-* *uthú-*	*gí* *ígi-*	*má-* *mú-* *ná-* preverbs		*gi-* *ki(g)-*	*tha-* *thi-* *ba-* *bi-* *ga-* *no^n-*	root	*the* *tha* *thi^n* *thi^{n}tha*

Table 3.4 presents the general ordering of derivational prefixes, the "preverbs" and incorporated elements. The main root of the verb corresponds to the slot 0. All prefixed elements are inserted in slots numbered negatively. The empty slot (-3) corresponds to the slot for person markers, which will be added in Table 3.5. Each column has a label and a list of actual Umó^{n}ho^n affixes, except when the category is too broad to make an exhaustive list (like the preverbs and incorporated elements). Some columns represent a series of prefixes with common labels: the "inner instrumentals", the "outer instrumentals" and the "oblique prefixes". Prefixes appearing in the same slot are mutually exclusive. Some prefixes appearing in different slots are also mutually exclusive or very infrequent combinations: elements from slots -4 and -1 are mutually exclusive, unless one of them is semantically demotivated (cf §4.9.2). The dative and benefactive-possessive prefixes in slot -5 are mutually exclusive with the prefixes in slot -2, with whom they are etymologically related (see (841) on p. 549)[22] The prefix *wa-* on slot -7 ("underspecified argument", cf. §7.3) is not attested with elements from slot -4 in verbs (a few nouns are attested, where *wa-* acts as a nominalizer: cf. Chapter 7). All the prefixes presented here will be described in more detail in the subsequent chapters.

Below are some explanations about the specifics of the table:

Preverbs What is called "preverb" in the literature (Koontz 1989a, 1996) forms a "discontinuous stem" with the root, and person markers are indexed between the two parts of it (they are prefixed to the main root). They may be remnants of nominal incorporation

[22]There is at least one counterexample, occurring twice in Dorsey's published texts: *i^{n}thí^{n}ginahí^n* 'he is willing for me, his own' (Dorsey 1890: 487.13, 656.4). This corresponds to the verb *ínahi^n* 'to be willing, to agree' following the inflection of the dative paradigm and derived with the possessive prefix.

but are not analyzable as such synchronically[23].

Root 2 In Umóⁿhoⁿ, some verbs are composed of two roots that are separately inflected. In those verbs, the agentive argument is marked on both roots, which is what distinguishes them from discontinuous verbs. Only a few syllables, all beginning with *-th-*, are attested as second roots of verbs. See §4.9.

The template in Table 3.4 is generally respected[24]. Some of the morphemes presented are frequently lexicalized with the root and are semantically and etymologically opaque constructions, without it affecting the ordering of the prefixes nor the morphophonological changes that they undergo (see § 3.5). Examples (232) through (235) show some combinations of prefixes ordered according to the slots presented in Table 3.4. They present verbs conjugated with third person arguments, the only person not indexed on the verb by person markers.

(232) -4 -2 0 (post-verbal)
mú- *ki-* *hoⁿ* *=i*
INS:shoot -RECP- night =PL
They shot at one another until night. (Dorsey 1890, 422.9 / Kaxé-Thoⁿba)

(233) -6 -1 0
í- *bi-* *bthaska*
INS- INS:press flat
S/he flattens it (by pressure) with it. (adapted from ULCDP 2002: 1.25)

(234) -7 -5 0
wa- *gí-* *baxu*
ANTIP- DAT- write
S/he writes things to her/him. (adapted from Dorsey n.d.b)

(235) -6 -2 0+1
í- *gi-* *oⁿ_tha*
INS- POSS- abandon
He abandons his own (name) by means of it. (adapted from Dorsey n.d.b)

The verb can also incorporate nominals, a process which is described in Chapter 8. Incorporated nominals are scarce, and they do not usually occur with elements from the slots -7 to -4. When they do, they are not always in the same position relative to them, a characteristic noted also in other Siouan languages (Rankin et al. 2003: 186). It seems that the position of each element is linked to the chronological order of lexicalization (the oldest prefix/preverb lexicalized on a given root is closest to it). This is why incorporated nominals are not introduced in Table 3.4.

[23]Some scholars consider all elements in slots -4 to -8 preverbs (e.g., Koontz 1989a). Here, I will use the term "preverb" only in reference to the bound sequences which are not identified as derivational prefixes (productive or not).

[24]Some counterexamples have to do with lexicalization of the old derivations and the recursivity of some derivational processes. See §4.9.2.

Table 3.5: Template of derivational prefixes, preverbs, and inflectional prefixes

Undersp. **-7**	Obliques **-6** (up to 3 markers – see Table 3.7)	Dative **-5** (up to 3 markers – see Table 3.6)	Outer Instr. **-4**	Person markers **-3** (up to 2 markers – see Table 3.6)	Reflexive Possessive **-2**	Intern Instr. **-1**	Root 1 **0**	Root 2 **2**
wa-	*í-* *á-* *u-* *ithá-* *uthú-* + person markers	*gí* + person markers	*má-* *mú-* *ná-* preverbs	*a-* *o^n-~o^{n}g-* *tha-* *o^n-* *wa-* *thi-* *wi-*	*gi-* *ki-~kig-*	*tha-* +A1SG, A2 *thi-* +A1SG, A2 *ba-* +A1SG, A2 *bi-* +A1SG, A2 *ga-* *no^n-*	Root 1	*the* *tha* *thi^n* *thi^{n}tha* + A1SG, A2

3.4.2 Template with person markers

Table 3.5 shows the same verb template with the addition of person markers: *á-*, *o^n(g)-* and *tha-* for the agentive arguments, *o^n-*, *wa-* and *thi-* for the patientive or object arguments, and *wi-* as a portemanteau for 1st person singular acting on 2nd person. For now, only the paradigm of "regular" indexation markers is included (see §3.7 for a comprehensive presentation of the different conjugational paradigms). As the transitive verb encodes both agentive and patientive arguments, the person markers for A and P are not mutually exclusive, although I insert them inside the same slot. Their specific ordering requires several sub-slots (see Table 3.6), they intermingle with the oblique prefixes in ways that cannot be described in only one table (see Table 3.7).

As we see in Table 3.5, there are different loci for person markers, which depend on the derivational prefixes present in the verb form. Slot -3 is the basic one where person markers are realized in most cases. If dative *gí-* (-5) or one of the oblique prefixes (-6) is present on the verb, indexation markers will move to their slot. The agentive person markers that appear in slot 1 are independent from the rest. They are always used on verbs with double roots, and result in multiple exponence of the agentive person markers. Under certain circumstances (multiple derivations), multiple exponence of agent markers can appear in the prefixal sequences of the verbs. Multiple exponence is described in §3.4.5.

In Table 3.5, we see that when the person markers are realized in slot -3, as in examples (236b) and (237), the common rule according to which derivational affixes are closer to the stem than inflectional ones (Bybee 1985, Anderson 1992, Aikhenvald 2007: among others) is not followed.

When a person marker is indexed on a verb carrying an oblique prefix or the dative prefix, I assume it is realized in the same slot, with sub-slots. More precisely, all person markers are realized before the dative marker, some of them are realized after some oblique prefixes and some of them are realized before some oblique prefix. When there is no oblique prefix nor dative prefix on the verb, person markers are realized in slot -3. The "underspecified argument marker" *wa-* (slot -7) also mingles with the person markers (see point 4 below). Thus, the necessity of assigning different slots to the same person markers comes from their distinct placement relatively to the outer instrumentals and preverbs. The difficulties highlighted in Table 3.5, as well as deviations from it (which are not visible here) are numbered and described below.

1. Person markers in slot -3. Example (236) presents a verb derived with an outer instrumental: *ná-*, 'by fire, by heat'. When this verb takes a person marker, it is inserted between the instrumental prefix and the root.

(236) a. *t'é* *ná-t'e*
die INS:temp-die
to die to die from the heat

b. *ná-thi-t'é* *ta=í*
INS:temp-P2-die IRR=PL
You will die from the heat. (Dorsey 1890: 264.13 / Te-úko^{n}ha)

Example (237) shows the same phenomenon with a discontinuous stem, that is, a verbal stem composed of a root (slot 0) and a preverb (slot -4). It is not possible to assign a particular meaning or function to either of them: they function together and are not attested as independent units. I gloss them using (1) to represent the preverb and (2) to represent the second part of the stem (the root).

(237) *kú_he* *kú-a-he*
fear (1)-A1SG-fear(2)
to feel insecure I was afraid

When verbs are formed with a morphological causative marker, the latter fills slot 1 (for the root), and the base verb stem takes the slot of the preverb, as can be observed in (238). This analysis comes from Koontz (1989a). See §5.1.3 for a detailed account of person markers positioning and derivational prefixes positioning in causative verbs.

(238) *tha-t^{h}í* *t^{h}í-tha-the*
A2-arrive.here arrive-A2-CAUS
you arrived here you send it here
(from Dorsey (1890, 639.2) and example (609) of this disseration)

2. Person markers in slot -5. Another verb derived with the outer instrumental prefix *ná-* 'by fire' is shown in (239): *náthi^{n}ge* 'to be burnt to nothing'. This verb can take the dative applicative *gí-*, introducing a maleficiary: *gínathi^{n}ge* 'to be burnt to nothing on him/her', the maleficiary being the owner of the object burnt (§4.4 for a presentation of the dative prefix).

(239) *thi^{n}ge* *ná-thi^{n}ge* *gí-na-thi^{n}ge*
be.gone INS:temp-be.gone DAT-INS:temp-be.gone
it is gone it was burnt to nothing it was burnt to nothing on him

Example (240) shows the verb *gínathi^{n}ge* 'to be burnt to nothing on him/her' with a person marker: *wa-* for 'us' (P1PL). We see that the person marker is inserted before the dative marker *gí-*, and that they merge together into *wé-* (see §3.5). Thus, the prefix *gí-* has priority over outer instrumentals in determining the locus of inflection, and the opaque surface form *wé-* appears to the left side of the instrumental.

(240) *wénathi^{n}gai*
**wa-gí-na-thi^{n}ge=í*
P1PL-DAT-INS:temp-be.gone=PP
it [the harvest] was burnt to nothing for us (Dorsey 1890: 498.4 / Maxpíya-xága)

3. Person markers in slot -6. The same phenomenon occurs with oblique prefixes. In the discontinuous verb *kú_he* 'to feel insecure' shown in (237) above, the indexation is normally realized between the two parts of the stem. However, if an oblique prefix is added, it causes the indexation markers to be realized with it in slot -6. This can be seen in (241)[25].

(241)	*í-kuhe*	*í-wi-kuhe*
	AP-fear	AP-A1SG/P2-fear
	to be afraid because of it	I am afraid for you to do it

4. Interaction of "underspecified" *wa-* with person markers. The prefix *wa-* is labeled "underspecified" in Table 3.5. In fact it has several functions which cannot be straightforwardly distinguished, as shown in Chapter 7. This prefix is realized to the left edge of the dative (cf. (234) p. 177) and to the left edge of the oblique prefixes. But when it is realized with person markers, it interacts with them in the same way as *wa-* O3PL does (the detailed templates of person markers, with and without oblique prefixes, are presented in §3.4.3 and §3.4.4). Thus, the antipassive verb *wa'í* 'to give {x} away'; 'to give things to {x}' in (242) conjugates as a transitive verb with *wa-* O3PL (cf. Table B.1 p. 514).

(242) Forms of *wa'í* 'to give away'; 'to give it to {*them*}' (ULCC 2015: 7)

a-wá-'i	*o^n-wó^n-'i*	*wa-thá-'i*	*wa-'í*
A1SG-ANTIP-give	A1PL-ANTIP-give	ANTIP-A2-give	ANTIP-give
I give it away	You give it away	S/he gives it away	We give it away

Some intransitive stative verbs and intransitive active verbs (cf. §4.1) begin with *wa-*, and the same interaction takes place with the person markers. Example (243) shows the conjugational paradigm of the intransitive stative verb *waxpáni* 'to be poor'. The P1SG form follows a morphophonological rule which is usually restricted to the prefixal sequence: vowel assimilation (rule 8 in §3.5.1.2). There is no way to determine, in the P1PL form, which *wa-* is the P1PL person marker.

(243)	P1SG	*o^n-wó^n-xpani*	I am poor
	P1PL	*wa-wá-xpani*	we are poor
	P2	*wa-thí-xpani-azhi*	you are not poor

Note that two nouns beginning with *wa-*, *wa'ú* 'woman' and *wa'ú zhi^{n}ga* 'old woman', take P person markers when they are used predicatively, with exactly the same forms as those in (243). They are presented in §2.4.7 on predication.

In conclusion, there is a high degree of common formal behavior between *wa-* as an antipassive marker, treated as a derivational prefix in slot -7 in Tables 3.4 to 3.7, and *wa-* as an O3PL marker, treated as inflection in the same Tables. We see the difference between

[25]See Chapter 6 for a description of the applicative functions of oblique prefixes and the semantic roles associated with each.

the two morphemes in some contexts, as in (244): most causative verbs do not encode O3PL and ANTIP in the same slot. The prefix *wa-* is thoroughly studied in Chapter 7, and the formal distinctions between *wa-* as a O3PL marker and "underspecified argument marker" are detailled in §7.2.2.

(244) Difference of slot between *wa-* ANTIP and *wa-* O3PL

a. *tha'é-wa-tha*
pity-O3PL-CAUS[PX]
She pities them. (Saunsoci & Eschenberg 2016: 151 / Alice Saunsoci)

b. *Wa'ú ak^{h}a wa-thá'e-tha.*
woman PX.SG ANTIP-pity-CAUS[PX]
The woman pities people. (Saunsoci & Eschenberg 2016: 151 / Alice Saunsoci)

3.4.3 Detailed template of person markers

Table 3.6 illustrates precisely how the person markers presented in Table 3.5 are ordered among themselves. The person markers presented up to now correspond to what is generally called the regular paradigm (Koontz 2001b) (see §3.7; also §3.5.3 in a diachronic perspective). The order of the prefixes is deduced from the complete paradigms of transitive verbs, which are reproduced in Appendix B.

This table describes the ordering of person markers when they are inserted in slot -3 of Table 3.5, that is, when there are no dative or oblique prefixes in the verb form. Outer instrumentals, preverbs and incorporated elements (represented here in slot -4) do not affect the person markers and their ordering.

Table 3.6: Template of the person markers - regular paradigm

-4		**-3**		**-2 to 0**
	c	b	a	
má-	*a-* (A1SG)	*wa-* (P1PL(1))	*tha-* (A2)	stem
mú-	*o^n-* (P1SG)	*wa-* (O3PL)	*thi-* (P2)	
ná-	*o^n(g)-* (A1PL)		*wi-* (A1SG(2))	
preverbs	*a-* (P1PL(2))			
incorporated				

Note that there are two prefixes labeled as P1PL. *wa-* is labeled P1PL(1) and is always realized when the patientive argument is a first person plural. *A-* P1PL(2) is realized only when the person markers are not verb initial, that is: when slot -4 is filled, or when it co-occurs with some oblique prefixes.

The Umóⁿhoⁿ personal indexation system is unusual because the markers are not ordered by function as in many languages (for example object-subject-stem, in Lakhota (Ullrich 2008: 716), or subject-object-stem, in French), and only partially by person. The second person, whether A or P, is closest to the stem. (Umóⁿhoⁿ does not exhihit any kind of person hierarchy as in Algonquian languages; e.g. Frantz 1991:58). Thus, no generalization can be made and it is necessary to represent each individual person marker in a template.

3.4.4 Detailed template of person markers with oblique prefixes

Table 3.7 shows how the indexation markers' order changes when they combine with the different oblique prefixes. It is divided into 6 blocks: the first repeats the prefix ordering in the regular paradigm, and the five others present the template for each of the oblique prefixes. As we can see, each prefix is associated with a distinct template, which makes this division into blocks necessary.

As can be seen in the last two blocks, the oblique prefixes *ithá-* and *uthú-* are in fact combinations of the oblique prefixes *í-* and *á-* (→ *ithá-*) and *í-* and *u-* (→ *uthú-*). The epenthetic *-th-* arises between the two vowels, and *í-* changes to *u-* in the second case (§3.5). Depending on the verb they are attested in, the sequences *ithá-* and *uthú-* are best analyzed as one historically complex morpheme or as a combination of two independent morphemes (see Chapter 6).

Several person markers change their slot depending on which oblique prefix is realized. The homonymous prefixes *wa-*, marking O3PL and P1PL, repeatedly change their slot: while in the regular paradigm they are separated from the stem only by the second person marker *tha-*, they become the far-left prefixes of the slot when the oblique prefixes *í-*, *á-*, *ithá-* and *uthú* are realized. When the oblique *u-* is realized, *wa-* O3PL and *wa-* P1PL take different slots, and a third *wa-* labeled O3PL′ appears (see §3.4.4). The marker of the P1PL person is sometimes *wa-* alone, and sometimes a discontinuous morpheme *a-* and *wa-*. The vowel *a-*, which is glossed here P1PL(2), is clearly independent from *wa-*: in the regular paradigm and in the paradigm with *u-* it is placed just before it, while in the *í-* and *uthú-* paradigms it is placed after it across an oblique prefix[26].

The oblique prefixes are sometimes called "preverbs" in the Siouan literature (Koontz 1996, Kasak 2019). They are considered to be part of the verb stem, and they often combine with bound roots or stems which are not attested without them. For these reasons, the person markers realized between the oblique and second part of the stem could be mistakenly analyzed as infixes, which they are not.

The template of person markers combined with oblique prefixes is the best instance of arbitrary ordering of prefixes in Umóⁿhoⁿ. Note that arbitrary ordering and encoding of the same category (here, person markers) in different slots are features of templatic morphology

[26] Carter et al. (2006) provide a list of prefixes that occur between *wa-* and *a-*, writing: "|wa- gi-/ṭ-/i- -a|". *gi-* could be dative or possessive. I do not know what the "ṭ-" corresponds to.

Table 3.7: Detailed template of person marker prefixes combined with oblique prefixes

					-3		**-2 to 0**
	f	e	d	c	b	a	
regular				*a-* (A1SG) *o^n-* (P1SG) *o^n(g)-* (A1PL) *a-* (P1PL(2))	*wa-* (P1PL(1)) *wa-* (O3PL)	*tha-* (A2) *thi-* (P2) *wi-* (A1SG/P2)	stem
				-6			**-5 to 0**
with *í-*			*wa-* (P1PL(1)) *wa-* (O3PL)	*í-* (OBL.)	*a-* (A1SG) *o^n-* (P1SG) *o^n(g)-* (A1PL) *a-* (P1PL(2))	*tha-* (A2) *thi-* (P2) *wi-* (A1SG/P2)	stem
with *á-*		*wa-* (P1PL(1)) *wa-* (O3PL)	*o^n(g)-* (A1PL)	*á-* (OBL.)	*a-* (A1SG) *o^n-* (P1SG)	*tha-* (A2) *thi-* (P2) *wi-* (A1SG/P2)	stem
with *u-*	*wa-* (O3PL)	*o^n(g)-* (A1PL)	*u-* (OBL.)	*a-* (A1SG) *o^n-* (P1SG) *a-* (P1PL(2))	*wa* (P1PL(1)) *wa* (O3PL′)	*tha-* (A2) *thi-* (P2) *wi-* (A1SG/P2)	stem
with *ithá-*	*wa-* (P1PL(1)) *wa-* (O3PL)	*í-* (OBL.)	*o^n-* (P1SG) *o^n(g)-* (A1PL)	*á-* (OBL.)	*a-* (A1SG)	*tha-* (A2) *thi-* (P2) *wi-* (A1SG/P2)	stem
with *uthú-*	*wa-* (P1PL(1)) *wa-* (O3PL)	*í-* (OBL.)	*o^n(g)-* (A1PL)	*u-* (OBL.)	*a-* (A1SG) *o^n-* (P1SG) *a-* (P1PL(2))	*tha-* (A2) *thi-* (P2) *wi-* (A1SG/P2)	stem

according to Bickel & Nichols (2007).

The particularity of O3pl′ marker. A special additional prefix *wa-*, called P3PL′ by Koontz (2001b: 10) (O3PL′ in this dissertation), appears only in a few verbs with the oblique prefix *u-*. This special prefix appears in addition to the usual O3PL marker, in a different prefixal slot (see §3.4). Koontz notes:

> When a O3PL is high on the animacy scale (anyway, not with 'to hit') an additional *wa* is added to the pronominal string after the oblique [*u-* prefix], taking the position with respect to the pronominal that *wa* would take in a regular verb (...).
>
> (Koontz 2001b: 10; the comment in square brackets is mine)

The occurrence of this special additional *wa-* is conditioned lexically. It appears only on some of the verbs that have the applicative prefix *u-*. Apparently, it only applies to a few verbs which lexically imply a human object: *ukʰíe* 'to talk to {x}'; *ukʰízhi* 'to have {x} as a near kindred'; *uthá* 'to tell {x} to {y}' are attested with it. It is illustrated in (245) (see §3.4 and §3.5 for explanations of the underlying forms).

(245) The verb *ukʰíe* 'to talk to {x}' with O3PL′

Umóⁿhoⁿ úwa-tha-kʰíé amathóⁿ
**wa-u-wa-tha-kʰíé*
Umóⁿhoⁿ O3PL-(1)-O3PL′-A2talk(2) REL

The Omahas to whom you spoke. (Dorsey 1890: 738.1 / Óⁿpʰoⁿ-Toⁿga(?))

In Osage, Quintero (2004) mentions one example, reproduced in (246) below, of the verb *ohí* 'to beat {x}' (cognate to Umóⁿhoⁿ *uhí*) apparently derived with the valency-reducer *wa-*, but also taking one P1PL marker. She suggests that in this instance, the derived verb has been reanalized as a transitive verb. She also provides an alternative analysis: "that this is another instance of P1PL deflecting accent one syllable leftward."

(246) Possible reanalysis of antipassive verb as transitive in Osage
ówaðahi
ó-wa-Ya-hi
ANTIP(2)-P1PL-A2-beat(2)
You broke us; you beat us (Quintero 2004: 158)

Although (246) is the only such example provided by Quintero (2004), this could be a point to investigate further. As the sequence **wa-o-* fuses as *ó-* in Osage, and **wa-u-* fuses as *ú-* in Umóⁿhoⁿ (§3.5.1), the prefix *wa-* is barely perceptible. This could explain why a second *wa-* for O3PL develops, in particular in verbs whose objects are typically animate. (This reanalysis is possible because the antipassive/indefinite *wa-* and the O3PL *wa-* generally undergo the same morphophonological rules, as shown in §7.2.)

3.4.5 Multiple exponence

Multiple exponence (ME) can be defined as "the occurrence of multiple realizations of a single morphosemantic feature, bundle of features, or derivational category within a word" (Harris 2017: 9). There are several cases of ME in Umóⁿhoⁿ, most of them concerning the exponence of agentive person markers A1SG and A2. This is linked to the fact that these person markers are inserted in different slots of Table 3.5. There is also a double exponence of the dative marker whenever a dative verb indexes two arguments (this will be described in more detail in §3.6). We can identify three types of ME in Umóⁿhoⁿ verbs:

1. Multiple exponence in athematic conjugational paradigms (§3.7): the regular person marker for A1SG or A2 is realized in addition to the initial consonant alternation.

   (247) *shpáxu* — A2.write — you write it
   tha-gí-shpaxu — A2-POSS-A2.write — you write it (e.g. your own name)

2. Multiple exponence in "double stem" verbs: each stem (slots 0 and 1 in Table 3.4) are independently inflected

   (248) *góⁿtha=i* — want=PX — he wants it
   kóⁿ-bthaa — A1SG.want(1)-A1SG.want(2) — I want it

3. Multiple exponence of the dative marker: both A and P person markers convey the dative.

   (249) *é-boⁿ* — A1SG.DAT-call — I called her
   wé-boⁿ — D3PL(=O3PL.DAT)-call — she called them
   e-wé-boⁿ — A1SG.DAT-D3PL-call — I called them

In the following, I will first provide examples for each type of ME and explain how they are conditioned. I will then propose, in §3.4.5.2, an analysis of those examples, building on the typological descriptions of ME by Caballero & Harris (2012) and Harris (2017). I will conclude with some examples of combinations of different types of ME, which sometimes result in "exuberant exponence" (§3.4.5.3).

3.4.5.1 Types of ME with examples

At the morphological level, different conjugational patterns arise from the fact that some verbal stems encode agentive person markers A1SG and A2 by initial consonant alternation, instead of using the "regular" person markers presented in the templates in Table 3.5 through Table 3.7. Those verbs follow "athematic paradigms", as illustrated in (250). The origin of the athematic paradigms is discussed in §3.5.3, and their conjugational forms are presented in §3.7.1 (see in particular Table 3.9).

(250) A2 marking in the *th*-stem and *b*-stem athematic paradigms

thishtó^n	*níshto^n*	*baxú*	*shpáxu*
stop	A2.stop	write	A2.write
he stops it	you stop it	she writes it	you write it

The segment of the stem that undergoes alternation is either part of the root (slot 0) or an inner instrumental prefix (slot -1). When derivational prefixes of slots -2 (possessive, reflexive/reciprocal) and -5 (dative) are added to this stem, they trigger the realization of person markers of slots -3 and -5 on top of initial consonant alternation. This is typified in examples (251) and (252).

(251) a. ME triggered by the presence of the possessive prefix

tha-gí-shpaxu
A2-POSS-A2.write
you write it (e.g. your own name)

b. ME triggered by the presence of the reflexive/reciprocal prefix

ki-páha	*a-kí-paha*	*tha-kí-shpaha*
REFL-show	A1SG-REFL-A1SG.show	A2-REFL-A2.show
he shows himself	I show myself	you show yourself

(Dorsey n.d.b: entry *kipaha*)[27]

(252) ME triggered by the presence of the dative prefix

thé-shpaxu	*é-bthiko^n*
A2.DAT-A2.write	A1SG.DAT-A1SG.make.room
you write to her	I make room for him.

(Dorsey 1890: 566.7 / Frank La Flesche)

The Benefactive-possessive also gives rise to multiple exponence, as can be seen in the following example with the verb *ígithize* 'to recover {*y's property*} for {*y*}'.

(253) ME triggered by the presence of the benefactive-possessive prefix

a. *ígi-thize*
BEN-take
He recovered his$_i$ property for him$_i$ (Dorsey n.d.b)

[27] I have only found one attestation of the reflexive/reciprocal prefix *ki-* with a verb from the athematic *b-* conjugational paradigm in Dorsey's texts, in a peculiar context: *tha-kí-shpa-thí^{n}ge-xti=ó^n=i*, glossed 'you push yourselves altogether to nothing', addressing buffaloes (Dorsey 1890: 141.10). This verb is not included in Dorsey's dictionary. It would be *kipáthi^{n}ge*, 'to push one another to nothing' (= to kill one another by pushing?).

b. *ithé-bthize*
A1SG.BEN-A1SG.take
I recovered his property for him (Dorsey n.d.b)

The ME in athematic paradigms also occurs when the portemanteau prefix *wí-* for A1SG acting on P2 is used. In the athematic paradigms, this prefix co-occurs with the initial consonant alternation designating A1SG. This is independent of any other prefix present or absent in the verb form, as seen in (254).

(254) ME triggered by the presence of the portemanteau prefix *wí-*

wí-to^{n}be	*wí-gi-to^{n}be*	*á-wi-pita*
A1SG/P2-A1SG.see	A1SG/P2-POSS-A1SG.see	(1)-A1SG/P2-A1SG.touch(2)
I see you	I see you, my own	I touched you

One athematic verb, *dó^{n}be* 'to see it', is the only member of its conjugational paradigm, and it has developed an obligatory ME in modern Umó^{n}ho^n[28]. On the contrary, Dorsey's works document only forms without ME. For this reason, Koontz (2001b) distinguishes the "old" and "new" patterns for this verb. See Table B.8 in App. B.

(255) ME in the modern paradigm of *dó^{n}be* 'to see $\{x\}$'

Old pattern	Modern pattern
tó^{n}be	*a-tó^{n}be*
A1SG.see	A1SG-A1SG.see

I see it.

The same tendency is sporadically found in other athematic paradigms. ULCC (2015) reports two variants for A1SG and A2 person forms of *bahá* 'to show $\{x\}$', for instance both *páha* and *apáha* are provided for "I show it". See Table B.9 in App. B.

The second type of ME arises in the handful of verbs that have double stems. The first stem is in slot 0, and the second stem is in slot 1 of the verb template. The second stem in all double stem verbs is a member of the athematic *th*-stem paradigm, and inflected independently from the first for A1SG and A2. The conjugation of the double stem verb *gó^{n}tha* 'to want $\{x\}$' is illustrated in (256). As can be seen, the verb takes ME each time it has a A1SG or A2 subject.

(256)

kó^n-btha	*shkó^n-na*
A1SG.want(1)-A1SG.want(2)	A2.want(1)-A2.want(2)
I want it	you want it

[28] In fact, while some revitalization materials like Saunsoci & Eschenberg (2016) present only the Modern Pattern, documentation from Rudin et al. (1989-92) shows variation, as if the ME were optional.

gó^n-tha=i	*o^n-gó^n-tha=i*
want(1)-want(2)=PX	A1PL-want(1)-want(2)
he wants it	we want it

Examples in (257) show ME of the dative marker. The combination and fusion of the dative marker with a single personal indexation marker has been reanalyzed as a single morpheme realizing both features, as explained in §3.6. I gloss the morphemes realizing the dative marker in combination with a patientive person marker as D1SG, D1PL, D2, and D3PL. In (257), I gloss the combination of the dative marker with the agentive person marker as A1SG.DAT[29].

(257) Multiple exponence of the dative marker

é-bo^n	*wé-bo^n*	*e-wé-bo^n*
A1SG.DAT-call	D3PL(=O3PL.DAT)-call	A1SG.DAT-D3PL-call
I called her	she called them	I called them

Finally, some post-verbal markers agree with the verb subject: several auxiliaries from the "article" part of speech conjugate with first person and sometimes second person; the auxiliary *=o^n*, which comes from the verb *ó^n* 'to use {x}', also conjugates; and finally the negation marker agrees with 1SG subject. These markers are presented in §3.2, and will not be discussed here. See also §2.5.2.3 for an explanation of how the negation marker follows a nominative/accusative argument alignment.

3.4.5.2 Analysis

Caballero & Harris (2012) propose an overview of formal and semantic features associated with ME cross-linguistically, including obligatory/optional; overlapping, partially superfluous, superfluous; adjacent or not; identical or not. Harris (2017) later identifies four common types of ME cross-linguistically, which are "periodic ME", "alternating ME", "reinforcement ME", and "accidental ME".

The different types of ME described in (251) through (257) show a high diversity of features. For instance, some of them depend on a "carrier morpheme" (i.e., one of the exponents of ME is dependent on the realization of another morpheme, like the possessive prefix in (251)), while others do not. Some of them involve featurally identical exponents (examples where both exponents only act as A1SG or A2 person markers), while others involve featurally distinct exponents (one of the exponents at least realizes several morphosemantic features, e.g. A1SG and dative). Some of them show adjacent ME, others non-adjacent ME. None of the examples of ME in Umó^{n}ho^n involve formally identical exponents, however. All in all, the different cases of ME in Umó^{n}ho^n divide into all four types identified by Harris.

[29] For the sake of simplicity, I do not usually gloss the sequence *é-* as A1SG.DAT when an object argument is also indexed as a dative object (see §3.6).

The two examples in (251) are the most interesting ones typologically. In both cases, the presence of one morpheme (possessive and reflexive-reciprocal) triggers the realization of the regular agentive person marker in addition to the stem alteration. Thus, these examples share common features with "periodic ME": they are dependent on a carrier morpheme (possessive and reciprocal) and the ME systematically takes place when this morpheme is realized; the exponents are featurally identical and they are non-adjacent. However, Harris (2017) notes that periodic ME often involves formally identical exponents, which is not the case here. Moreover, she mentions that no instance of periodic ME with non-concatenative morphology has been found in her data. Thus, this Umó^{n}ho^{n} example would be a sort of exception (although Harris makes clear that she works on a convenience sample of languages which cannot be considered to be typologically representative).

Among the examples presented up to now, several can be analyzed as instances of externalization of inflection (Haspelmath 1993). According to the split morphology hypothesis, derivation should always be closer to the root than inflection (e.g., Greenberg 1963, Anderson 1992, Bybee 1985). Thus, instances of inflection inside derivation or inside discontinuous stems are unexpected. Haspelmath (1993) shows how cross-linguistically, there is a diachronic tendency for languages with internal inflection to change the locus of inflection and move it outside of derivation or stem. This externalization of inflection is achieved through a middle stage of double inflection. Examples (251) and (255) could be instances of this process: in these examples, ME is completely "superfluous" (Caballero & Harris 2012) and thus cannot be explained as an accidental overlap of features. Moreover, in the case of the verb *dó^{n}be* 'to see {x}' (255), an old pattern without ME coexists with a new pattern with ME. The old pattern is an irregular conjugational paradigm of which *dó^{n}be* is the only member. The new pattern takes a person marker of the regular paradigm in addition to the initial consonant alternation. This could be seen as an intermediate stage towards externalization of inflection.

3.4.5.3 Combinations and exuberant exponence

The different types of ME found in Umó^{n}ho^{n} sometimes combine with each other, resulting in what Harris (2017) calls "exuberant exponence": more than two exponents for the same morphosemantic feature. Exuberant exponence is possible only with A1SG and A2 person markers, and not with the dative marker, because the dative ME is restricted to the number of arguments encoded on the verb, and we have seen that Umó^{n}ho^{n} encodes two at a maximum.

Exuberant exponence of A1SG is illustrated in (258) with the verb *gó^{n}tha* 'to want {x}'. It combines the ME found in double stem verbs with ME triggered by the use of the dative marker on a verb from an athematic paradigm (types 1 and 2 presented at the beginning of §3.4.5). To summarize, the A1SG person is realized four times: (1) the prefix *e-* realizes a combination of features A1SG+DAT; (2) the initial consonant *k-* on the first stem of the verb realizes A1SG; (3) the initial cluster *bth-* on the second stem of the verb realizes A1SG; (4) the morpheme *m-* on the negation marker agrees with the first person subject (and is not

restricted to the grammatical role A).

(258) Example of "exuberant exponence"

e-wé-ko^{n}-btha-mazhi
A1SG-D3PL-A1SG.want(1)A1SG.want(2)-1SG.NEG

I do not wish (it) for them. (Dorsey 1890: 663.8 / Lion)

3.4.6 Conclusion

Since the beginning of this section, we have seen many ways in which the Umó^{n}ho^{n} prefix ordering does not follow what is usually thought as canonical:

- We find inflectional affixes closer to the root than derivational ones, which is unusual (a counterexample to Greenberg's ((Greenberg 1963)) 28 universal) Bybee (1985: 33-4), building on Greenberg's preliminary work, proposes a survey comparing the relative ordering of various inflectional affixes. She concludes that there are cross-linguistic tendencies to encode person markers further from the stem than other markers like tense and aspect, because person markers refer to the participant and are less relevant to the lexical meaning of the verb. This makes the insertion of person markers between the root and a derivational prefix even more unusual (although it is regularly attested). Anderson (1992: 127) proposes that apparent inflectional affixes inserted between the stem and a derivational prefix should be analyzed, in those cases, as derivational, too, and that they have no more syntactic relevance. This seem a difficult claim to do when the elements in question are person markers, as in Siouan languages.
- We find unaligned placement ("placement désaligné"), as defined in Bonami (2014: 151): personal indexation markers do not all occur in the same slot, and they can be separated by derivational material (especially oblique prefixes and antipassive).
- We find unstable placement ("placement instable"), as defined in Bonami (2014: 151). The placement of the indexation markers is conditioned by the presence or absence of oblique prefixes and dative prefixes.

3.5 Morphophonology

This section provides a presentation of the morphophonological rules that yield opaque surface forms in conjugational paradigms (§3.5.1), the Ablaut phenomenon which applies to the last vowel of verbs ending in /e/ (§3.5.2), and the origin of the athematic paradigms (§3.5.3).

The origins of the athematic paradigms have to do with historical linguistics; they date back to Proto-Siouan and can only be reconstructed via comparative work. The morphophonological rules presented in §3.5.1, in contrast, can be identified and analyzed without recourse to comparative work.

3.5.1 Morphophonological rules applying verb initially

In this section, I present the main morphophonological rules which apply verb initially. They explain the different steps between the underlying sequences of derivational and inflectional morphemes, and the corresponding opaque surface forms. Except for the first rule, all the rules presented here seem to be restricted to the prefixal sequence of verbs. They apply to a limited set of grammatical prefixes (inflectional and derivational), and all the combinations are already fixed in conjugational paradigms (cf. §3.7). They may not be productive any more, but this is difficult to ascertain. Most of them are already mentioned in Koontz's previous works, in particular Koontz (1984, 2001b).

In my Master thesis (Marsault 2016), I provided a thorough study of the morphophonological rules applying in all the forms of nine different verb paradigms. This included not only identifying the rules, but trying to figure out in which context and in which order they apply, and reconstruct every intermediate steps in charts inspired by Optimality Theory. The conclusion of this work is that whatever the rule ordering chosen, some surface forms are different from what is predicted: some rules do not apply when expected, and others do apply when not expected (in fact, this could be an argument for treating these rules as not productive anymore). See Marsault (2016: 49-74) for more detail.

As a consequence, these rules should not be considered to apply systematically: counterexamples are regularly found, and additionally some rules contradict one another (in particular the different rules occurring in vowel sequences). The rules, numbered from n°1 to n°8, are summarized in a chart in Table 3.8 at the end of this section. Excepting rule 1, all of them apply in the prefixal sequence only: the beginning of the verbal root marks the end of the rules' scope. Several examples of the limitation of scope are provided (see examples (264), (274) and (282)).

1. Place of the accent. Umóⁿhoⁿ accent is always placed on the 1st or the 2nd syllable of the word. Koontz (1988: 3) calls it the "First Two Syllable Constraint" (according to him, the position of the accent on the 1st or 2nd syllable of a root is unpredictable). When prefixes are added, the accent moves left if necessary in order to respect the constraint. The following examples illustrate this move with *noⁿ'óⁿ* 'to hear {x}' and *síthe* 'to remember {x}', 'to think of {x}', whose underlying accent is placed respectively on the 2nd and 1st syllable, respectively.

(259)	/nąʔą́/ (*noⁿ'óⁿ*)	/ða-ną́ʔą/ (*thanóⁿ'oⁿ*)	/wa-ðá-nąʔą/ (*wathánoⁿ'oⁿ*)
	hear	A2-hear	O3PL-A2-hear
	He heard it	You heard it	You heard about them
	Dorsey (1890: 727.7 - 733.5 - 691.7)		
(260)	/síðe/ (*síthe*)	/ði-síðe/ (*thisíthe*)	/ą-ðá-siðe/ (*oⁿthóⁿsithe*)
	remember	P2-remember	P1SG-A2-remember
	He remembers it	He remembered you	You think about me

Dorsey (1890: 752.7 - 751.12 - 244.9)

Sometimes, verbal prefixes are themselves underlyingly accented, so when they appear in the 1st or 2nd syllable of a form (which happens most of the time), the accent falls on them, as can be seen in (261) with the verb *ádo^{n}be* 'to take care of {x}' (derived from *dó^{n}be* 'to look at {x}', 'to see {x}'). Inherently accented derivational prefixes include the oblique prefixes *í-* and *á-*, and the dative prefix *gí-*. Other prefixes are sometimes accented, depending on the context (Koontz 1988: 12-14).

(261) /dą́be/ (*dó^{n}be*) /wa-dą́be/ (*wadó^{n}be*) /á-dąba ga/ (*ádo^{n}ba=ga*)
look O3PL-look OBL-look=IMP.M
He looked at her He looked at them Take care of him
Dorsey (1890, 296.15 - 436.18 - 212.19)

When words have four syllables or more, they are regularly written with a second accent in Dorsey's texts. This can be observed in many examples throughout this dissertation. For instance see (319) p. 223 and (320), (322), and (327) p. 226. All are examples of verbs with only one lexical morpheme. To the best of my knowledge, the rules governing the place of the second accent are unknown. Accents are never placed on contiguous syllables, except in some compounds such as *mí^n_gthó^n* 'to marry a woman' ('female-marry'), discussed in Chapter 8.

3.5.1.1 Rules affecting particular morphemes

2. Reduction of *o^{n}g-* to *o^n-*; reduction of *gi-* to *g-*. a. The prefix *o^n(g)-* which indexes A1PL undergoes deletion of its /g/, unless it precedes a vowel in the prefixal sequence.

(262) Reduction of *o^{n}g-* to *o^n-*
g > Ø / _C or _Ø

The two following examples show the prefix *o^{n}g-* (underlined) in two different contexts within the prefixal slot. In the first case, it precedes the prefix *thi-* P2 and reduces to *o^n-*. In the second case, it precedes the oblique prefix *á-* and remains unchanged:

(263) /ąðą́ðibahą́/ (*o^{n}thó^{n}thibahó^n*) /ągáðį/ (*o^{n}gáthi^n*)
*í-ąg-ði-baha ą *ąg-a-ðį
OBL-A1PL-P2-ROOT A1PL-OBL-ROOT
We know you - We have it (Dorsey, 1890, 735.14 and 356.14)

When adjacent to the verbal root, the /g/ always undergoes deletion, whether or not the root starts with a vowel. This shows that the root is beyond the scope of this morphophonological rule.

(264) /ąnąžį/ (*o^{n}nó^{n}zhi^n*) /ąąhe/ (*o^{n}ó^{n}he*)
*ąg-nąžį *ąg-ąhe
A1PL-ROOT A1PL-ROOT
We stand - We fled (Dorsey 1890: 419.13 and 443.9)

b. The possessive prefix *gi-* becomes *g-* when prefixed to verbal stems from the athematic *th-*conjugational paradigm. Otherwise, the possessive prefix *gi-* is not subject to morphophonological rules. This is exemplified in (265). Note that Rule 1 applies before the /i/ deletion, explaining why the resulting form is accented on the first syllable.

(265) /gðásnį/ (*gthasní^n*) /agðásnį/ (*agthásni^n*)
*gi-ðasnį́ *a-gi-ðasnį́
POSS-STEM A1SG-POSS-STEM
She swallowed her own I swallowed my own (Dorsey 1890: 150.2 and 63.6)

3. Lenition of /g/ in *gí-* dative and *ga-* instrumental. Dative applicative *gí-* and instrumental *ga-* 'by force' undergo lenition of their consonant in intervocalic position, when the vowel following it is accented. This rule is identified by Koontz (1984: 105) and formalized as in (266). This rule is specific to the prefixes *gí-* and *ga-*: as we have seen in rule 2, the conditioning of /g/-deletion in the prefix *o^{n}g-* is different, and no deletion of /g/ happens at all with the possessive prefix *gi-*. Several counterexamples exist, suggesting a need for further investigation, in particular concerning accent conditioning.

(266) Lenition of *g-* of two morphemes
g > Ø / V_V[+ACCENT]

The following examples, with the dative verb *gíxuka* 'to sing for {x} to dance' and the instrumental verb *gaxthí* 'to kill {x}', show that lenition only takes place when the /g/ is placed between two vowels, that is, when the morphemes *gí-* and *ga-* are preceded by a vowel. Lenition does not occur when the morpheme is verb initial.

(267) /gíxuka/ /wíxuka/
gí-xuka *wi-gí-xuka
DAT-ROOT A1SG/P2-DAT-ROOT
He sang for him I sing for you Dorsey (1890, 107.7 - 577.2)

(268) /gaxðí/ (*gaxthí*) /ðiáxði/ (*thiáxthi*)
*ga-xðí *ði-ga-xðí
INS:force-ROOT P2-INS:force-ROOT
He killed him They killed you
Dorsey (1890, 386.18 - 268.17)

In addition, according to Koontz (2001b: 18), the vowel following /g/ must be accented. He writes: "Since the lenition of *g* seems to be accentually conditioned, it is not surprising that when these stems receive an (accent attracting) oblique prefix, they are no longer leniting, but regular". In (269), the applicative instrumental prefix *í-* (always accented) is added to the verb *gaxthí* 'to kill {x}' and prevents lenition.

(269) /ígaxði/ (*ígaxthi*) /iðágaxði/ (*ithágaxthi*)
í-gaxðí *í-a-gaxðí
OBL-ROOT OBL-A1SG-ROOT
She killed it with it I killed it with it (Dorsey 1890, 578.11 - 109.10)

However, several counterexamples seem to show that Koontz's explanation is not sufficient. The lenition of /g/ from *ga-* prefix is also prevented when the non-accented *u-* oblique prefix is added, as in *ugá'ude* 'to break a hole in {x}'. Conversely, lenition does occur when a verb with *ga-* is derived with the accent-attracting dative prefix: *gáhe* 'to comb {x}' becomes *giáhe* 'to comb {x}'s {*hair*}'.

The dative applicative *gí-* is inherently accented, and generally undergoes lenition when a derivational prefix precedes it (placing it in intervocalic position). However, in some verbal forms combining several inflectional and derivational morphemes before *gí-*, it does happen that the lenition is prevented. This could be because the "First Two Syllable Constraint" draws the accent off the dative prefix in such contexts, as illustrated in (270)[30].

(270) *shé waníta úwagithaí* *ma*
*u-wá-wa-gí-tha-i
that animal OBL-O3PL-O3PL′-DAT-ROOT=PX OBV.PL
he animals about which he had told [them]. (Dorsey 1890: 600.12 / George Miller)

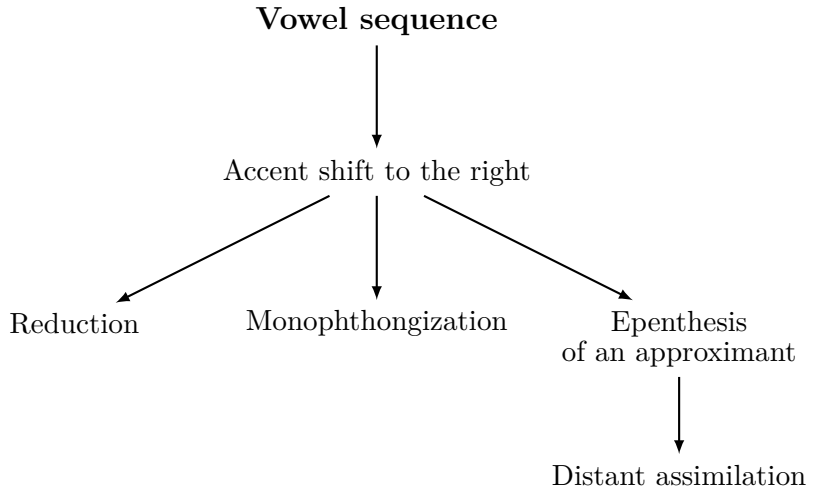
Example (271) shows that lenition does not occur with the possessive prefix *gi-*.

(271) gi-ʔį́ (*gi'í*^{n}) a-gí-ʔį (*agí'i*^{n})
POSS-ROOT A1SG-POSS-ROOT
He carries his own I carry my own
Dorsey (1890, 264.4 - 45.13)

Finally, we may mention the lenition of another /g/ in a particular context: the initial /g/ of the verb *gáxe* 'to make {x}' when preceded by the dative prefix, as exemplified in (272). We can be sure that *gáxe* is not derived with the instrumental *ga-* prefix, because it is accented, and because it follows a distinct conjugational paradigm (see §3.7).

[30]Dative verbs with oblique prefixes are complex paradigms which were not taken into consideration in Marsault (2016). Conjugational patterns of nearly every dative paradigm are presented by Koontz (2001b).

Figure 3.1: Possible morphophonological changes in vowel sequences



(272) /gáxe/ /giáxe/
*gí-gaxe
ROOT DAT-ROOT
to make {x} to make {x} for {y}

3.5.1.2 Rules affecting vowel sequences

Several morphophonological rules apply to vowel sequences; these are summarized in Figure 3.1. There is generally an accent shift to the right, followed by either a reduction of the sequence or the insertion of an epenthetic approximant (/w/ or /ð/). The reduction happens through the lenition of the first vowel, or through monophthongization. Epenthesis can be followed by distant vowel assimilation across it. These rules are recursive, as can be observed in forms with an underlying sequence of three vowels. (See (290) p. 202.) Note that distant assimilation also happens across non epenthetic /w/. Each rule is presented below.

4. Shift to the right of the accent in vowel sequences. This rule is mentioned by Koontz (1988: 15), who speaks of it as "a widespread, but not universal rule which shifts accent from the first vowel in a [two vowel] sequence to the second". Indeed, this phenomenon is found in several verbal paradigms (in particular those with oblique prefixes, described by Koontz (2001b), who uses this rule to explain some surface forms), but there are also several attested cases where it does not apply. We can link this rule to rule 1 (First two syllable constraint) to explain that the shift rightward takes place only when the accent remains within the first two syllables. There is no example of a verbal surface form exemplifying this rule alone: it is always preceded or followed by other modifications from Figure 3.1. In (273), the two first vowels of the three vowel sequence undergo reduction (see rule 5). Then, the accent shifts from the first vowel (the result of the monophthongization) to the second

(originally the third)[31].

(273) /wiúkʰi/
*wa-í-u-kʰi
O3PL-OBL-OBL-ROOT
He sided with them. (Dorsey 1890: 17.18 / Joseph La Flesche)

Example (274) shows that the accent shift only occurs inside the prefixal sequence. The verb *údoⁿ* 'to be good' is usually accented on the first syllable. When one personal prefix is added, the accent remains on the first syllable of the root, like in *thiúdą* 'you are good'. When two prefixes are added, namely the dative prefix and a person marker, the accent shifts to the prefixal sequence because of the First Two Syllable Constraint. As can be seen in (274), the sequence *thi-gí-* reduces to *thí-*, due to the application of rules 3 and 5. This results in a form *thíudoⁿ*. At this point, an accent shift to the right would not violate the Two First Syllable Constraint, yet it does not occur. This is presumably because /u/ is part of the root, and thus it is beyond the scope of this rule.

(274)	/údą/ (*údoⁿ*)	/ðiúdą/ (*thiúdoⁿ*)	/ðíudą/ (*thíudoⁿ*)
	údą	thi-údą	*ði-gí-údą
	good	P2-good	P2-DAT-good
	It is good	You are good	It is good for you

5. Reduction of vowel sequences. In many cases, the first vowel of a vowel sequence undergoes syncope. Koontz (1984: 43) mentions this rule and specifies that it is widespread among the different inflectional paradigms. Besides, the Ablaut phenomenon (§3.5.2) certainly originates in this reduction rule (this would mean that this rule is not restricted to the prefixal sequence, or was not at some point).

Examples are provided in (275), with the verbs *ágazhi* 'to command' (*á-* oblique paradigm), *uthúhe* 'to follow' (*uthú-* oblique paradigm) and *gíxuka* 'to sing for sb to dance' (dative paradigm). While the forms /wągagaži/ and /wixúka/ could arguably result from monophthongization (rule 6), this is definitely not the case of /wiúhe/.

(275)	/wągagaži/ (*wóⁿgagazhi*)	/wiúhe/ (*wiúhe*)	/wíxuka/ (*wíxuka*)
	*wa-ąg-a-gaži	*wa-í-u-he	*wi-gí-xuka
	O3PL-A1PL-OBL-ROOT	O3PL-OBL-OBL-ROOT	A1SG/P2-DAT-ROOT
	We commanded them	They followed them	I sing for you

Dorsey (1890, 759.3 - 171.1 - 577.2)

[31] Example 273 shows the verb *uthúkʰi* 'to side with {x}'. As can be seen, the oblique prefix *uthú-* is a combination, underlyingly, of the oblique prefixes *í-* and *u-*. This particularity has been described in the preceding section, where the underlying ordering of oblique prefixes and person markers are presented (§3.4.4). Rules 7 and 8 account for the surface form of this complex prefix.

Sometimes, a sequence of *wa-* followed by an accented vowel results in the deletion of the initial approximant /w/ at the same time as the the vowel /a/, first vowel of the vowel sequence. This is observed only in the conjugational paradigms involving the oblique prefix *u-*. It can be considered a supplementary step of vowel reduction. Two examples are provided in (276), illustrating the two sequences in which this appears: *wa-ú- and *wa-ą́.

(276) /úbaaza/ (*úbaaza*) /ągunai/ (*ó^{n}guna=i*)
*wa-ú-baaze *wa-ąg-u-na=i
O3PL-OBL-ROOT O3PL-A1PL-OBL-ROOT=PL
they scared them into it we hunted them

Dorsey (1890, 412.5 and 434.1).

6. Monophthongization. The vowel sequence /aí/ regularly reduces to /é/. This rule applies with the dative prefix *gí-*, after the lenition of its /g/, with the benefactive-possessive applicative *ígi-*, which is historically linked to the dative, and with the oblique prefix *í-*, as already mentioned by Koontz (1984, 2001b).

(277) /wéðe/ (*wéthe*) /ébą/ (*ébo^n*)
*wa-í-ðe *a-gí-bą
O3PL-OBL-ROOT A1SG-DAT-ROOT
He found them I called him

Dorsey (1890, 65.2 - 457.1)

In the dative paradigm, another reduction of a vowel sequence can be considered to be a monophthongization: /ąi/ becomes /į/, after the lenition of /g/, as exemplified in (278)[32].

(278) /íkʰu/
*ą-gí-kʰu
P1SG-DAT-ROOT
She invited me

7. Epenthesis of /ð/ and /w/ between some vowels. When the vowel /i/ is followed by another vowel, an epenthetic /ð/ is inserted between them. When a vowel /u/ is followed by another vowel, an epenthetic /w/ is inserted between them. We can note that /i/ and /u/ are the only high vowels of Umó^{n}ho^n, and that the epenthetic phonemes (which are the only two approximants of the language) have the same place of articulation as the vowel they follow.

Koontz (1984: 103) mentions that the epenthesis of */ð/* takes place between two vowels when one of them is anterior (that is to say /i/, /į/ or /e/ in the Omaha vocalic system), and that the epenthesis of /w/ appears in any vocalic sequences which includes */u/*. Yet, he only provides examples of vowel sequences with initial /i/ and initial /u/, and it is likely that

[32]In Marsault (2016) I argued that there was first a spread of nasal features from /ą/ to /i/, followed by the disappearance of the first vowel (rule 5).

the epenthetic phonemes are limited to those contexts. Note that when /w/ follows /u/, it is hardly identifiable. Thus, the sequence *uwá-* is sometimes spelled *uá-* (Dorsey 1890, Saunsoci & Eschenberg 2016). In this dissertation, I include the orthographic *w*, following Koontz (1984, 2001b) and ULCC (2015). This is more consistent with the presence of epenthetic /w/ in more distinguishable contexts such as /ąwą́/. Below are two examples with the verbs *ithápe* 'to wait for {x}' and *ushte* 'to remain somewhere'. The oblique prefixes *ithá-* and *uthú-* are originally complex prefixes. They are composed of the oblique prefixes *í-á-* and *í-u-* separated by epenthetic phonemes. The complex prefix *uthú-* is also the result of rule 8.

(279) /iðápe/ (*ithápe*) /ąwą́šte/ (*o^{n}wó^{n}shte*)
*í-á-pe *u-ą-šte
OBL-OBL-ROOT OBL-P1SG-ROOT
He waits for him I remained.

Dorsey (1890, 336.6 - 374.5)

8. Vowel assimilations across approximants. Koontz (1984: 107) mentions vowel assimilations that operate across the approximants /ð/ or /w/. He presents it as the assimilation of a "weak" vowel by a "strong" one, with the following hierarchy: nasal > oral[33] and /u/ > /i/. In my analysis of nine conjugational paradigms, I have identified only total assimilations.

Assimilation across /ð/ seems to be only regressive in the observed examples: (280) shows an assimilation of an oral vowel by a nasal vowel, and (281) shows the assimilation of *í-* by *u-* (leading to the surface form of the oblique prefix *uthú-*). Example (280) shows a restriction in the application of this rule, in the form /ąðą́ðanąpe/: it does not affect the vowel /a/ of the prefix *thá-* A2. This can be explained in two different ways: either the assimilation across /ð/ can only be regressive, or it only applies when /ð/ has an epenthetic origin. Either way, this is a restriction not shared with epenthetic /w/.

(280) /ąðą́husa/ (*o^{n}thó^{n}husa*) /ąðą́ðanąpe/ (*o^{n}thó^{n}thano^{n}pe*)
*í-ą-husa *í-ą-ða-nąpe
OBL-P1SG-ROOT OBL-P1SG-A2-ROOT
She scolded me You are afraid of me

Dorsey (1890, 15.8 - 23.9)

(281) /uðúdąbe/ (*uthúdo^{n}be*)
*í-u-dąbe
OBL-OBL-ROOT
He considers it.

Dorsey (1891, 108.9)

[33] In reality, Koontz (1984) only mentions /ị/ and /ą/ > /i/, /a/, /u/, and considers /e/ as a "neutral" vowel not subject to the assimilation phenomena. This last point is contradicted by data from the dative paradigm where /e/ is assimilated by a nasal vowel.

Below is another example, proving that assimilation of a vowel between a root and its prefixes is impossible, with the verb *thi^{n}ge* 'to lack {x}'.

(282) ði-ðíge (*thithí^{n}ge*)
P2-ROOT
You are without it.
Dorsey (1890, 77.4)

Assimilation across /w/ is attested in both directions. It is regressive across epenthetic *-w-*, as can be seen in the form /ąwąšte/ below. It is progressive across the /w/ of the personal prefix *wa-* O3PL, as can be seen in the form /ąwąsiðe/. Finally, assimilation also takes place across the /w/ of the prefix *wa-* which has lexicalized with bound roots and which has become semantically opaque. This is exemplified with the form /ąwąxpani/ of the following example.

(283)

/ąwąšte/ (*o^{n}wó^{n}shte*)	/ąwąsiðe/ (*o^{n}wó^{n}sithe*)	/ąwąxpani/ (*o^{n}wó^{n}xpani*)
*u-ą-šte	*ąg-wa-siðe	*ą-wa-xpáni
OBL-P1SG-ROOT	A1PL-O3PL-ROOT	A1SG-?-ROOT
I stayed	We remember them	I am poor

Dorsey (1890, 374.5 - 488.7 - 499.1)

3.5.1.3 Reanalysis

9. Reanalysis in the dative paradigm. We have seen above the different rules that sequentially apply when person markers and the dative prefix occur together. First, the /g/ undergoes lenition (rule 3), resulting in a vowel sequence. Then, in this vowel sequence, the accent shifts to the right (rule 4), and the sequence undergoes monophthongization (rule 6). Example (284) sums up the underlying forms and surface forms of a dative verb with A marker and P markers. Thus, we see that both A and P are affected by the presence of the dative prefix *gí-*.

(284) a. /ébą/ (*ébo^n*)
*a-gí-bą
A1SG-DAT-call
I called him

b. /wébą/ (*wébo^n*)
*wa-gí-bą
O3PL-DAT-call
He called them

Up to this point, everything follows the morphophonological rules described above. However, forms combining the dative and both A and P markers show evidence that the surface forms presented in (284) have been reanalyzed as single morphemes. Example (285) from Koontz (1989a) shows what the surface form should be, if the morphophonological changes

described above (lenition and monophthongization) took place regularly with both A and P markers. The last line of the example shows the attested form[34].

(285) Hypothetical regular form A1SG-O3PL-DAT

Underlying form:	*a-wá-gí
Rule 3 (lenition):	**a-wá-í-*
Rule 6 (monophthongization):	*†a-wé-*

Expected form:	*†a-wé-*
Attested form:	*é-wé-*

The regular morphophonological rules applying to Umóⁿhoⁿ prefixes would yield the surface form *†a-wé-*. Instead, the attested form is *é-wé-*, a combination of the dative surface forms *é-* and *wé-* presented in (284). Koontz (1989a: 9) only notes that "The surface effects of the fusion [of dative *gí-* with the inflection markers] have been generalized to occur in the vowels of both syllables".

My analysis is that the merging of the dative prefix with inflection markers taken individually have been reanalyzed as single inflectional morphemes of a distinct conjugational paradigm. As a result, these new inflectional morphemes combine with each other when both the subject and the object of a transitive dative verb are indexed. A detailed table of the morphophonological rules and the reanalysis occurring in the dative paradigm can be seen in Marsault (2016: 73).

Note that this reanalysis does not occur in sequences combining person markers, dative prefix and oblique prefixes. In such cases, *gí-* sometimes remains without lenition of its /g/, in particular in long sequences, such as that in (286). This is a form of the verb *uítha* 'to tell {x} to {y}', derived from *uthá* 'to talk about {x}'; 'to tell {x}'.

(286) /uáwagibðá/ (*uáwagibthéde*)
*u-a-wa-gi-bða
OBL-A1SG-O3PL-DAT-ROOT
I told it to them (Dorsey 1890: 497.11 / Maxpíya-xága)

In (287), the dative prefix undergoes lenition and monophthongization, but it affects only one of the person markers (A), and not the other. This shows that the dative prefix is present only once in the underlying prefixal sequence, and that no reanalysis has taken place.

(287) /wéðašnį/ (*wéthashniⁿ*)
*wa-a-gí-ða-šnį
O3PL-OBL-DAT-A2-A2.ROOT
You have it for us (Dorsey 1890: 394.9 / Joseph La Flesche)

[34]See example (126) p. 128 for an attested example of the sequence *e-wé-*.

In like manner, the benefactive prefix, which is historically complex, never seems to be the subject of reanalysis of coalesced forms into simple person marker morphemes. The Benefactive-possessive paradigm is poorly attested, especially the forms including indexation markers, not to speak about those that combine two of them. The data available, though, show complex surface forms which are consistent with the morphophonological rules 1 to 8. One example is provided below (it is from Dorsey's dictionary and lacks accents).

(288) /įðįðaškaxe/ (*i^{n}thi^{n}thashkáxe*)
*í-gí-ą-ða-škaxe
BEN(1)-BEN(2)-P1SG-A2-A2.make
You repaired my own for me (adapted from Dorsey n.d.b)

3.5.1.4 Summary and examples

Table 3.8 summarizes the morphophonological rules described. The numbering of the rules roughly corresponds to the rule ordering, but some rules are recursive, especially those occurring in vowel sequences (rules 4 to 8). The morphophonological changes of two complex surface forms are illustrated in (289) and (290). The latter example illustrates the recursivity of the rules affecting the vowel sequences: rule 4 can apply after rule 6.

(289) Morphophonological transformations in *i^{n}thí^{n}thahníxe*: 'you will chase her for me' (cf. (328) p. 227)

a. Underlying form and gloss
*í-gí-ą-ða-hníxe
BEN(1)-BEN(2)-P1SG-A2-A2.pursue
You will chase her for me. (Dorsey 1890: 295.2 / Sho^{n}ge-ska)

b. Morphophonological transformations
Rule 3 - lenition of /g/ of dative *gí-*
*í-í-ą-ða-hníxe
Rule 5 - reduction of vowel sequences
*í-ą-ða-hníxe
Rule 4 - shift to the right of the accent in vowel sequences
*í-ą́-ða-hníxe
Rule 7 - epenthesis of /ð/ between /i/ and the following vowel
*í-ð-ą́-ða-hníxe
Rule 8 - vowel assimilations across approximants[35]
į-ð-í-ða-hníxe

(290) Morphophonological transformations in *weábahó^{n}i*: 'he knows about us' (cf. (592) p. 375)

[35]The assimilation of /ą/ by /į/ is not examplified in the presentation of Rule 8 above, but it is consistent with Koontz's (1984) hierarchy: /į/ is the strongest vowel.

Table 3.8: Summary of the main morphophonological rules of Umóⁿhoⁿ

Nb	Label	Description
1	First two syllables constraint	The primary accent falls on one of the two first syllables.
2	Reduction of *oⁿg-* 't'o *oⁿ-*	*oⁿg-* A1PL reduces to *oⁿ-* unless it is followed by a vowel in the prefixal sequence.
3	Lenition of /g/ in *gí-* dative and *ga-* instrumental	Dative applicative *gí-* and instrumental *ga-* 'by force' undergo a lenition of their consonant in intervocalic position, when the vowel following it is accented
4	Accent shift to the right	The accent shifts from the first vowel in a two vowels sequence to the second
5	Reduction of vowel sequences	The first vowel of the vowel sequence undergoes syncope
6	Monophthongization	The sequence /aí/ becomes /é/; the sequence /ąi/ becomes /į/
7	Epenthesis of /ð/ and /w/ between some vowels	When the vowel /i/ is followed by another vowel, an epenthetic /ð/ is inserted bewteen them. When a vowel /u/ is followed by another vowel, an epenthetic /w/ is inserted between them
8	Vowel assimilations across approximants	Total assimilations across the approximants /ð/ and /w/ (epenthetic /ð/; not necessarily epenthetic /w/)
9	Reanalysis in the dative paradigm	Person markers coalesced with the dative prefix are reanalyzed as simple person markers of the dative paradigm

a. Underlying form and gloss
*wa-í-a-bahoⁿ=i
P1PL(1)-(1)-P1PL(2)-know(2)=PL
He knows about us (Dorsey 1891a: 21.9 / Siⁿde-xoⁿxoⁿ)

b. Morphophonological transformations
Rule 6 - monophthongization
*wé-a-bahoⁿ=i
Rule 4 - accent shift to the right
weá-bahoⁿ=i

3.5.2 Ablaut

The German word "Ablaut" means vowel shift or vowel alternation. It was first introduced in the context of Indo-European comparative linguistics, in the beginning of the 19th century,

to designate vowel alternations inside verb stems in classical languages such as Sanskrit, or modern ones like Germanic languages (Bussman 1996: 3). It is now a term commonly used for describing the German verbal system.

Many Siouan languages undergo a final vowel alternation on some verbs, and this phenomenon has been called Ablaut too. Unlike the Ablaut of Germanic languages, it does not carry grammatical content, but should rather be considered to be a alternation triggered by specific morphological contexts. I will give basic information about its historical origin and contexts of occurrence in Umó^{n}ho^{n}.

Every Mississippi Valley Siouan language (MVS) has an Ablaut system, or remnants of one (Rankin 1995). The Ablaut corresponds to a stem-final vowel alternation triggered by the morpheme that immediately follows the verb, and only a subset of verbs are subjects to this phenomenon. The two stem final vowels involved are /a/ and /e/[36]. Note that Ablaut is also found outside MVS, for example in Crow (Missouri Valley Siouan), where it involves more vowels but has similar contexts of occurrence.

The historic evolution leading to the Siouan Ablaut is the following: the first vowel of a post-verbal morpheme shifts to the end of the verb stem and eventually replaces its original final vowel. Rankin (1995) observes that in Dakotan an underlying stem-final /a/ is replaced by /e/ in some contexts, while in every other language of MVS, the opposite happens; an underlying /e/ is replaced by /a/.

Example (291) reconstructs the three steps leading towards the current system of Ablaut in Umó^{n}ho^{n}, with the negation marker. It is adapted from Rankin (1995: 5, 7), who proposed a similar example applicable to all Siouan languages.

(291) 1. /*dą́be=aži/ (**dó^{n}be=azhi*)
STEM=NEG
2. /*dą́beaži/ (*dó^{n}beazhi*)
3. /dą́baži/ (*dó^{n}bazhi*) Attested for instance in Dorsey (1890, 207.10)

The second step is attested at least in Quapaw, according to a few notes found in Dorsey's manuscripts. According to Rankin (1995: 6), Dorsey had a tendency to normalize those variations in his texts (see §2.1 and §2.7 for more detail about Dorsey's work and methodology).

However, Dorsey's corpora contains sequences where the final vowel of a verb stem is missing when the following word starts with a vowel, as in (292). Such examples are many, although they are not frequent compared to the number of verbs where the vowel remains. Such occurrences, though, support Rankin's (1995) analysis and show that vowel shift is a general phenomenon in Umó^{n}ho^{n}.

[36]The Dakotan subgroup has a third variant, /į/, which is an innovation, as explained by Rankin (1995: 12).

(292) *wak^{h}ég edegó^n*
sick but
(Dorsey 1890: 57.3 / Páthi^n-no^{n}pázhi)

Koontz (1984: 108) notes that the reduction of vowel sequences rule (see §3.5.1.2) is involved, historically, in Ablaut formation (/ea/ > /a/). Among the morphophonological rules presented earlier in this section, it is the only one that seems to apply outside of the verb prefixal chain.

In Umó^{n}ho^n, all verbs with /e/ final stems seem to undergo Ablaut. No exception has been found. In addition to verb stems it also applies to the causative morphemes which are placed after the verb stem: *-the* and its derived forms (see §5.1). The final /e/ becomes */a/* in the following contexts:

- Before the plural/proximate marker *=i~bi~b*;
- Before the negation marker *=(a)zhi*
- Before the auxiliary *thi^{n}k^{h}e* and its variants (*mi^{n}k^{h}e* 1SG, *tho^{n}k^{h}a* PL...)
- Before the masculine and feminine imperatives *ga* and *a*.

These contexts cannot be reduced to phonemic rules. As can be seen, not all the post-verbal morphemes triggering Ablaut begin with the vowel */a/*. Conversely, not all post-verbal markers beginning with */a/* trigger Ablaut. For example, the question marker *a* does not, as can be observed in the following example:

(293) /t'é-ða-ðe=a/ *t'étháthe a*
die-A2-CAUS=Q
Have you killed him? (Dorsey 1890: 126.11 / Joseph La Flesche)

Ablaut is thus a morphophonological phenomenon of the Umó^{n}ho^n verbal system, consisting in the vowel shift from /e/ to /a/ of the last vowel of the verb stem. It applies to all verbs ending with /e/, and it is triggered by a closed list of post-verbal markers.

Note that in contemporary Umó^{n}ho^n, the enclitic *=i~bi~b* is no longer used to encode proximacy of 3rd person singular subjects. However, Ablaut still applies as a remnant of it. Thus, in contemporary Umó^{n}ho^n, the Ablaut is gaining grammatical content in some of its contexts.

3.5.3 The origin of the athematic paradigms

Umó^{n}ho^n has many conjugational paradigms involving the alternation of an initial consonant to encode A1SG and A2, instead of the prefixes *a-* and *tha-*. These are presented in §3.7.1. They are called "syncopating paradigms" by Koontz (1984, 1990, 2001b), and "athematic

paradigms" by Jacques (2011), which is the term used here.

The athematic paradigms historically result from an interaction between the person marker prefixes and the initial segment of the stem, yielding different paradigms according to the initial segment involved. Koontz (1990) classifies the Proto-Siouan (or Proto-MVS) athematic stems of different kinds: **r-* stems, **y-* stems, diverse stop stems, etc. Almost all Siouan languages have athematic conjugational paradigms or reflexes of them, but languages of the **Dhegiha** group are among those which retain most of them.

Comparative works on attested forms in Siouan languages lead to a reconstruction of the prefixes **wa-* A1SG and **ya-* A2 in the regular paradigm, and ***w-* A1SG and ***y-* A2 for the athematic paradigms (double asterisk refers to an earlier stage than simple asterisk). Koontz (1990: 19) concludes that the athematic paradigms result from regular phonological changes to the proto-forms ***w-* and ***y-* in contact with the initial consonant of the stem, while the paradigm called "regular" added an epenthetic vowel *a-*, probably in order to avoid clusters of three consonants. Jacques (2011) agrees with this analysis, and proposes to use the term "athematic paradigms" (i.e., paradigms without vowel) for those paradigms which did not have an epenthetic *a-*, and "thematic paradigm" for the paradigm which had an epenthetic vowel. It is the epenthesis of *a-* in Proto-Siouan which prevented the regular phonological changes, and which ultimately resulted in more transparent surface forms (Jacques 2011).

The phonological changes that operated between the proto forms ***w-* and ***y-* and the initial sequence of the Proto-Siouan stems are described in Koontz (1990) and Jacques (2011). Many other comparative Siouan works also reconstruct regular phonetic or phonological changes (see Carter et al. 2006, Larson 2016). Given the synchronic focus of this dissertation, I do not pursue these diachronic changes here.

By contrast with the athematic paradigms, the paradigm which results from the epenthesis of vowels is called the REGULAR PARADIGM, because it is perceived as regular in synchrony. One athematic paradigm has developed multiple exponence by the addition of the regular person markers *a-* A1SG and *tha-* A2 to the consonant alternation. See example (255), p. 188.

3.6 D and B: between derivation and inflection

In §2.5.2, the Dative and the Benefactive-possessive are identified as two grammatical roles encoded by the verb. This gives them the status of inflectional markers. Yet, they are also considered to be derivational applicative prefixes introducing an additional object, typically a beneficiary (as applicative prefixes, they are described in §4.3 and §4.4).

Haspelmath & Sims (2010 [2002]: 244) comment that applicative and reflexive markers tend to show mixed behavior between derivation and inflection. Example (294) shows how the

dative prefix *gí-* and the benefactive-possessive *ígi-* act as productive applicative markers. They are presented as derivational morphemes in the templates of §3.4. They are also presented in Chapter 4 which overviews valency-changing operations in Umóⁿhoⁿ.

(294)	*ʼíⁿ*	→	*gí-ʼíⁿ*	→	*ígi-ʼíⁿ*
	carry		DAT-carry		BEN-carry
	'to carry {x}'		'to {x} for {y}'		'to carry {*y's possession*} for {y}'
	(inanimate)		'to carry {y}' (animate)		

Although these prefixes have a rather predictable meaning, it can slightly vary from one verb to another. For example, in the case of dative *gíʼíⁿ* presented here, the dative prefix can either add a beneficiary distinct from the base object, or replace the base object, typically inanimate, by a beneficiary which is typically animate (examples from texts are given in §4.4.1). Thus, verbs derived with *gí-* are new lexical items that must be stored in the lexicon.

Despite the derivational-like properties just stated, the dative and benefactive-possessive prefixes have several characteristics that motivate their integration as new grammatical roles. These characteristics are summarized below. They are compared to the oblique prefixes, which also function as applicatives but are not considered to be grammatical roles.

Semantics

1. The dative and benefactive-possessive in Umóⁿhoⁿ correspond to the following description of the cognate prefixes in Lakhota: "The dative and benefactive verbs (...) play an important role in marking the relationship between subject, direct or effected object (the object, very often inanimate, thus results from or is used in the activity of the verb), and indirect or affected object (this object is almost always animate)" (Ullrich 2008: 722). This description also holds for Umóⁿhoⁿ. In some instances D does not add a new core argument, but changes the semantic properties of the object (as in (294). On the other hand, oblique prefixes add an inanimate participant which does not modify the semantic properties of A and P, or the semantic relationship between A and P.

2. The dative and benefactive-possessive introduce animate arguments, high in the hierarchy scale, and likely to be speech act participants, and the base object, when there is one, is generally inanimate and not indexed on the verb. Thus, the original (underlying) prefix for P is used to index the dative or benefactive-possessive argument instead. There is a distinction between the semantic roles typically introduced by P and those introduced by D (underlyingly P+DAT) and B (underlyingly P+BEN). D and B typically introduce beneficiaries (D more generally introduces persons affected). On the other hand, oblique prefixes typically introduce locations or instruments that are not speech act participants. When a P argument is encoded on the same verb, it corresponds to the base object, not to the applicative object.

3. The dative and benefactive-possessive markers have no instance of complete semantic demotivation. The association of these prefixes with person markers always encodes beneficiaries, maleficiaries, or persons affected in some way etc. The dative and benefactive-possessive markers sometimes appear on verbs which are no longer analyzable as derivations (*uíko^n* 'to help {x}', *gíthe* 'to be glad'), but these verbs' arguments are always animate and somehow affected. Conversely, oblique prefixes often appear lexicalized with their base into an unbreakable stem, and completely demotivated (see §6.4.2).

Morphology

1. The dative prefix is the only one of all the verbal prefixes in Umó^{n}ho^n which has undergone reanalysis of its combination with person markers as single morphemes. This reanalysis is presented in detail in §3.5.1.3.

2. The fusion of *gí-* and the patientive/object person marker is blocked if they refer to different object, as can be observed in (295) compared to (296). In the first example, the prefix *wa-* indexes a O3PL theme (the horses), while the dative prefix indexes a 3SG maleficiary. This shows that the prefix *wé-* is reinterpreted as a D3PL marker.

   (295) *wa-gí-mo^{n}tho^n*
   O3PL-DAT-steal
   He has stolen {them (the horses)} {from him}. (Dorsey n.d.b)

   (296) *wé-bat^{h}a=i=ga*
   D3PL-sew=PL=IMP.M
   "Sew (the pouches) for them!" (Dorsey 1890: 267.9 / Te-úko^{n}ha)

3. A few verbs are presented without the dative prefix in the 3rd person form or in the headword, but follow the dative conjugation. This is the case of *uná* 'to borrow {x} from {y}' (Dorsey n.d.b, Saunsoci & Eschenberg 2016: 69). This verb is presented in Dorsey's dictionary and in Saunsoci & Eschenberg's textbook as *uná*, with no dative prefix visible. But it conjugates following the dative conjugation paradigm. A few person combinations are reproduced in (297).

   (297) *uná* 'to borrow {x} from {y}' (Saunsoci & Eschenberg 2016: 69)

   → *uná* 'He borrowed it from him'
   → *uwéna* 'I borrowed it from you'
   → *uwí^{n}na* 'He borrowed it from me'

Thus, the Dative and Benefactive-possessive prefixes display characteristics of both inflectional morphology and derivational morphology. Interestingly, this ambiguity is not of the kind usually described in research on morphology. While the prefixes *gí-* and *ígi-* can be seen

as derivational by themselves, they become clearly inflectional when they are combined with person markers (the dative prefix at least). In this dissertation, the glosses are adapted in the following way, accounting for the reanalysis undergone by the dative marker:

When they appear on a verb with no argument indexed, they are glossed as DAT and BEN, like applicative prefixes (ex. 298). When they appear in combination with A markers only, modifying its surface form, they are also glossed as applicative prefixes to show that the verb follows the dative or benefactive-possessive conjugational paradigm (ex. 299). When they appear in combination with P markers (underlyingly), they yield the surface D and B grammatical roles, and are glossed as such. In such cases, the dative or benefactive-possessive marker need not be repeated on the A grammatical role (ex. 300).

(298) *Góⁿ óⁿba dúba gí-thada=í tʰe gthé tatʰé.*
and day four DAT-pronounce=PL REL go.back irr
And on the fourth day which they mentioned to him he and his sister were to go home. (Dorsey 1890: 379.1 / Nudóⁿ-axa)

(299) *síⁿde-xóⁿxoⁿ é-boⁿ.*
S. A1SG.DAT-CALL
I called to Síⁿde-xóⁿxoⁿ. (Dorsey 1890: 457.1 / Kaxé-Thoⁿba)

(300) *póⁿka akʰá Macdonald akʰá shóⁿge wawéshi e-wé-na=noⁿ=móⁿ.*
Paⁿka PX.SG M. PX.SG horse pay A1SG-D3PL-ask=HAB.1SG.AUX
After this I often asked Macdonald for pay for my horses (Dorsey 1891a: 105.8 / Tenuga-zi)

3.7 Conjugational paradigms

From a morphological perspective, the Umóⁿhoⁿ verbal system possesses a large number of different conjugational paradigms. Paradigms resulting from initial consonant alternation (the "athematic paradigms" and "leniting paradigm") are presented in §3.7.1. They result from different historical phonetic changes. Paradigms resulting from the addition of derivational prefixes are presented in §3.7.2. The morphophonological changes described in §3.5.1 apply to them, and create opaque surface forms. The conjugational paradigms introduced in §3.7.1 and those resulting from the derivational prefixes presented in §3.7.2 constitute two distinct sets which are not mutually exclusive. They combine together, as we see in §3.7.3. In §3.7.4 we conclude with a list of the main conjugational paradigms identified in Umóⁿhoⁿ.

Given that both A and P (or D or B) are indexed on the verb, full conjugational paradigms are best expressed in charts where lines and columns express A and P (D, B). The charts of 24 full conjugational paradigms are presented in Appendix B.

3.7.1 Initial consonant alternation

First of all, different paradigms stem from the alternations of the stem initial consonants (see §3.5.3 for a short historical account). The label "athematic paradigm" comes from Jacques (2011), and the "leniting paradigm" comes from (Koontz 2001b). These paradigms are classified according to the initial consonant of the stem (slots -1 and 0 of the prefixal template, see Table 3.4), although it is not possible to have a 100% sure prediction according to the first consonant. Table 3.9 shows excerpts of the regular[37] paradigm, the main athematic paradigms and the leniting paradigm (see §3.7.4 for a longer list of athematic paradigms; see Appendix B for the complete paradigms and comments on the sources).

Table 3.9: Athematic and leniting paradigms of Umó^{n}ho^n verbs

	Regular *X*	Athematic *thX*	Athematic *bX*	Athematic *gX*	Athematic *dX*	Athematic *'X*	Leniting *ga-X*
A1SG	*a-X*	*bthX*	*pX*	*pX* / *kX*	*tX*	*mX*	*á-X*
A1PL	*o^n-X*	*o^n-thX*	*o^n-bX*	*o^n-gX*	*o^n-dX*	*o^n-'X*	*o^n-gáX*
A2	*tha-X*	*(sh)nX*	*shpX*	*shkX*	*shtX*	*zhX*	*thá-X*
A3/P3	*X*	*thX*	*bX*	*gX*	*dX*	*'X*	*ga-X*
P1SG	*o^n-X*	*ó^n-thX*	*ó^n-bX*	*ó^n-gX*	*o^n-dX*	–	*ó^n-X*
P1PL	*wa-X*	*wá-thX*	*wá-bX*	*wag-X*	*wa-dX*	–	*wá-X*
P2	*thi-X*	*thí-thX*	*thí-bX*	*thi-gX*	*thi-dX*	–	*thiá-X*
O3PL	*wa-X*	*wá-thX*	*wá-bX*	*wag-X*	*wa-dX*	–	*wá-X*

Table 3.9 provides for each paradigm the personal indexation markers for agentive and patientive arguments. The cells in gray identify the forms that vary from the regular paradigm, at the sequential level (it can be seen that accentual patterns vary too, in a way that is not yet fully understood and not discussed here[38]). We see that the variation is restricted to the A1SG and A2 forms of the athematic paradigms, where person is marked by the initial consonant alternation, but that it concerns most forms of the leniting paradigm, which uses the regular indexation markers but drops the consonant *g-*, and often the vowel *a-*. The athematic *g1*-stem paradigm (with *p-* for A1SG) and the leniting *g-* paradigms are compared with actual verbs in (301).

(301) Comparaison between leniting *g-* verbs (like *gaxó^n* ')' and athematic *g-* verbs (*gáxe*) (without the proximate/plural marker *=í*)

gaxó^n 'He broke it' *áxo^n* 'I broke it' *tháxo^n* 'You broke it'
gáxe 'She made it' *páxe* 'I made it' *shkáxe* 'You made it'

[37] As observed by Koontz (1990) and Jacques (2011), the "regular paradigm" in contemporary Siouan languages is the irregular one in a diachronic perspective. See §3.5.3.

[38] The forms found in corpora are not always consistent regarding the accentual pattern, which is why it is difficult to include the accentuation in some conjugation charts. Initial accent has been reported in a few cells of Table 3.9, when several examples attest to it and no counterexample is known.

The "athematic *'-X*" paradigm is the glottal stop paradigm. It is not attested with P forms, nor O3PL forms. The "athematic *d-* paradigm" has an old pattern (in Dorsey's materials) and a modern pattern (in contemporary Umó^{n}ho^{n}). The old pattern is presented here. The modern form combines the prefixes of the regular paradigm and the initial consonant alternation (presented in (255), §3.4.5). The "leniting *gX*" paradigm in the far right of Table 3.9 is underlyingly a regular paradigm, and the surface forms presented in Table 3.9 can be explained by the morphophonological rules presented in §3.5. It is called "leniting" because of the lenition of the *g-* (morphophonological rule 3). Observe that although the dative prefix *gí-* undergoes the same lenition as *ga-*, it entails other morphophonological changes and it constitutes a distinct conjugational paradigm, as can be observed in §3.7.2.

The initial consonant of a given verb is not always sufficient to deduce its conjugational pattern. The regular paradigm includes some verbs beginning with *b-* (like *báaze* 'to scare off {x}') and glottal stop *'* (like *'é* 'to dig {x}'). Moreover, verbs with initial *g-* can be members of the leniting paradigm or the athematic paradigm, the latter divided into two subtypes which diverge in their marking of A1SG. However, there is a great discrepancy in the number of members of each pattern: it is either very high or very low. The regular paradigm, the athematic *th-* paradigm, the athematic *b-* paradigm and the leniting paradigm are wide conjugational classes comprehending hundreds of members. Each base derived with the instrumental prefixes *tha-* 'with the mouth' or *thi-* 'with the hands' will follow the athematic *th-* pattern. Each base derived with the instrumental prefixes *ba-* 'by pushing' and *bi-* 'by pressure, by blowing' will follow the athematic *b-* pattern. Finally, each base derived with the instrumental prefix *ga-* 'by striking, by force' will follow the leniting pattern. Note that, in those cases, it is the derivational prefixes from slot -1 of the prefixal template (p. 176) which undergo the alternation.

3.7.2 Morphophonological changes induced by derivational prefixes

Besides the different paradigms arising through the alternation of stem-initial consonants, eight derivational prefixes involve morphophonological changes operating between themselves and the personal indexation marker, which results in distinct conjugational patterns. The most frequent changes are described in §3.5. These prefixes are:

- Oblique prefixes
  - *í-*: Instrumental applicative
  - *u-*: Locative applicative (inessive)
  - *á-*: Locative applicative (superessive)
  - *ithá-*: Combination of *í-* and *á-*
  - *uthú-*: Combination of *í-* and *u-*
- Dative and benefactive-possessive prefixes

  - *gí-*: dative applicative
  - *ígi-*: benefactive-possessive (equals a combination of *í-* and *gí-*)

- Antipassive *wa-*

All of these prefixes imply valency changes, and they will be described in detail in the following chapters. They are labeled here according to their most productive and frequent functions, but some of them are polysemic, and all of them show different degrees of lexicalization.

Table 3.10: Some changes induced by the oblique prefix *í-*

	Regular paradigm		Regular paradigm with *í-* prefix	
A1SG	*a-t'é*	I'm dying	*ithá-t'e*	I'm dying from $\{x\}$
A1PL	*o^n-síthe*	We remember him/her	*o^{n}thó^n-husa*	We got after him
A2	*tha-síthe*	You remember him/her	*ítha-husa*	You got after him
P1SG	*o^n-shí^n*	I am fat	*o^{n}thó^n-shi^n*	I am fat by means of it
P1PL	*wa-síthe*	S/he remembers us	*wéa-husa*	S/he got after us
P2	*thi-síthe*	S/he remembers you	*íthi-husa*	S/he got after you
O3PL	*wá-k^{h}o^{n}tó^{n}i*	Tie them !	*wé-k^{h}o^{n}tó^{n}i*	He tied them with it

Table 3.10 presents the changes induced by the presence of the oblique prefix *í-*. In each column, a hyphen separates the root from the inflectional and derivational prefixes. The prefix *í-* provokes many morphophonological changes that have already been presented in section 3.5. They involve the insertion of epenthetic glide *-th-*, merging of the sequence *a-í-* into *é-* and vowel and nasality distant assimilation. All of this prevents us from isolating it from the person marker (except in forms A2 and P2). To further complicate the matter, we see that at the underlying level, some person markers are inserted before *í-* (*wa-* P1PL and *wa-* O3PL) while others are inserted after it. A detailed template of the oblique prefixes and indexation person markers is presented in §3.4.4. Finally, the prefix *í-* does not always have an applicative function. Along with minimal pairs illustrating its applicative function (lines for A1SG, P1SG and O3PL), Table 3.10 shows the verb *íhusa* 'to get after $\{x\}$; to admonish $\{x\}$', where the prefix *í-* is completely lexicalized. This is why the prefix *í-* entails its own specific conjugational pattern.

The same can be said of the other seven derivational prefixes listed above.

3.7.3 Combination of different features

Many combinations are possible between the conjugational paradigms presented in §3.7.1 and the conjugational paradigms resulting from the derivational prefixes listed in §3.7.2. Some of the latter also combine among themselves, yielding even more possibilities of conjugational

patterns.

As an example, Table 3.11 shows the conjugated forms of verbs from four different conjugational paradigms which all have the *í-* oblique prefix. The ones on the top present A/P persons, while the ones on the bottom present A/D persons (i.e., they present verbs derived with the *gí-* dative prefix). The ones on the left have no initial consonant alternation, while the ones on the right correspond to the athematic *th-* paradigm[39]. The cells in gray indicate the forms of the athematic conjugation that differ from the forms of the "regular" paradigm. In all four paradigms, the sequences encoding A and P/D are underlined. The following verbs are represented in this Table: *íhusa* 'to get after {x}'; 'to admonish {x}' (Saunsoci & Eschenberg 2016); *íthishi* 'to feed {x}' (Saunsoci & Eschenberg 2016); *ígie* 'to talk bad about {x}' (ULCC 2015) *ígithígtho^n* 'to decide for {x} (on their request)' (Dorsey n.d.b).

Table 3.11: Four conjugational paradigms with the oblique prefix *í-*

	Regular paradigm with *í-* prefix		athematic *th-* paradigm with *í-* prefix	
A1SG	*ithá-husa*	I got after him	*í-bthishi^n*	I feed him/her
A1PL	*o^{n}thó^n-husa*	We got after him	*o^{n}thó^n-thishi^n*	We feed him/her
A2	*ítha-husa*	You got after him	*í-nishi^n*	You feed him/her
P1SG	*o^{n}thó^n-husa*	She got after me	*o^{n}thó^n-thishi^n*	S/he feed me
P1PL	*wéa-husa*	She got after us	*weá-thishi^n*	S/he feed us
P2	*íthi-husa*	She got after you	*íthi-thishi^n*	S/he feed you
O3PL	*wé-husa*	She got after them	*wé-thishi^n*	S/he feed them
A1SG/P2	*íwi-husa*	I got after you	*íwi-bthishi^n*	I feed you
A2/O3PL	*wétha-husa*	You got after them	*wé-nishi^n*	You feed them
	Regular paradigm with *í-* and *gí-* prefixes		athematic *th-* paradigm with *í-* and *gí-* prefixes	
A1SG	*ithé-ye*	I talk bad about her	*ithé-bthigtho^n*	I decided for him/her (on his/her request)
A1PL	*i^{n}thí^n-ya*	We talk bad about her	*i^{n}thí^n-thigtho^n*	We decide for him/her
A2	*ítha-e*	You talk bad about her	*ítha-nigtho^n*	You decide for him/her
D1SG	*i^{n}thí^n-ya*	She talks bad about me	*i^{n}thí^n-thigtho^n*	S/he decides for me
D1PL	*weági-yá*	She talks bad about us	*weági-thigtho^n*	S/he decides for us
D2	*íthi-ya*	She talks bad about you	not attested	–
D3PL	*wégi-ya*	She talks bad about them	*wégi-thigtho^n*	S/he decides for them
A1SG/D2	*íwi-ye*	I talk bad about you	*íwi-bthigtho^n*	I decide for you
A2/D3PL	*wéthagi-ye*	You talk bad about them	*wéthagi-nigtho^n*	You decide for them

This results in a huge number of morphologically distinct conjugational paradigms (even if some combinations are not attested). For instance, ULCC (2015) provides verb charts

[39] I follow Koontz's 2001b designations based on diachronic and comparative data. The concept of "athematic" and "leniting" paradigm is presented in §3.7.1, and a list of many existing paradigms is presented in §3.7.4.

for 136 different conjugational paradigms[40], each resulting from (a combination of) different derivational prefixes and/or stem-initial consonants. These combinations yield more or less opaque surface forms. Many of these paradigms have gaps (the last one, the dative derivation of a motion verb, has only one form attested), and the publication includes several empty charts for theoretically possible combinations that are not attested. Moreover, despite the important number of paradigms recorded, it does not include intransitive verbs, nor some athematic paradigms which have only a few members (sometimes only one).

The classification of verbs into precise conjugational paradigms is relevant in a work on morphology, and it is also essential for teaching materials. In this dissertation, it is important to distinguish them in order to accurately identify the underlying prefixes realized on the verb and gloss them. Section 3.7.4 presents the main conjugational paradigms found in Umó^{n}ho^{n}, and the corresponding conjugation charts are grouped in Appendix B. They will be used when necessary, especially for pointing out morphological phenomena or morphological distinctions relevant in the discussion.

The syntactic classes of Umó^{n}ho^{n} verbs (e.g., intransitive, transitive, encoding A/P or A/D, etc.) will be presented in Chapter 4, and will be used for the description of the diverse valency changing operations presented from Chapter 4 on.

3.7.4 Main conjugational paradigms

Below is a list of many of the Umó^{n}ho^{n} conjugational paradigms relevant for this dissertation, with some comments about their member verb(s). I follow Koontz's (2001b) labels and categorizations. Some paradigms have numerous member verbs, others have few (or only one) but are very frequently used, and others present interesting combinations of prefixes which are worth mentioning.

Charts corresponding to these paradigms are reproduced in Appendix B.

- A/P paradigms with no initial consonant alternation
  - A/P paradigm (Table B.1, p. 514)
  - A/P paradigm with *í-* oblique (Table B.2, p. 514)
  - A/P paradigm with *á-* oblique (Table B.3, p. 515)
  - A/P paradigm with *u-* oblique (Table B.4, p. 515)
  - A/P paradigm with *itha-* oblique (Table B.5, p. 516)
  - A/P paradigm with *uthu-* oblique (Table B.6, p. 517)

[40] If we exclude from the total some particular paradigms involving the verb *athí^{n}* 'to have {x}' or motion verbs, we have a total of 123 different paradigms presented, arising from combinations of features presented in this chapter.

- A/P paradigms with initial consonant alternation
  - A/P, leniting *ga-* paradigm (Table B.7, p. 517)
    Members: verbs with *ga-* instrumental prefix.
  - A/P, athematic *th*-stem paradigm (Table B.8, p. 518)
    Members: verbs with *tha-* and *thi-* instrumental prefixes and a few other verbs with a root beginning with *th-*
  - A/P, athematic *b*-stem paradigm (Table B.9, p. 518)
    Members: verbs with *ba-* and *bi-* instrumental prefixes and a few other verbs with a root beginning with *b-*
  - A/P, athematic *d*-stem (Table B.10, p. 519)
    Member: *dóⁿbe* 'to see {x}'
  - A/P, athematic *g1*-stem paradigm (Table B.11, p. 520)
    Members: a few verbs, including *gáxe* 'to make {x}'; *góⁿzhiⁿga* 'not to know how to {V}"; *gáthe* 'to give away {x}'; *góⁿze* 'to show {x}'
  - A/P, athematic *g2*-stem (Table B.12, p. 520)
    Member: *góⁿtha* 'to desire {x}'[41]
  - A, athematic *'*-stem (only A forms attested; see Table 3.9, p. 210)
    Members: Very few verbs, including *'íⁿ* 'to wear {x}'; *'óⁿ* 'to wear {x}'; to use {x}' (often used as an auxiliary, cf. §3.2). Several grammatical morphemes take an *m-* for 1SG (*miⁿkʰe* '1SG.AUX', *=mazhi* '1SG.NEG'), but do not follow this paradigm for other persons.
- A/D paradigms with no initial consonant alternation
  - A/D paradigm (Table B.13, p. 521)
  - A/D paradigm with *í-* oblique (Table B.14, p. 521)
  - A/D paradigm with *á-* oblique (Table B.15, p. 522)
  - A/D paradigm with *u-* oblique (Table B.16, p. 523)
  - A/D paradigm with *itha-* oblique (Table B.17, p. 523)
  - A/D paradigm with *uthu-* oblique (Table B.18, p. 524)
- A/D paradigms with initial consonant alternation
  - A/D, leniting *ga-* paradigm (Table B.19, p. 524)
  - A/D, athematic *th*-stem paradigm (Table B.20, p. 525)
  - A/D, athematic *b*-stem paradigm (Table B.21, p. 525)

[41] *góⁿtha* 'to desire {x}' is in fact a double conjugation verb, with two separately inflected stems (slots 1 and 2 of the verb template, Table 3.4). The first stem, *góⁿ-*, is the unique member of the "athematic *g2*-stem", and the second stem, *-tha*, is an "athematic *th*-stem".

  - A/D, athematic *d*-stem (Koontz 2001b)
  - A/D, athematic *g*1-stem paradigm (Table B.22, p. 526)
  - A/D, athematic *g*2-stem paradigm (Table B.23, p. 526)

- A/B paradigms and other complex paradigms
  - A/B paradigm (Table B.24, p. 527)

Other conjugational paradigms exist but are very scarcely attested. Comprehensive lists of conjugational paradigms in Umóⁿhoⁿ can be found in Koontz (2001b), ULCC (2015) and Saunsoci & Eschenberg (2016). Among the conjugational paradigms which are omitted here, we find irregular verbs that Koontz (2001b) integrated into his series of athematic paradigms: *hí* 'to arrive there'; *í* 'to come here'; *é* 'to say {x}'; *ímoⁿxe* 'to question {x}'; and the conjugated forms of articles or morphemes in auxiliaries.

Chapter 4

Valency alternations in Umó^{n}ho^{n}: an overview

This chapter aims at generally presenting valency classes of verbs and valency-changing operations in Umó^{n}ho^{n}, before proceeding to the in-depth analysis of several of these operations in Chapters 5 through 8. For this purpose, I first describe the verb classes of Umó^{n}ho^{n}, then describe one by one each valency-changing operation, and conclude with some remarks about the semantic demotivation of the valency-changing affixes.

The Umó^{n}ho^{n} verb classes are described from a syntactic perspective in **§4.1**; the classes are defined by the number of arguments the verb combines with and the grammatical roles assigned to these arguments. (See §2.5.2 for a presentation of the grammatical roles.) This contrasts with the conjugational paradigms identified in §3.7, which constitute verb classes from a morphological perspective. In §4.1 I conclude with some remarks about labile verbs.

Various overtly-encoded valency-changing constructions are described in §4.2 through §4.7. The different causative constructions are briefly presented in **§4.2**, before being thoroughly analyzed in Chapter 5. The system of applicative constructions is introduced in **§4.3**, then the "dative" and "benefactive-possessive" applicatives are described in **§4.4**, and the "oblique" applicatives are briefly described in **§4.5**. The latter are the object of a deeper analysis in Chapter 6. The constructions which delete the transitive verb's object are presented in **§4.6**. These include constructions with the prefix *wa-*, whose many functions are the object of Chapter 7, and nominal incorporation, which is described in Chapter 8. The reflexive and reciprocal constructions, encoded with the same prefix, are presented in **§4.7**.

Umó^{n}ho^{n} lacks an overt marking of the passive construction, but transitive clauses often focus on the patient alone, and receive a passive interpretation. The passive reading of transitive clauses is the object of **§4.8**. Finally, **§4.9** presents the cases of semantic demotivation of the valency-changing affixes, and the impact of demotivation on morphology and syntax.

4.1 Verb classes of Umóⁿhoⁿ: syntactic categories

In §3.7 I presented verb classes from a morphological perspective, that is, conjugational paradigms. Such classification is often used for didactic reasons. In the present section, and for the purpose of this dissertation, I propose a division of verb classes following syntactic criteria. In Umóⁿhoⁿ, verbal valency is rather fixed. There are very few unmarked alternations of the kind shown in Chapter 1. Table 4.1 shows the distinct verb classes that will be used in this dissertation. There are four main classes according to the number of arguments, indicated in the first column. The second column presents verb classes taking into account the number of arguments *and* the active/stative split. These are the verb classes and abbreviations that will be regularly used in this dissertation. In the third column, the verb classes are further distinguished according to the grammatical roles morphologically encoded on the verb (up to two arguments per verb). These four grammatical roles are: A (agentive), P (patientive), D (dative) and B (benefactive-possessive). They are presented in Chapter 2, §2.5.2. For length considerations, no difference is made between NP objects and clausal complements, as they are generally interchangeable.

Table 4.1 only shows underived verbs, except for those containing dative and benefactive-possessive prefixes. Verbs can also pass from one class to another thanks to the other valency-changing operations presented in the other sections of this chapter: causative, applicative, antipassive, and reflexive/reciprocal affixes. See §4.10 for a summary of these valency-changing operations with their impact on verb classes.

Below, I will briefly present each of the verb classes, from §4.1.1 to §4.1.4. The possible cases of unmarked alternations are presented in §4.1.6.

4.1.1 Avalent verbs

There are a few avalent verbs, which can also be called impersonal verbs. Meteorological verbs like *noⁿzhíⁿ* 'to rain', *usní* 'to be cold' or *máthe* 'to snow' are good examples. Some nouns also behave as avalent verbs when they are used predicatively, like in (302). The word *hóⁿ* is presented as a verb meaning "to be night" in OLIT-UNL (2018).

(302) *édi a-tha=í tʰe hóⁿ=i tʰe,*
there PL-go=PL when night=PX EVID
[they] departed at night. (Dorsey 1890: 426.3 / Óⁿpʰoⁿ-Toⁿga)
Literally: When they departed towards there, it was night.

4.1.2 Monovalent verbs

Monovalent verbs divide into active and stative. They are called "active intransitive verbs" (intr-a) and "stative intransitive verbs" (intr-s), "active" and "stative" being the terms traditionally used for split intransitivity in Siouan (see Rankin c. 2005). Active verbs encode their

Table 4.1: Verb classes in Umo^{n}ho^{n}

Valency	**Class**	**Grammatical roles**	**Example**	**Construction**
avalent	imp	-	*no^{n}zhí^{n}* 'to rain'	it rains
monovalent	intr-a	indexing A	*húto^{n}* 'to bellow'	A bellows
	intr-s	indexing P	*shná* 'to be bald'	P is bold
	intr-s	indexing D	*gíthe* 'to be glad'	D is glad
	intr-Ø	indexing none	*níide* 'to be cooked'	{NP} is cooked
bivalent	tr	indexing A/P	*sithé* 'to remember {x}'	A remembers P
	tr	indexing A/D	*gíbo^{n}* 'to call {x}'	A calls D
	bi-s	indexing P	*thi^{n}ge* 'to lack {x}'	P lacks NP
	bi-s	indexing D	*gíudo^{n}* 'to be good for {x}'	{NP} is good for D
	bi-s	indexing B	*ígiudo^{n}* '{*x's possession*} to be good for {x}'	{NP} is good for B
trivalent	dtr	indexing A/P	*'í* 'to give {x} to {y}';	A gives {NP} to P A gives P to {NP}
	dtr	indexing A/D	*éthade* 'to read {x} for {y}'	A reads {NP} for D
	dtr	indexing A/B	*ígi'i^{n}* 'to carry {*y's x*} for {y}'	A carrys {NP} for B
quadrivalent	ttr	indexing A/P	*uthúbado^{n}* 'to push {x} into {y} with {z}'	?

subject with A, and stative verbs encode their subject with P. Split intransitivity in Umó^{n}ho^{n} is presented in §2.5.2.2.

Example (303) shows the conjugation of an intransitive active verb from the regular conjugational paradigm.

(303) *a-ó^{n}he* — A1SG-flee — I fled
tha-ó^{n}ha — A2-flee — You fled
ó^{n}ha — flee — S/he fled
o^{n}-ó^{n}ha — A1PL-flee — We fled
(Saunsoci & Eschenberg 2016: 101 / Alice Saunsoci)

Example (304) shows the conjugation of an intransitive stative verb (repeated from (68) in Chapter 2). Note that the encoding of P on the verb remains stable across all conjugational paradigms[1], so we cannot speak of a "regular" paradigm of intransitive stative verbs.

(304) *o^{n}-zhí^{n}ga* — P1SG-be.small — I'm small
thi-zhí^{n}ga — P2-be.small — You're small
zhi^{n}gá — be.small — She/he/they is/are small
wa-zhí^{n}ga — P1PL-be.small — We're small
(Saunsoci & Eschenberg 2016: 58 / Alice Saunsoci)

[1]The only exception is the "leniting g-" paradigm, where the initial /g/ on the stem undergoes lenition when a P marker is added. The P marker in itself, however, remains the same: *gach^{h}áki* 'to slap {x}' becomes *thi-ách^{h}aki* for 'he slapped you'. See §3.7.1.

As noted earlier, intransitive stative verbs do not overtly encode third person plural subjects, since the prefix *wa-* encodes third person plural animate *objects*. This prefix only encodes objects of transitive verbs, and not patientive arguments in general. Thus, intransitive verbs in Umóⁿhoⁿ never distinguish 3rd singular from 3rd plural subjects[2]. Incidentally, Saunsoci & Eschenberg (2016) do not propose a 3rd person plural form in their examples, probably because it is the same as the 3rd person singular.

Many stative verbs denoting states are never used with animate subjects, for semantic reasons. Such verbs include *náko^n* 'to be lit up'; *téga* 'to be new'; *sída* 'to be ripe/mature'. All three are presented as verbs in Saunsoci & Eschenberg (2016), only with third person subjects: "it is lit up", "they are lit up" (same form), "it's new", etc. These verbs are considered adjectives by Dorsey (n.d.b), probably because of their invariability. The Lakhota counterparts are classified as "plain verbs" in the New Lakhota Dictionary (Ullrich 2008). By default, they are considered intransitive stative verbs here.

There is at least one intransitive stative verb which encodes its argument as D. Since the person marker D results from the fusion of P with the dative applicative, it is very unusual to see it on an intransitive verb, and this is a case of maximum integration of dative *gí-* as an inflectional marker. This verb is *gíthe* 'to be glad', whose inflected forms are presented in (305). (See also comments on *gísho^n*, in §4.9.2.)

(305)

í^{n}the	*thíthe*	*gíthe*	*wétha=i*
P1SG.be.glad	P2.be.glad	be.glad	P1PL.be.glad=PL
I'm glad	You're glad	S/he's glad	We're glad

(Dorsey n.d.b)

A few verbs present conjugational features of both active and stative classes, according to the person encoded or the source consulted. One such verb is *níta* 'to be alive', which is explicitly classified as "active or stative" in OLIT-UNL (2018: 360). It is used as an active verb in Dorsey (1890, n.d.b). It is used as a stative verb in examples from OLIT-UNL (2018). Saunsoci & Eschenberg (2016) mix both classes in their conjugational paradigm of this verb, reproduced in (306).

(306)

a-níta	*thi-níta*	*níta*	*o^n-níta*
A1SG-be.alive	P2-be.alive	be.alive	A1PL-be.alive
I am living	You are living	S/he is living	We are living

(Saunsoci & Eschenberg 2016: 48 / Alice Saunsoci)

4.1.3 Bivalent verbs

Bivalent verbs have two arguments in their argument structure. (They are also called "monotransitive" verbs.) While most of them have one A argument and one P or D argument, there

[2] A distinction can be made between a third singular obviative (without final *=i* PLURAL/PROXIMATE), and a third singular proximate or third plural (with final *=i* PLURAL/PROXIMATE).

is a minor class of verbs labeled "bivalent stative". Note too that some verbs take a clausal complement rather than an object NP. As a consequence, such verbs morphologically encode only their subject argument (with A), unless the subject of the clausal complement raises as an object of the matrix verb. See §2.5.5.

4.1.3.1 Verbs encoding A/P

Many verbs encode their arguments as A and P. All bivalent verbs which have an argument encoded as A and no dative marker fall into this category. Examples (307) (reproduced from Chapter 2) and (308) show two such verbs: *tóⁿ* 'to have {x}' and *kíde* 'to shoot (at) {x}'.

(307) *Góⁿki {zhábe akʰá} {zhábe zhíⁿga dúba} wa-tóⁿ.*
and {beaver SG.PX} {beaver small four} O3PL-have
A P VERB
Now, the Beaver had four young beavers. (Dorsey 1890: 552.5 / Frank La Flesche)

(308) *ádoⁿ {té} a-wá-kida=mázhi thóⁿzha*
therefore {buffalo} A1SG-O3PL-shoot=1SG.NEG although
When I was there the first time, I was small; therefore I did not shoot at the buffaloes. (Dorsey 1890: 466.1 / Frank La Flesche)

Note that verbs encoding A/P can also have derivational prefixes such as oblique prefixes (with an applicative function or not), possessive prefixes, instrumental prefixes[3], etc. Example (309) shows a bivalent verb with the oblique prefix *í-*: *íbahoⁿ* 'to know {x}; to recognize {x}'.

(309) *shóⁿ oⁿthóⁿ-shpahóⁿ-xti=óⁿ=i, shi wí-shti*
and P1SG.(1)-A2.know(2)-INTENS=AUX=PL? again 1SG-again
í-wi-pahóⁿ-xti=móⁿ.
(1)-A1SG/P2-A1SG.know(2)-INTENS=AUX.1SG
You know me very well, and I know you very well. (Dorsey 1891a: 17.10 / Noⁿzadazhi)

The verb *gisíthe* 'to remember {*one's own x*}' is exemplified in (310). The possessive prefix *gi-* suggests that there is a kinship relationship between the two arguments. Note that the presence of the possessive prefix on any verb makes it clear that it is bivalent.

(310) *Umóⁿhoⁿ amá bthúga thi-gí-sithe=hnóⁿ=i.*
Omaha PX.PL all P2-POSS-remember=HAB=PL
All the Omahas remember you. (Dorsey 1890: 485.13 / Maxpíya-xága)
(Letter addressed to the Paⁿka chief Standing Bear)

Several valency-changing operations that will be presented in the following sections of this chapter can create A/P transitive verbs. For example, the oblique applicative prefixes and the different kinds of causative markers create A/P transitive verbs out of intransitive ones. Conversely, the antipassive marker can derive monotransitive verbs out of ditransitive ones.

[3] "Oblique", "possessive", and "instrumental" are labels in use in Siouan linguistics for different verbal prefixes. They are introduced in §4.3 and §4.5, §4.4.3, and §4.2.2, respectively. They correspond to verbal prefixes introducing locations or other semantic roles usually expressed

4.1.3.2 Verbs encoding A/D

As shown in §3.5 and §3.6, the "dative" grammatical role D is the result of a fusion of the dative applicative prefix with person markers. The fused forms have undergone a reanalysis, which is why I speak of "D" as a grammatical role. D typically involves beneficiaries, but also malecifiaries, recipients, or different kinds of animate arguments perceived as being somehow affected by the action (see §4.4.1).

The vast majority of transitive verbs encoding A/D are derived from intransitive ones by means of the applicative dative prefix *gí-*. Example (311) instantiates the verb *gíboⁿ* 'to call {x}', derived from *bóⁿ* 'to call'. The object added can be conceived as a recipient. In (311), both arguments are third person, and the object is singular. As a consequence, there is no indexation marker on the verb, and the dative prefix appears unmodified.

(311) *tígaxe a-thá=bi egóⁿ {Moⁿchʰú akʰá} {iⁿshége thiⁿkʰé} gí-boⁿ=biamá.*
play PL-go=PL as {Grizzly.Bear PX.SG} {old.man OBV.SIT} DAT-call=PX.REPORT
[The children] having gone to play, the Grizzly Bear called the old man. (Dorsey 1890: 84.2 / Nudóⁿ-axa)

Example (312) shows the verb *gíxuka* 'to sing for {x} to dance', derived from *xuká* 'to sing a dancing song'. This example involves first and second person arguments, both encoded by prefixal person markers. The dative prefix is no longer visible in the surface structure, but each person marker is the result of a fusion with it.

(312) *iⁿ-thí-xuka t=óⁿgatʰoⁿ*
A1PL-D2-sing IRR=1PL.AUX
We will sing for you to dance. (Dorsey 1890: 439.4 / Páthiⁿ-noⁿpázhi)

For convenience (and readability), the dative marker underlyingly present in the A person marker of A/D verbs is not glossed, unless there is no D person marker encoded. The latter case is exemplified in (313). See §3.6 for more detail about the derivational vs. inflectional nature of the dative prefix *gí-*, and the glossing rules applying to it.

(313) *Siⁿde-xóⁿxoⁿ é-boⁿ.*
S. A1SG.DAT-call
I called to Siⁿde-xóⁿxoⁿ. (Dorsey 1890: 457.1 / Kaxé-Thoⁿba)

4.1.3.3 Bivalent stative verbs

There is a restricted number of verbs which have two arguments, but which can nonetheless be considered to be stative. They involve one inanimate argument and one animate argument encoded with P, D or B person markings. I label them "bivalent stative verbs" (bi-s).

One example with P is the verb *íbthoⁿ* 'to be tired of {x}', exemplified in (314). Both arguments are expressed as NPs, and are bracketed.

(314) *Góⁿ {waxága xagé} íbthoⁿ-xti ga-shíbe ahí-biamá {Moⁿchʰú amá.}*
and {thorn cry} be.tired-INTENS INS:force-out PX-arrive {Grizzly.Bear PX.MOV}
And {the Grizzly-bear} got out of them, having had more than enough of {crying on account of the thorns}. (Dorsey 1890: 290.15 / Nudóⁿ-axa)

The verb *thiⁿge* 'to lack {x}; to be without {x}' is a very common bivalent stative verb with a P argument. Example (316) shows this verb in the fixed sequence *noⁿxíde thiⁿge* 'to be disobedient' (literally: 'to be without ears').

(315) *Wahútoⁿthiⁿ shtewóⁿ oⁿ-thíⁿge, á=biamá.*
gun whatever P1SG-lack say=PP.REPORT
"I have no gun whatsoever," said he. (Dorsey 1890: 303.7 / Páthiⁿ-noⁿpázhi)

(316) *noⁿxíde thi-thíⁿge í<tha>nahíⁿ=i ahóⁿ*
hearing P2-lack <A2>really=PX? XCLM.M
"You have been very disobedient!" (Dorsey 1890: 620.8 / Frank La Flesche)

Despite its syntactic bivalency, *thiⁿge* behaves morphologically as a stative verb. In (317), the animate argument normally encoded as P, the one which suffers from the lack of something, is 3rd person plural. As can be seen, the verb does not take a *wa-* prefix for O3PL. Consequently, bivalent stative verbs cannot be analyzed as transitive verbs, and the inanimate argument never encoded on the verb cannot be analyzed as a transitive subject.

(317) *Shíⁿgazhíⁿga etá thoⁿkʰá á-doⁿbe thiⁿga=í ádoⁿ eóⁿ shu-bthá=mázhi.*
child POSS OBV.SIT.PL SUPESS-look lack=PL therefore how DIR-A1SG.go=1SG.NEG
His children have no one to look after them, therefore it is impossible for me to go to you. (Dorsey 1890: 665.3 / Maxpíya-xága)

There are also bivalent stative verbs encoding their animate argument as D or B. Both exist with the verb *údoⁿ* 'to be good' as a base. The derived verbs are *gíudoⁿ* 'to be good for {x}' and *ígiudoⁿ* '{*x's possession*} to be good for {x}'. The inanimate argument is very often *nóⁿde* 'heart', but not always.

(318) *waxíⁿha póⁿka amá gthí-tha=i tʰe a-ná'oⁿ, noⁿde íⁿ-udoⁿ.*
letter Ponca PX.PL come.back-CAUS=PL REL A1SG-hear heart D1SG-good
When I heard the letter which the Ponkas sent back, my heart was glad. (Dorsey 1890: 481.3 / Pahé-tápe)

(319) *... shóⁿ waníta bthúga tóⁿ=i góⁿ wé-udoⁿ goⁿ, t'é-wa-thá-tha=i.*
and animal all abound=PL thus D1PL-good thus die-O3PL-A2-CAUS=PL
You have killed (...) all the animals which abounded for our good. (Dorsey 1891a: 38.8-9 / Hupetha)

Example (320) shows that *gíudoⁿ* 'to be good for {x}' is morphologically stative, because when its animate P is 3rd person plural, it does not take *wa-* O3PL.

(320) *Waxíⁿha gthí* *tʰédi, u-á-wa-gi-bthé-de* *nóⁿde gí-udóⁿ=i*
letter arrive.back when (1)-A1SG-O3PL-POSS-A1SG.say-when(?) heart DAT-good=PL
níⁿkagáhi amá.
chief PX.PL
When the letter came back and I told them, their hearts felt good to hear from you. (Dorsey 1890: 497.11 / Maxpíya-xága)

There is at least one bivalent stative verb encoding its animate argument with B: *ígiudoⁿ* '{*x's possession*} to be good for {*x*}'. Examples with various persons are presented in (321) through (323). In the last one, the inanimate argument is *nóⁿde* 'heart'. The difference of meaning between *gíudoⁿ* 'to be good for {*x*}' and *ígiudoⁿ* '{*x's possession*} to be good for {*x*}' is not explicit from Dorsey's glosses and translations.

(321) *íⁿshte* *tóⁿwoⁿgthoⁿ thóⁿ wabágtheze áthade tʰe* *ígi-údoⁿ* *tatʰé nákoⁿ-xti* *oⁿ-dóⁿbe*
as.if(?) village RND book read VERT BEN-good IRR shine-INTENS A1PL-look
e-áwa-góⁿ=i
DEM-P1PL-thus=PL
With reference to the boarding school, we regard it as something that is shining very brightly, and which must be for the good of the people. (Dorsey 1891a: 35.19-36.2 / Kaxé-Thoⁿba(?))[4]

(322) *... waníta weági-údoⁿ wakóⁿda thiⁿkʰé we-gáxa=i* *thóⁿzha, bthúga-xti*
animal B1PL-good W. OBV.SIT D1PL-make=PX though all-INTENS
mú-thiⁿga=í.
INS:shoot-lack=PL
... so the quadrupeds which had been made by the Mysterious Power for our advantage have been exterminated, they have been shot. (Dorsey 1890: 628.3 / unknown speaker)

(323) *shíⁿgazhíⁿga wiwíta* *údoⁿ-xti* *uhná* *tʰí-tha-the* *tʰe,* *noⁿde iⁿthíⁿ-udoⁿ.*
child POSS:1SG good-INTENS A2.say arrive-A2-CAUS EVID heart B1SG-good
I was glad at heart because you sent hither to tell that my child was very well (Dorsey 1890: 522.2 / Páthiⁿ-noⁿpázhi)

By contrast with other Siouan languages such as Lakhota, no bivalent verbs encoding two arguments as P have been found in Umóⁿhoⁿ. Rankin (c. 2005) lists several "doubly stative" verbs in various Siouan languages, including the four other Dhegiha languages. The Umóⁿhoⁿ counterparts of those verbs are either transitive verbs encoding A/P arguments, like *xtá_the* 'to like {*x*}; to love {*x*}' and *nóⁿ_pe* 'to fear {*x*}', bivalent stative verbs, like *íbthoⁿ* 'to be satisfied with {*x*}; to be tired of {*x*}', or monovalent stative verbs, like *githé* 'to be glad'.

[4]It seems logical that Two Crows dictated this letter, but this is not explicitly stated. Dorsey titled this letter: "To Rev. John C. Lowrie, New York, from Two Crows and other Omahas.". He specifies that twelve Omahas were present when the letter was dictated.

4.1.4 Trivalent verbs

Trivalent verbs combine with a subject and two objects. As noted in Chapter 3, the verb generally encodes only two arguments: A/P, A/D, or A/B. On the basis of these morphological distinctions, ditransitive verbs fall into three subcategories. The rare cases of double object marking are discussed in §4.1.4.4.

Most trivalent verbs combine with one inanimate object (e.g., theme, location, instrument) and one animate object (e.g., recipient, beneficiary, maleficiary). Since inanimate objects are not liable to be encoded on the verb (they are 3rd person), the P, D and B person markers generally encode the remaining animate object.

In (324), both the agent and the recipient are SAP and are indexed on the verb. Although the theme is animate and plural, it is not indexed by *wa-* on the verb.

(324) {*shínudoⁿ thé-thoⁿkʰá akʰíwa*} *wi-'í te ha, á=biamá.*
{dog DEM-OBV.SIT.PL both} A1SG/P2-give IRR DECL.M say=PX.REPORT
"I will give you both of these dogs," he said. (Dorsey 1890, 118.8 / Joseph La Flesche)

In (325), once again, the animate and plural theme is not indexed on the verb, although the recipient is not indexed either (because it is 3SG) and leaves the P slot vacant. This example suggests that a verb like *'í* 'to give {x} to {y}' does not encode its theme, even when the P slot is vacant.

(325) {*Waníta dádoⁿ t'é-wa-tha=í éshtewóⁿ*} *í-noⁿpe=hnóⁿ 'í=biamá.*
{animal what die-O3PL-CAUS=PL whatever} AP:REASON-fear=HAB give=PL.REPORT
No matter what animals they killed, they always gave them to him, being afraid of him (that is, afraid not to give him the game). (Dorsey 1890: 22.1-2 / Frank La Flesche)

In contrast with (325), the examples provided in §4.1.4.4 (including one example with the verb 'to give'), as well as some examples with oblique applicative markers (6.2.3) suggest that any object of a bivalent verb can be indexed in it, in the appropriate context. It is possible that the prefix *wa-* O3PL is only optional when it refers to the theme of a trivalent verb.

4.1.4.1 Verbs encoding A/P

A few underived verbs are inherently ditransitive and encode their arguments with A and P person markers. This is the case, at least, for *'í* 'to give {x} to {y}'; *shí* 'to employ {x} {*to* V}'; *ná* 'to ask/beg {x} {*to* V}'. From these verbs, only *'í* 'to give {x} to {y}' typically takes two NPs as objects, like in (326).

(326) {*Móⁿzeska zhíⁿga akígthathiⁿ thíⁿge*} {*zhiⁿgá itúshpa wiwíta thiⁿkʰe*} *'í.*
{money small REFL.have lack} {small grandchild POSS:1SG OBV.SIT.SG} give
They gave whatever little bit of money they had to my little grandchild. (Rudin et al. 1989-92: Tape 13 / Bertha Wolfe)

Examples of *ʼí* 'to give' with A and P person markers are presented in (324) and (325) above. Many other ditransitive verbs encoding A and P are created by the addition of applicative oblique prefixes. These verbs have a "base object" (from the non-applicative base), and an "applicative object". Oblique applicatives are described in §4.5 and in Chapter 6. The ditransitive verbs derived with the dative *gí-* or benefactive-possessive *ígi-*, in turn, fall under different subcategories of ditransitive verbs, given that these two prefixes are recognized as yielding distinct grammatical roles in Umóⁿhoⁿ.

4.1.4.2 Verbs encoding A/D

Many ditransitive verbs are created by the addition of the dative applicative. A general presentation of the applicative markers in Umóⁿhoⁿ, and the dative and benefactive-possessive markers in particular, is found in §4.3 and §4.4. Ditransitive verbs encoding A/D index the agent with A, and the beneficiary or maleficiary with D.

In (327), the theme of the verb *gímoⁿthoⁿ* 'to steal {x} from {y}' is 3PL (the horses being stolen) and the maleficiary is 1PL (the people stolen from). Both can be indexed by *wa-*, but only one *wa-* appears on the verb[5]. Dorsey's gloss suggests that the prefix *wé-* realized on the verb encodes the maleficiary "us" rather than the stolen horses. Yet, there is no morphotactic restriction to the prefixal sequence *wawé-*, which is regularly attested, as in the nominalized verbs *wawéʼi* 'a giving' and *wawéshi* 'paycheck' (see pages 399 and 398). Here again, the absence of *wa-* for the 3PL animate theme can be explained by the fact that it is optional (as suggested in the introduction to §4.1.4). By contrast, one example of a verb encoding both the patient and the beneficiary is provided in §4.1.4.4.

(327) *shóⁿge Húotoⁿga akʰá gthébahíwiⁿ thábthiⁿ wé-moⁿthóⁿ=i, Umóⁿhoⁿ eta=í.*
horse Hoocąk SG.PX hundred three D1PL-steal=PL Umóⁿhoⁿ POSS=PL
The Winnebagos have stolen three hundred horses from us. (Dorsey 1890, 758.19 / Kaxé-Thoⁿba)

Examples of ditransitive A/D verbs with a 3PL patient/theme and a 3SG beneficiary (not liable to be indexed) have not been found so far.

Many examples combining a dative person marker and the prefix *wa-* can be mistakenly understood as encoding two objects. In fact, *wa-* in these cases is often an antipassive marker (see §4.6 and Chapter 7).

4.1.4.3 Verbs encoding A/B

Ditransitive verbs can be created by the addition of the benefactive-possessive prefix *ígi-*, which is historically and semantically linked to the dative *gí-*. Few examples of these verbs

[5] See a similar example with *wégaxthi* 'he killed them for them' (Dorsey 1890: 387.13), from the verb *gíaxthi* 'to kill {x} for {y}'

are attested in texts, and in all of them, the verb indexes its agent with A and the beneficiary/possessor with B, as typified in (328). See (289) p. 202 for a description of all the morphophonological rules applying to this verbal form. See §4.4.2 for a presentation of the benefactive-possessive applicative. The conjugation chart of benefactive-possessive verbs is presented in Table B.24, p. 527.

(328) a. *shíⁿgazhíⁿga wiwíta Xúga i-zhíⁿge zhúgthe kigthé, á=biamá.*
child POSS:1SG Badger POSS:3-son be.with go.back.again say=PX.REPORT
The Badger's son has taken my child away.

b. *iⁿthíⁿ-tha-hníxe ta=í, á=biamá.*
B1SG-A2-A2.pursue IRR=PL say=PX.REPORT
You will chase her for me.[6] (Dorsey 1890: 295.2 / Shoⁿge-ska)

4.1.4.4 Double object marking

In some contexts, a ditransitive verb indexes both its objects as P arguments. These forms are rare, however. Given that 3rd person objects are not encoded unless they are plural and animate (as stated in §3.1.3), there are few contexts where double object marking is possible at all. It is worth remarking that it always involves the third person plural *wa-* as one of the objects, and *wa-* presents many difficulties of analysis (see §3.1.3 and Chapter 7).

One clear example of double object marking has been reported to me by Binah Gordon. It is a sentence she has heard spoken by a teacher during an Umóⁿhoⁿ language class.

(329) *oⁿ-wóⁿ-'í a!*
P1SG-O3PL-give IMP.F
Give them to me! (Háwatay 2018, recorded and shared by Gordon with permission from Háwatay's daughter)
Context: in the classroom, referring to multiple "living" stuffed animals.

Another example is found in Dorsey's text: the verb *gíbaxu* 'to write {x} to {y}' encodes the agentive (A) by consonant stem alternation, the recipient with D, and the theme with P (here, *wa-* O3PL, not modified by the dative marker). The theme is "the names of the people who have died". Although a "name" is inanimate, here the prefix *wa-* can be analyzed as referring to the possessors (see §2.5.7).

(330) *Edádoⁿ íutha {níⁿkashiⁿga-ma t'e-má zaní-xti i-zházhe}*
what news {people-PL.OBV die-PL.OBV all-INTENS POSS:3-name}
wá-iⁿ-thé-shpaxú gí-tha-the koⁿbthé-goⁿ, ...
O3PL-D1SG-A2-A2.write come.back-A2-CAUS A1SG.want-as

[6] Note the enclitic *=i* on the irrealis marker, which probably encodes plurality here. If this is the case, the translation should be "You will chase *them* for me", which is consistent with the context (the Badger's son and the chief's daughter ran away together). This example would be another case of a third person plural animate patient which is not indexed on the verb, too.

> I hope that you will send back what news there is, and write for me the names of all the people who have died. (Dorsey 1890, 513.3 / Waníta-wáxe)

Examples (329) and (330) are the only clear instances of double object marking available to me. Dorsey's texts provide several examples where the prefix *wa-* can be analyzed either as an antipassive marker or as an O3PL marker. One such ambiguous example is seen in (634) p. 406, although Dorsey's translation favors an interpretation of *wa-* as an antipassive marker. See §7.5.1 for comments on the ambiguity of *wa-* as an O3PL marker and as an antipassive marker.

The examples presented above, in particular (329), show that double object marking on the verb is possible in Umóⁿhoⁿ; there is no absolute morphological restriction against it, although it is very seldom found. Even in the rare contexts where both objects are liable to be encoded on the verb, examples in §4.1.4.1 show that the theme is generally not encoded. Nonetheless, examples in the present section show that it can be encoded.

4.1.5 Quadrivalent verbs

There is at least one quadrivalent verb, *uthúbadoⁿ*, attested in (ULCC 2015) and in Dorsey (n.d.b). ULCC defines it as "use {it} to push {her/him} into {him/it}" (brackets mine), and Dorsey defines it as "to push in {a ball or bullet} with {a ramrod – the name of the instrument preceding the verb}" (brackets mine). This verb combines two applicative prefixes (see §6.1.4). Unfortunately, it is not attested in texts.

4.1.6 Accusative and ergative lability

Umóⁿhoⁿ seems to display a limited degree of lability. Two classes of labile verbs are found: accusative labile verbs, and ergative labile verbs. The ergative labile verbs are basically considered stative verbs which can optionally take an additional non-agentive argument as a subject. Both classes of labile verbs contain a limited number of verbs.

By contrast, transitive verbs can be used in contexts where A is underspecified or generic, in which case they are interpreted as passive or resultative. The passive or resultative interpretation of transitive verbs does not seem to be restricted to a lexically determined subset of verbs. Consequently, this is not considered a case of lability. The passive interpretation of transitive verbs is presented in §4.8.

Labile verbs must not be confused, either, with the expression of possession on the P argument marker (§2.5.7): the expression of a possessed object with an NP and the possessor with a P marker on the verb does not correspond to a valency change.

4.1.6.1 Accusative lability

Less than 25 verbs from my lexicographic database are recorded with translations or in examples suggesting that they have an optional object[7]. In some of them the lability is observed only in contemporary teaching materials, and these are not exemplified here[8]. Among the remaining verbs, we can cite *hithá* 'to bathe; to bathe {x}' (Dorsey n.d.b; Sanchez, Larson & Walker in progress) and *ábagtha* 'to draw back'; 'to draw back from {x}', illustrated in (331). It is clear that (331a) is an intransitive clause, because of the absence of the prefix *wa-* O3PL. In the context of this sentence, if the verb was interpreted as transitive, the object would be third person plural.

(331) a. Intransitive use

í=i=ga! óⁿg-akikítha ta=í, é=hnoⁿ, óⁿg-abágtha tá=bi ethégoⁿ égoⁿ.
come=PL=IMP.M A1SG-REFL.fight IRR=PL say=HAB A1PL-draw.back IRR=PL think as

They kept on saying, "Come ye! let us contend together," as they thought that we would draw back through fear of them. (Dorsey 1890: 421.5 / Kaxé-Thoⁿba)

b. Transitive use

Wá-shpagtha=í ki, égithe t'é-thi-the=hnóⁿ=i te, a=í.
O3PL.(1)-A2.draw.back(2)=PL if beware die-P2-CAUS=HAB=PL irr say=PX

Beware lest they continue killing some of you, if you draw back from them. (Dorsey 1890: 422.2 / Kaxé-Thoⁿba)

Accusative labile verbs often contain valency-changing affixes. Lability can be the result of the lexicalization process of these prefixes, as shown in §4.9.2. See also §6.4.2 for the different stages of semantic demotivation of the oblique applicative prefixes.

4.1.6.2 Ergative lability of stative verbs

Some verbs are usually used as intransitive stative verbs, but can exceptionally take an inanimate entity as a syntactic subject. Thus, they can be used as intransitive stative verbs or as bivalent stative verbs[9]. This is the case, in particular, of verbs having an instrumental prefix (§5.2 and §5.3) denoting a natural force. For instance, (332) shows the two possible syntactic constructions of an instrumental verb where the prefix *ga-* means 'by the wind'.

[7]This number comes from my lexicographic database on Toolbox SIL software. On May 29, 2020, 20 out of 1,658 verbs were recorded as both "intr-a" and "tr".

[8]For instance, *názi* is attested as 'to be toasted, browned' (Saunsoci & Eschenberg 2016, ULCC 2018) and 'to singe {x}' (OLIT-UNL 2018). See §5.3.

[9]The bivalent constructions of such verbs are similar to the bivalent stative verbs presented in §4.1.3.3, because the additional argument is inanimate and cannot be encoded on the verb. An example of such construction with a third person animate plural P, which would show whether the prefix *wa-* is realized in this context, remains to be found.

(332) Ergative lability of *gahíthe* 'to be wafted away'; '{*wind*} to waft {*x*}'

a. *Zhóⁿabe ge ga-hítha.*
leave SCT INS:force-*away
The scattered leaves blew in the wind. (OLIT-UNL 2018: 562)

b. *tadé etá ga-híth athé gáxa=i tʰe.*
wind POSS:3 INS:force-away go make=px EVID
He made the wind waft the odor towards the lodges. (Dorsey 1890: 402.16)
Literally: He made the wind waft it away.

The instrumental prefix *ga-* is the object of a detailed analysis in §5.2. Other labile *ga-* verbs include (non-exhaustive list)[10]:

- *gaíza* '{*tree*} to sway'; '{*wind*} to make {*a tree*} shake/move';
- *gakʰiáhoⁿ* 'to arise (by effect of the wind)'; '{*wind*} to raise {*x*}';
- *gawákʰega* 'to be carsick, seasick or similar'; '{*horse, wagon*} to make {*x*} sick (by its movements)'[11]

Not only verbs with instrumental prefixes can display labile ergativity. The verb *uthúkóⁿpi* is usually translated as "to be beautiful", but it is also attested in Dorsey's text as "to be becoming to {*x*}". Example (333) illustrates this lability.

(333) Ergative lability of *uthúkʰoⁿpi* 'to be beautiful'; '{*something*} to be becoming to {*x*}'

a. *tha-gthé etʰéde, thí níashiⁿga uthú-thi-kʰoⁿpí-xti thá-tʰoⁿ-shé.*
A2-go.back should you person (1)-P2-beautiful(2)-INTENS A2-AUX:STD-VOC
You should have gone home, you who are a fine-looking man. (Dorsey 1890: 120.18-9 / Joseph La Flesche)

b. *Wiⁿóⁿwa shíⁿ uthukʰoⁿpi íbahoⁿ góⁿtha=biamá.*
which fat beautiful know want=PX.REPORT
[He] wished to know to which one the fat was becoming. (Dorsey 1890: 571.4 / Frank La Flesche)

Note that all such intransitive stative verbs, when inserted into a bivalent construction, look like bivalent stative verbs rather than full transitive verbs. The subject is always inanimate, and the object can be animate, always encoded with P. The verb *thiⁿge*, presented as a bivalent stative verb earlier (§4.1.3.3), is also attested as an intransitive stative verb:

[10] These labile verbs must not be confused with homonymous verbs. Some verbs built with the instrumental prefix *ga-* are homonyms, because they correspond to different meanings of *ga-*. For instance, *gawakʰéga* is also a transitive verb meaning "to make {*x*} sick by striking" (DD).

I have not found any example of labile ergative verbs with other instrumental prefixes denoting natural forces.

[11] The last verb corresponds to another non-agentive meaning of *ga-*. See §5.2.3 for more detail.

(334) a. *Umóⁿhoⁿ íye wa'ú ama nóⁿ thiⁿ shi thiⁿgá au(?) ákiágtha heaven.*
Umóⁿhoⁿ speak woman PX.PL mature obv.mov too gone ? go.back again
The old women who used to speak Umóⁿhoⁿ are gone, they have gone back, to heaven. (Recorded on July 26, 2019 / Octa Keen)

b. *Wahútoⁿthiⁿ shtewóⁿ oⁿ-thíⁿge, á=biamá.*
gun whatever P1SG-lack say=PP.REPORT
"I have no gun whatsoever," said he. (Dorsey 1890: 303.7 / Páthiⁿ-noⁿpázhi)

4.2 Causative constructions

The causative constructions are analyzed in detail in Chapter 5, so only a very brief description is sketched here. Causation in Umóⁿhoⁿ can be formed through causative bound stems (§4.2.1), which are used for causation only. Additionally, the series of "instrumental prefixes" and the verb *gáxe* 'to make' are regularly used as causative markers (§4.2.2 and §4.2.3).

4.2.1 Causative bound stems

Umóⁿhoⁿ possesses a basic causative marker *-the*, which was originally a verb (Helmbrecht 2009). It is now a bound root which attaches to the stems it causativizes. It typically derives monotransitive verbs out of intransitive verbs denoting states, as in (335). It always has causees devoid of volition and control.

(335) Causative marker *-the*: prototypical example

a. Intransitive stative verb (base)

Usá=biamá ki shúde tʰe zhíde amá.
set.fire=PX.REPORT when smoke VERT red REPORT

When he set fire to it, the smoke was red. (Dorsey 1890: 298.19 / Shoⁿge-ska)

b. Derived causative verb

Ki-'óⁿ amá. Pá tʰe zhíde-thá=biamá.
REFL-do REPORT nose VERT red-CAUS=PX.REPORT

The Wolf decorated himself. He reddened his nose. (Dorsey 1890: 260.5 / Te-úkoⁿha)

This basic causative root can be derived with the dative and benefactive-possessive markers (presented in §4.4), the possessive marker (in §4.4.3), and the reflexive-reciprocal marker (in §4.7). The dative and benefactive-possessive markers do not take the same form on the causative root as in other environments: the dative and causative together surface as *-kʰithe* (glossed DAT.CAUS), and the benefactive-possessive and causative together surface as *-íkʰithe*

(glossed BEN.CAUS), the latter being very rarely attested.

The dative causative semantically contrasts with the basic causative marker in several ways; it generally involves more volition or control from the causee, and/or stronger intention on the part of the causer, and/or action done on behalf of another. The benefactive-possessive involves an action done on somebody's property and on their behalf, which is consistent with the usual meaning of the benefactive-possessive marker. Examples (336) and (337) typify the dative causative and the benefactive-possessive causative, respectively.

(336) Dative causative

Néxe-gakú wiⁿ gáxe-wa-kʰithá=biamá.
drum one make-O3PL-DAT.CAUS=PX.REPORT

The Orphan caused a drum to be made. (Dorsey 1890: 601.3 / George Miller)

(337) Benefactive-possessive causative

Kʰagé-ha, wániⁿ niⁿkʰé shíⁿgazhíⁿga wiwíta éskana
friend-VOC O3PL.have A2.AUX child POSS:1SG OPT
tha'é-iⁿthíⁿ-tha-kʰithé koⁿbthégoⁿ.
pitiable-P1SG(1)-A2-BEN.CAUS(2) A1SG.hope

0 friend, you who have the control of the Indian children (Capt. Pratt), I hope that you will cause my child to be treated kindly. (Dorsey 1891a: 89.14-6 / Moⁿchʰú-hiⁿ-xti)

The verb form in (337) is very complex, following the usual conjugation pattern of benefactive-possessive verbs. The sequence *iⁿthíⁿ-tha-* is the same as non-causative benefactive-possessive verb paradigms, for the A2/P1SG person combination (see conjugation chart in Table B.24, Appendix B.5)[12].

The possessive marker *gi-* and the reflexive-reciprocal marker *ki(g)-* combine with the causative root *-the* in transparent surface forms and transparent meanings: acting on one's own property (possessive), and acting on oneself or on one another. They can be positioned before the base (the non-causative verb) or before the causative marker, with different scopes (in this chapter, see examples (385), (386) and (391) in §4.7).

The bound causative root and its derived forms are described in more detail in §5.1.

[12]The only difference is that the causative marker in itself remains *-kʰithe*. If we decompose the benefactive-possessive causative marker *í-kʰi-the*, corresponding to *í-gi-* in non-causative verbs, we would expect *-kʰi* to disappear when the verb takes personal indexation markers which already encode the benefactive-possessive grammatical role.

4.2.2 Causation through instrumental prefixes

Umóⁿhoⁿ has a series of nine "instrumental" prefixes indicating which movement, instrument, body part or natural force takes part in a verb process. They mostly derive bound roots, verbs, and nouns into verbs called "instrumental verbs". Instrumental verbs are often transitive, and the instrumental prefixes are frequently associated with a causative function. A precise description of their meanings and functions can be found in §5.2 and §5.3. Their causative function is typified in (338) and (339), taking the same examples as those in Table 5.5.

(338) Base verb: *xóⁿ* 'to be broken; to be broke'

Wáthixoⁿ tʰe xóⁿ.
toy VERT broken

The toy is broken. (Saunsoci & Eschenberg 2016: 36 / Alice Saunsoci)

(339) Causative derivations with various instrumental prefixes

a. *Zhóⁿ-zhiⁿga kʰe bthí-xoⁿ.*
wood-small HORIZ A1SG.INS:hand-broken
I broke the stick. (Saunsoci & Eschenberg 2016: 72 / Alice Saunsoci)

b. *zhóⁿ wíⁿ ní móⁿtʰe bi-xóⁿ=biamá.*
wood one water inside INS:press-broken=PX.REPORT
He broke a stick under the water by bearing on it. (Dorsey 1890: 281.12 / Nudóⁿ-axa)

c. *Má-xoⁿ=biamá, té-noⁿde má-shpashpá=biamá.*
INS:blade-broken=PX.REPORT buffalo-heart INS:blade-pieces=PX.REPORT
He cut it off with a knife, he cut the heart into pieces with a knife. (Dorsey 1890: 28.11 / Nudóⁿ-axa)

d. *Wakʰídai ki, nugá wiⁿ zhíbe mú-xoⁿ=i.*
O3PL-shoot when male one leg INS:shoot-broken=PL
When the men shot at them they broke the leg of a male. (Dorsey 1890: 463.1 / Óⁿpʰoⁿ-Toⁿga)

4.2.3 Periphrastic causative constructions

The verb *gáxe* 'to make {x}' can function as a causative marker, as described in §5.4. *Gáxe* has many different meanings, which are studied in §5.4.1. When it acts as a causative marker, it is semantically similar to the bound root *-the*, but it allows transitive verbs as the caused event. Example (340) illustrates a causative construction using *gáxe*.

(340) *Tí zhíⁿga tʰe nákʰadé-xti gaxá=biamá.*
lodge small VERT hot-INTENS make=PX.REPORT
He made the small lodge very hot. (Dorsey 1890: 249.16-7 / Frank La Flesche)

Other verbs could be considered causative verbs, except that they have a lexical meaning different from the pure causation. Constructions using *shí* 'to employ $\{x\}$ to $\{CL\}$' are briefly described in §5.5. All causative or causative-like constructions are compared in §5.6, including the oblique applicative prefix *í-* in some contexts.

4.3 Applicative constructions in Umó^{n}ho^{n}

Umó^{n}ho^{n} has five morphologically distinct applicative prefixes[13] that enable the addition of several kinds of arguments into the verb argument structure. Table 4.2 shows the label of each applicative prefix and the basic meaning associated with it. (More detail about their meanings is given in §4.4 and §4.5.) We can divide them into two sets:

- The dative and benefactive-possessive always introduce animate arguments, which correspond to grammatical roles distinct from P. (See Table 4.1 above, and section 3.6 of the preceding Chapter.) They are etymologically related.
- The prefixes *í-*, *á-* and *u-* typically introduce inanimate arguments. They share similarities in their morphophonological behavior[14]. Following Koontz (2001b), they are called here "oblique" prefixes (because they introduce entities which are often encoded as oblique arguments in other languages).

The difference in animacy of the arguments introduced by the two sets is one of the reasons why the dative and benefactive-possessive are considered markers of grammatical roles in Umó^{n}ho^{n}, while the oblique applicatives are not. Some comparison between the two kinds of applicatives, and explanation why D and B are considered grammatical roles, can be found in §3.6.

The "dative" applicative typically introduces beneficiaries (like in Table 4.2), but also maleficiaries, recipients, and other kinds of objects whose semantic properties differ from the prototypical patient (see §4.4 for examples). Thus, it corresponds to the applicative marker most attested cross-linguistically, and it displays a polysemy which is widely attested too, as seen in Chapter 1. The instrumental applicative is also very common, and the locative applicative is quite common.

Most of the Umó^{n}ho^{n} applicative markers are obligatory; that is, the applicative objects[15] that they introduce cannot be realized as peripheral arguments. This is definitely the case of

[13] The complex oblique prefix *ithá-* may be a sixth applicative prefix. See §6.1.

[14] As described in the previous chapter, §3.4 and especially §3.4.4, all of these applicative prefixes provoke a change in the usual ordering of person markers. But each prefix provokes its own change, which obliges us to present a different verb template for each of them.

[15] The terminology "base object" and "applicative object" is taken from Peterson (2007). The base object refers to the unique object of the transitive verb when there is no applicative marker. The applicative object corresponds to the argument added to the verbal core by means of the applicative affix.

Table 4.2: Overview of Umóⁿhoⁿ applicative prefixes: main meaning of each

Prefix		Base verb	Applicative verb
gí- DAT	dative	*baxú* 'to write {x}'	*gíbaxu* 'to write {x} to {y}'
ígi- BEN	benefactive-possessive	*'íⁿ* 'to carry {x} on one's back'	*ígi'íⁿ* 'to carry {*y's thing*} on one's back for {y}'
í- INS	instrumental oblique	*batʰé* 'to sew {x}'	*íbatʰe* 'to sew {x} with {y}'
AD	adessive oblique	*gthíⁿ* 'to sit'	*ígthiⁿ* 'to sit by {x}'
á- SUPESS	superessive oblique ('on')	*gthíⁿ* 'to sit'	*ágthiⁿ* 'to sit on {x}'; 'to ride {x}'
u- INESS	inessive oblique ('in')	*bétʰoⁿ* 'to fold up {x}'	*ubétʰoⁿ* 'to wrap {x} in {y}'

the dative and benefactive-possessive applicatives. (The benefactive/recipient applicative is by far the most common obligatory applicative cross-linguistically, as Peterson (2007) notes.) The instrumental applicative also seems to be obligatory. The locative objects can be expressed without an applicative construction, but this is not very common. (See §6.3 for a study of the oblique applicative's obligatoriness.)

Applicative constructions are definitely a derivational process in Umóⁿhoⁿ; the applicative verbs are entered as headwords in dictionaries, they regularly have meanings which are not reducible to those of their parts, and the oblique prefixes are commonly found on verbs where their meaning is lost[16]. The issues of inflection vs. derivation and of the lexicalization of derivational affixes are addressed in §4.9.

Essentially, most features of Umóⁿhoⁿ applicative constructions are widespread or at least not uncommon. A few characteristics stand out as typologically rare:

- The "benefactive-possessive" has a very restricted meaning. It is one of the applicative markers which "defy simple characterization in terms of thematic role" (Peterson 2007: 41): it introduces a beneficiary which is also the owner of the base object. Such a very specific semantic role is not reported in Peterson (2007) or any other study of applicative constructions that I have read. I do not know if it is found outside of the Siouan family. It is certainly diachronically related to the dative and possessive prefixes of Umóⁿhoⁿ. See §4.4.2.
- The fact that the dative and benefactive-possessive have fused with inflection markers and have been reanalyzed as new person markers is, to the best of my knowledge, a rare phenomenon.

[16] Mithun (1999: 246) generally states about applicative affixes in North American languages that they are word-formation devices.

Table 4.3: The dative vs. benefactive-possessive person markers (regular paradigm)

Dative		Ben.-Poss.		Dative		Ben.-Poss.	
A1SG.DAT	*é-*	A1SG.BEN	*ithé-*	D1SG	*íⁿ-*	B1SG	*iⁿthíⁿ-*
A1PL.DAT	*íⁿ-*	A1PL.BEN	*iⁿthíⁿ-*	D1PL	*wé-*	B1PL	*wéagi-*
A2.DAT	*thé-*	A2.BEN	*ítha-*	D2	*thí-*	B2	*íthi-*
A3.DAT	*gí-*	A3.BEN	*í-gi-*	D3PL	*wé-*	B3PL	*wégi-*

- The existence of morphologically distinct applicative markers expressing different kinds of locations does not seem to be very common.
- The oblique applicative *í-* has more meanings than those displayed in Table 4.2. It has a range of senses more or less related to the instrumental and locative adessive. But very unusually, it can also introduce a reason for the event, and this reason can be expressed by a noun phrase or by a clausal complement. This very peculiar feature is described in 6.2.5.

The next sections will present in more detail the dative and benefactive-possessive applicatives (§4.4) and the oblique applicatives (§4.5, also Ch. 6).

4.4 Dative and benefactive-possessive applicatives

The prefix *gí-* has been called "dative" at least since Dorsey, probably because beneficiaries and recipients are encoded with the dative case in Latin. The cognate prefixes in other Siouan languages are also regularly called "dative": Lakhota (Ullrich 2008); Osage (Quintero 2004); Assiniboine (Cumberland 2005). The prefix *ígi-* was called "second dative" by Dorsey (n.d.a,n) and "benefactive" by Koontz (1984). Its cognate in Lakhota is also called "benefactive" by Ullrich (2008). I have found no mention of it in Quintero (2004).

Table 4.3 summarizes the conjugated forms of the dative and benefactive-possessive paradigms. Full paradigms, including the combinations of agentive and patientive person markers, are visible in the Appendix (Table B.13 p. 521 and Table B.24 p. 527).

The semantic difference between the dative and the benefactive-possessive is sometimes very tenuous, and can be unclear. Ullrich (2008: 723) states about Lakhota: "The difference between dative and benefactive is often very subtle and in many cases they can be used interchangeably without obvious distinction in regard to ownership or sanction." Ullrich also mentions that many verbs in Lakhota have either a dative derivation or a benefactive one, but not both.

The distinction between the dative and the benefactive-possessive is illustrated in (341) and (342) with the same base verb: *athíⁿ gí* 'to bring {x} back' (literally 'to have {x} to come

back'). In each case, the speaker (the recipient/beneficiary) is asking his interlocutor (the agent) to bring him back something. In the first case, the theme is 'fresh meat', which is not owned by the recipient/beneficiary, so the D marker is used to encode him. In the second case, the theme is the recipient/beneficiary's daughter, so there is a kinship relation between them. As a consequence, the B marker is used to encode the recipient/beneficiary.

(341) *tanúka í-thi-kʰu hébe íⁿ-tha-hniⁿ shkí te, á=biamá.*
meat AP-D2-*invite part D1SG-A2-A2.have A2.come.back IRR say=PL.REPORT
"You will please bring back for me a piece of the fresh meat of which you are invited to partake." (Dorsey 1890: 294.7 / Shoⁿge-ska)

The form *íthikʰu* in (341) means "you are invited to (have) it". It is composed of the dative *gí-* and the applicative *í-*, and it has the same surface form as the benefactive-possessive *ígi-*.

(342) a. *U-thá-xtha=i ki, Xúga i-zhíⁿge t'é-tha-the ta=í.*
(1)-A2-overtake(2)=PP if Badger POSS:3-son die-A2-CAUS IRR=PP

b. *shíⁿgazhíⁿga wiwíta iⁿthíⁿ-tha-hniⁿ shkí ta=í, á=biamá*
child POSS:1SG B1SG-A2-A2.have A2.come.back IRR=PP say=PL.REPORT
ithádi akʰá.
POSS:3.father PX.SG
"If you overtake her, you will kill the Badger's son. You will bring my child back to me" [said her father]. (Dorsey 1890: 295.3-4 / Shoⁿge-ska)

The dative and benefactive-possessive prefixes are historically linked with the possessive marker *gi-* (unaccented) and the reflexive/reciprocal marker *ki(g)-*. In some contexts, the surface forms are ambiguous between these prefixes, or the semantic distinction between them are blurred. In the following, I will first present the dative applicative (§4.4.1), then the benefactive-possessive applicative (§4.4.2), and finally the possessive prefix, although it is not an applicative marker (§4.4.3).

4.4.1 "Dative" applicative

4.4.1.1 The semantic roles introduced by the dative applicative

The dative applicative typically introduces beneficiaries (which are not related to, or do not own, the base object of the verb). It also introduces diverse kinds of animate arguments which are semantically different from patient or theme. In some cases, the dative argument is not easy to classify among the semantic roles traditionally recognized. A few examples of the kinds of arguments added by *gí-* are provided in (343) through (350). The dative prefix can also play a role in marking the volitionality of the action. This aspect is discussed in §4.4.1.3.

(343) Beneficiary of *giáxe* 'to do/make {x} for {y}'

a. *"Níta tʰe iⁿ-thé-shkaxe égoⁿ a-níta tá miⁿkʰe, wakóⁿda,"*
be.alive COMP D1SG-A2-A2.make as A1SG-be.alive IRR 1SG.AUX divinity
á=biamá.
A3.say=PX.REPORT
"You have made life for me; so I will live, Wakóⁿda." (Dorsey 1890: 189.16 / Shoⁿge-ska)

b. *iⁿdád údoⁿ we-thé-shkaxe tʰe wíeshte*
what good D1PL-A2-A2.make REL:VERT for.my.part(?)
ithá-pahoⁿ=mázhi ha.
A1SG.(1)-A1SG.know(2)=1SG.NEG DECL.M
But what good thing you have done for us I, for my part, do not know. (Dorsey 1890: 708.16 / Unázhiⁿ-ska)

(344) Beneficiary of *gíxuka* 'to sing a dancing song for {y}'

a. *"Gí=i=ga há, wí-xuka ta=í miⁿkʰe," á=biamá.*
come.back=PL=IMP.M DECL.M A1SG/D2-sing IRR=PL 1SG.AUX say=PX.REPORT
"Come", said he, "I will sing dancing songs for you". (Dorsey 1890: 577.2 / George Miller)

b. *iⁿsh'áge akʰá wé-xuka gthíⁿ=biamá.*
old.man PX.SG D3PL-sing sit=PX.REPORT
The old man sat singing for them. (Dorsey 1890: 315.9 / Páthiⁿ-noⁿpázhi)

(345) Maleficiary of *gímoⁿtho*ⁿ 'to steal {x} from {y}'

*shóⁿge Húto*ⁿ*ga akʰá gthébahíwiⁿ thábthiⁿ wé-moⁿthóⁿ=i, Umóⁿhoⁿ eta=í.*
horse Hoocąk SG.PX hundred three DAT.P1PL-steal=PL Umóⁿhoⁿ POSS=PL

The Winnebagos have stolen three hundred horses from us. (Dorsey 1890, 758.19 / Kaxé-Thoⁿba)

(346) Maleficiary of *égoⁿ_gí'oⁿ(†)* 'to do thus to {x}'

Eátʰoⁿ ámoⁿ ki égoⁿ-e-wé-'oⁿ etʰé-doⁿ?
how A1SG.do if thus-A1SG-D3PL-do HYP-(?)

What shall I do to get even with them? (Dorsey 1890: 228.12 / Páthiⁿ-noⁿpázhi)

(347) Goal/dative of *gíboⁿ* 'to call {x}'

a. *síⁿde-xóⁿxoⁿ é-boⁿ.*
S. A1SG.DAT-CALL
I called to Síⁿde-xóⁿxoⁿ. (Dorsey 1890: 457.1 / Kaxé-Thoⁿba)

b. *íⁿ-boⁿ=i éde a-gí-sithe=noⁿ=móⁿ.*
D1SG-invite=PX but A1SG-POSS-remember=HAB=1SG.AUX
I also remember how he invited me to visit him. (Dorsey 1890: 650.3 / Moⁿchʰú-Noⁿba)

(348) Goal/dative of *gióⁿze* 'to teach to {x} to {y}'

a. *ígadize=hnóⁿ=biamá.* *Wé-goⁿze* *moⁿthíⁿ:* *"Wáxe=ma*
to.ride.around=HAB=PX.REPORT D1PL-instruct walk White=OBV.PL
mú-wa-shnoⁿ *gaxá=i=ga".*
INS:shoot-O3PL-miss make=PL=IMP.M

He rode round and round, and gave us directions what to do. "Miss in firing at the white men". (Dorsey 1890: 437.1 / Páthiⁿ-noⁿpázhi)

b. *Wáxe amá* *thi-góⁿza=i* *tʰe* *údoⁿ thi-góⁿza=i* *e* *wíⁿ nípi* *kizhi,*
White PX.PL D2-teach=PL REL:VERT good D2-teach=PL that one A2.do.well *if*
wa<thí>xpani=azhi etʰégoⁿ ha.
<P2>be.poor=NEG HYP DECL.M

If you do well one of the good things which the white people teach you, you may become rich. (Dorsey 1891a: 89.7 / Moⁿchʰú-hiⁿ-xti)

(349) Goal/dative of *gíbaha* 'to show {x} to {y}'

shí *tʰedíhi* *ki* *waxíⁿha gá-thoⁿ* *thé-shpaha* *té* *á=biamá.*
A2.reach hereafter(?) when paper that-RND A2.DAT-A2.show IRR say=PX.REPORT

When you arrive, you will show that paper to him. (Dorsey 1890: 279.12 / Nudóⁿ-axa)

(350) Source of *gióⁿhe* 'to flee from {x}'

shaóⁿ *iⁿ-wíⁿ-oⁿh[e]* *[óⁿ]gathíⁿ=i.*
Dakota A1PL-D3PL-flee 1PL.AUX:MOV=PL

We were fleeing from the Dakotas. (Dorsey 1890: 443.16 / Páthiⁿ-noⁿpázhi)

4.4.1.2 Polysemy of the dative applicative

Polysemy between the benefactive and the malefactive is very common, according to Zúñiga & Kittilä (2010: 21). They explain it as follows: "benefaction and malefaction are subjective notions: a given event can be seen as either beneficial or detrimental for an indirectly affected participant depending on the context and the speaker's judgment. It is usually not necessary to distinguish between these notions explicitly, since contextual information (or, in many cases, verbal semantics) frequently suffices for disambiguation."

This is exactly the case in Umóⁿhoⁿ. Most dative verbs have lexical semantics which favor one interpretation over the other, but it seems that both interpretations are possible in the appropriate context. The definitions found in Dorsey's dictionary indicate the most frequent interpretation of a given dative verb. Some verbs can commonly receive benefactive and malefactive interpretation. This is the case of *giáxe* 'to make {x} for/to {y}': it can be interpreted as a benefactive, as in (343) earlier, or as a malefactive, as in (351).

(351) *Gátʰegóⁿ* *we-thé-shkaxa=í.*
in.like.manner D1PL-A2-A2.make=PL
In that manner you have acted against us. (Dorsey 1890: 764.2-3 / Nudóⁿ-axa)

One example shows that in the appropriate context, a dative verb can be interpreted in an unexpected way. The verb *gí'iⁿ* (derived from *'íⁿ* 'to carry {x} on the back') is defined in Dorsey's dictionary as "to carry {*him/her*} on the back" and "to carry {x} on the back for {y}". The second meaning corresponds to the regular and common benefactive applicative function of the dative prefix. It seems clear from this definition that {y} is a beneficiary. However, the only example from Dorsey's texts of the verb *gí'iⁿ* as an applicative verb (i.e., where *gí-* adds an argument), in (352), illustrates a malefactive interpretation. It means "to carry {x} away from {y} ", and refers to a theft.

(352) *"Wa'úzhiⁿga thi-túshpa hoⁿbthíⁿge oⁿ-kí-'a=i thóⁿshti wóⁿgithé-xti*
old.woman POSS:2-grandchild bean A1PL-REFL-hoe=PL heretofore all-INTENS
wé-'iⁿ agí=i tʰe hé", á=biamá.
D1PL-carry come.back=PX EVID DECL.F say=PL.REPORT
"Old woman, your grandchild was coming back hither carrying away from us all the beans that we had been hoeing for ourselves," they said. (Dorsey 1890: 58.7-8 / Páthiⁿ-noⁿpázhi)

Other kinds of polysemy are possible. The verb *gíthiⁿwiⁿ* can mean "to buy {x} from {y}" or "to buy {x} for the benefit of {y}", as shown in (353). Examples of *gíbaxu* meaning "to write {x} to {y}" and "to write {x} for {y}" are presented in App. C.2.7.

(353) Dative verb *gíthiⁿwiⁿ* with two semantic roles associated with the applicative object

a. Beneficiary of *gíthiⁿwiⁿ* 'to buy {x} for the benefit of {y}'

shóⁿ táxti-ha nóⁿba údoⁿ-xti kóⁿbtha, iⁿthéniⁿwíⁿ kí,
and deer-skin two good-INTENS A1SG.wish D1SG-A2-A2.buy if
i-óⁿ-tha-kʰithé koⁿbthégoⁿ, uxthé-xchi.
come-P1SG-A2-DAT.CAUS A1SG.hope soon-INTENS

If you buy them [two very good deer skins] for me, I hope that you will send them to me very soon. (Dorsey 1890: 744.8 / Noⁿzadazhi)

b. Source of *gíthiⁿwiⁿ* 'to buy {x} from {y}'

Kʰagé-ha, wahútoⁿthiⁿ kʰe wí-bthiⁿwiⁿ kóⁿbtha, á=biamá
friend-VOC gun HORIZ A1SG/D2-A1SG.buy A1SG.wish say=PX.REPORT
niáshiⁿga akʰá.
person PX.SG

"O, friend, I wish to buy the gun from you," said the man. (Dorsey 1890: 118.4 / Joseph La Flesche)

4.4.1.3 The dative prefix as a non-applicative derivational prefix

Although in most cases the prefix *gí-* has an applicative function, it sometimes affects the verb meaning without modifying the number of arguments. The instances found can be divided into two categories: examples where the base verb is already ditransitive; and one example where the dative prefix is used for animate objects.

The ditransitive verb *'í* 'to give {x} to {y}' can be derived with the dative prefix without increasing the valency. ULCC (2015) presents the derived verb as *gí'i* 'to give {x} to {y} to help him/her out'. In this case, it is very clear that *gí-* marks benefaction. However, it does not add a participant, but rather changes the original recipient into a beneficiary. It may also suggest a particular wish from A to do an action beneficial to D. Another dative verb conveys the idea of an action undertaken with particular volition, according to Dorsey (n.d.b): *gína* 'to ask or beg from {x} (voluntarily)'. The base verb is also ditransitive: *ná* 'to ask {x} from {y}'. One example of *gína* is provided in (354).

(354) *Wathátʰe íⁿ-na ta=í ha.*
food A1PL.DAT-ask IRR=PL DECL.M
Let us ask him for food. (Dorsey 1890: 457.16 / Kaxé-Thoⁿba)

The examples of *gí'i* and *gína* are interesting, because the dative prefix assigns a particular volition to the agent. The distinction between *'í* and *gí'i* is similar to the distinction between the basic causative marker *-the* and the dative causative marker *-kʰithe* (see §4.2.1).

In contrast, the dative verb *uíbixpathe* is translated by Dorsey as follows: "to cause {*the book, etc., of another*} to fall (without his request or consent) from the edge of the table, etc., by leaning against or sitting on". This is illustrated in (355), where the verb apparently refers to an accidental action. Here, the dative argument refers to the possessor of the rug, and marks it as affected by the event (see §2.5.7 about possession).

(355) *"Wihé, umíⁿzhe he íⁿ-bixpáthe te he! Moⁿshíataha égoⁿ*
younger.sister rug lice D1SG(1)-fall(2) IRR DECL.F greater.distance(?)
gthíⁿ-kʰitha=í=a he!"
sit-DAT.CAUS=PP=IMP.F DECL.F
"Sister, if he sits on the rug, he will make lice drop on it! Make him sit away from it!"
(Dorsey 1890: 591.17-8 / George Miller)[17]

Saunsoci & Eschenberg (2016) also present the verb *gí'i*, but give a different translation from ULCC (2015): "to give {x} back to {y}". To the best of my knowledge, it is the only example of *gí-* having a vertitive meaning.

[17]Note the unexpected conjugated form of the verb *uíbixpathe*: the combination of the oblique prefix *u-* and the dative prefix *gí-* should produce the sequence *iⁿwíⁿ-* for D1SG, according to the paradigm given in Table B.16 (p. 523). This is not the only counterexample provided by Dorsey. See comments for Table B.16.

The second category of non-applicative *gí-* concerns one verb: *gí'iⁿ* 'to carry {*someone*}'. This verb is derived from *'íⁿ* 'to carry {*something*}'. Examples of both verbs can be observed in (356), and we see that both are bivalent. There is a clear link between the usual meanings associated with *gí-* (affectedness), and animacy (only animate objects can be affected).

(356) Dative prefix encoding object animacy

a. *zhú kʰe wí a-'íⁿ, góⁿ tahánuka síoⁿthé 'íⁿ=i Joe akʰá.*
flesh HORIZ 1SG A1SG-carry as green.hide alone carry=PX J. PX.SG
I carried the meat, and Joe bore the hide. (Dorsey 1890: 428.20 / Óⁿpʰoⁿ-Toⁿga)

b. *shúde-gáxe i-zhíⁿge édi gí-'íⁿ ahí=bi egóⁿ, ...*
smoke-make POSS:3-son there DAT-carry arrive=PX as
Smoke-Maker's new-born son was carried to the battlefield by an old woman. (Dorsey 1890: 381.2 / Nudóⁿ-axa)

We also find a few dative verbs for which no base verb is recoverable; the root it is added to does not exist without the dative prefix. One example is *gíkʰu* 'to invite {x} (to a feat)', based on the root **kʰúí*, translated by Dorsey (n.d.b) as "to call, to invite" (but he writes that this is a root, i.e., not an autonomous word). There is also *uíkoⁿ* 'to help {x}'. In each case, the D argument corresponds to the semantic feature usually associated with it (beneficiary). See §4.9 for more detail about lexicalization and semantic demotivation.

4.4.2 Benefactive-possessive applicative

The "benefactive-possessive" seems to have much more restricted meanings than the dative applicative. Additionally, it is sparsely attested and presents very complex surface forms, all of them homonymous with the combination of the oblique prefix *í-* with the dative prefix *gí-* (see conjugation chart in App. B.5). This makes the study of the benefactive-possessive particularly difficult.

The benefactive-possessive applicative introduces an argument which is the beneficiary of the process and the owner (or relative) of the theme or patient. It is beneficially affected by a process done on something belonging to them, or to someone related to them. Thus, by definition, the benefactive-possessive prefix can only be added to a transitive verb. I have not found any benefactive/malefactive polysemy thus far; all examples found have a benefactive meaning.

Given the scarcity of textual data found with benefactive-possessive verbs, each combination of person markers attested in the corpora is reproduced from (357) to (366). As can be observed, two different forms are attested for the A1SG/B2 combination.

(357) A1SG/B2 forms (*ígidoⁿbe* 'to look at {*y's property*} for {y}' and *ígibaaze* 'to drive along {*y's animals*} for {y}')

a. *Shoⁿge íwi-toⁿbe tá miⁿkʰe.*
horse A1SG/B2-A1SG.look IRR 1SG.AUX
I will look at your horse for you. (DD, *ígidoⁿbe*)

b. *ithéwi-páaze tá miⁿkʰe ha.*
A1SG/B2-A1SG.drive.along IRR 1SG.AUX DECL.M
I will drive your (ponies) for you. (DD, *ígibaaze*)

(358) A1SG/B3SG form (*ígiasoⁿga* 'to know/learn about {*the ways and habits of another*} for {*y*}')

Mazhóⁿ ithé-gasóⁿga te wí áthiⁿhe + + +
land A1SG.BEN-know IRR 1SG 1SG.MOV(?)

I who move am he who will know or ascertain for another what is the matter with the land![18] (Dorsey 1884: 226)

(359) A1PL/B3SG form (*ígikʰóⁿtoⁿ* 'to tie {*y's property*} for {*y*}')

iⁿthíⁿ-kʰoⁿtoⁿ=i
A1PL.BEN-tie=PL

We tie his (e.g. pony?) for him. (DD, *ígikʰóⁿtoⁿ*. My translation)

(360) A2/B1SG form (*ígithixe* 'to chase {*y's relation*} for {*y*}')

a. *shíⁿgazhíⁿga wiwíta Xúga i-zhíⁿge zhúgthe kigthé, á=biamá.*
child POSS:1SG Badger POSS:3-son be.with go.back.again say=PX.REPORT

b. *iⁿthíⁿ-tha-hníxe ta=í, á=biamá.*
B1SG-A2-A2.pursue IRR=PL say=PX.REPORT
The Badger's son has taken my child away. You will chase her for me. (Dorsey 1890: 295.2 / Shoⁿge-ska)

(361) A2/B3SG form (*ígithixe* 'to chase {*y's relation*} for {*y*}')

thí ítha-hníxe ta=í atha + + +!
you A2.BEN-A2.pursue IRR=PP indeeeed

You are to pursue her for her father. (Dorsey 1890: 295.5 / Shoⁿge-ska)

(362) A3/B1SG form (*íginoⁿzhu* 'to thresh {*y's cereals*} for {*y*}')

Wamúske iⁿthíⁿ-noⁿzhu=bázhi káshi taitʰé (...).
wheat B1SG-thresh=PX.NEG long.time PP.IRR

My wheat will not be threshed for a long time (...) (Dorsey 1890: 671.6 / Lion)

[18] In Dorsey's spelling system, the sign "+++" indicates a lengthening for expressive purpose.

(363) A3/B1PL form (*ígi'iⁿ* 'to carry {*y's possession*} for {*y*}')

"Íshibázhi, waiíⁿ wéagi-'íⁿ=i=ga", á=bi egóⁿ, íshibázhi
I. robe B1PL-carry=PL=IMP.M say=PX as I.
'íⁿ-kʰithá=biamá.
carry-DAT.CAUS=PX.REPORT

"Íshibázhi, carry them [our robes] for us" said they; and they made him carry them. (Dorsey 1890: 386.6 / Joseph La Flesche)

(364) A3/B2 form (*ígi'iⁿ* 'to carry {*y's possession*} for {*y*}')

íthi-'iⁿ
B2-carry

He carried yours on his back for you. (DD, *ígi'iⁿ*. My translation)

(365) A3/B3SG form (*ígithize* 'to take {*y's property*} for {*y*}')

"Waiíⁿ thoⁿ iⁿthíⁿ-thizá=ga ha", á=biamá. Góⁿ ígi-thizá=biamá.
robe RND B1SG-take=IMP.M DECL.M say=PX.REPORT and BEN-take=PX.REPORT

"Get my robe for me," said he. And she got it for him. (Dorsey 1890: 147.12 / Nudóⁿ-axa)

The B3PL form in (366) is peculiar because the object's referent is singular, but the verb encodes a plural object. Dorsey glosses the verb as plural ("was taking it for them (sic)"), and signals with "(sic)" his perplexity about the form-meaning contradiction[19].

(366) A3/B3PL form (*ígithize* 'to take {*y's property*} for {*y*}')

shóⁿ nú akʰá tha-shtóⁿ=bazhí=bi egóⁿ, wa'ú thiⁿkʰé wégi-thíze
CON:now man PX.SG INS:mouth-stop=PX.NEG=PX as woman OBV.SIT.SG B3PL-take
amá ha wasésoⁿ thoⁿ.
REPORT DECL.M white.clay RND

But as the husband would not stop talking about it, the wife got the piece of white clay for him. (Dorsey 1890: 619.6 / Frank La Flesche)

4.4.3 An etymologically related prefix: the possessive *gi-*

The possessive prefix does not result in the addition of a participant to the verb valency, nor does it saturate the expression of a core argument of the verb. However, it expresses a particular relation between the agentive and the patientive argument of the verb, and could

[19]This could be one of the unexplained uses of *wa-*, where I hypothesized that it could be evolving towards a kind of aspectual marker, maybe with a partitive value. See §7.3.

arguably be considered a valency-rearranging morpheme[20]. The possessive prefix only applies to transitive verbs. It can apply to non-human and human objects with different values:

- Non-human objects: means that A possesses P (367)
- Human objects: means that there is a kinship relation between A and P ("my child", "my relation"), or that A considers P as their relative(s). It is also used for hierarchical relations, e.g. with Indian chiefs (e.g., Dorsey 1890: 486.4).

The verbs *'íⁿ* 'to carry {*x*} (inanimate) on the back' and *gi'íⁿ* 'to carry {*one's own x*} (inanimate) on the back' are shown in (367). The equivalent dative *gí'iⁿ* was illustrated in (356), and the equivalent benefactive-possessive was illustrated in (363).

(367) Possessive verb applied to a non-human patient

a. *zhú kʰe wí a-'íⁿ, góⁿ tahánuka síoⁿthé 'íⁿ=i Joe akʰá.*
flesh HORIZ 1SG A1SG-carry as green.hide alone carry=PX J. PX.SG
I carried the meat, and Joe bore the hide. (Dorsey 1890: 428.20 / Óⁿpʰoⁿ-Toⁿga)

b. *nóⁿ! zhiⁿthe-ha, hébe a-gí-'iⁿ kóⁿbthoⁿ*
INTERJ elder.brother-VOC piece A1SG-POSS-carry A1SG.desire
Why! elder brother, I want to carry my own piece, ... (Dorsey 1890: 45.15 / Nudóⁿ-axa)

The possessive prefix *gi-* applied to a human object is illustrated in (368b), with the verb *zhú_gigthe* 'to stay with {*a kindred*}', derived from *zhú_gthe* 'to stay with {*x*}' in (368a).

(368) Possessive verb applied to a human patient

a. *óⁿbathé waúie wiⁿ zhu-óⁿ-gthe gthíⁿ*
today lawyer one (1)-P1SG-be.with(2) sit
A lawyer sat with me today. (Dorsey 1890: 748.6 / Moⁿchʰú-Noⁿba)

b. *Wahóⁿthishige akʰá i-kóⁿ zhú-gi-gthe akʰáma.*
W. PX.SG POSS:3-grandmother (1)-POSS-be.with(2) EVID
Wahóⁿthishige lived with his grandmother. (Dorsey 1890: 107.1 / Mary La Flesche)[21]

The possessive prefix is not obligatory for kinship relationships. Examples are attested, especially in letters, where A and P are related but no *gi-* is used on the verb (e.g., Dorsey 1890: 504.10). Conversely, the possessive *gi-* is not restricted to blood relations, but seems to be used with an affective value, maybe to underline the friendship or intimacy between two persons. It is also used to express a relation of friendship between tribes, as in (310) p. 221.

[20] If we reckon that a specific grammatical role is created by the addition of the possessive prefix, like what happens with the dative prefix and the benefactive-possessive prefix, then the possessive prefix would be a valency-rearranging morpheme, assigning a new grammatical role to the original P. This is not the analysis retained here, however.

[21] The sentence presented p. 107 is modified following Dorsey's correction in his Appendix.

In contrast with the dative and the benefactive-possessive prefixes, the possessive prefix does not modify the semantic features of the arguments selected by the verb. It can be used with both non-human and human objects, with different semantic effects. The semantics of the base verb and the possible restriction on the semantic features of its P argument determine whether the possessive *gi-* marks the possession of goods or a kinship relation between A and P. As an example, the verb *gitóⁿbe* 'to see {*one's own x*}' is almost always used with a human patientive argument in Dorsey's texts, in particular because it is used in letters where the sender expresses a wish to see his family. Consequently, the possessive *gi-* marks kinship relations in these examples. But this verb can also be used with inanimate objects, as in (Dorsey 1890: 13.12 / Frank La Flesche).

4.5 Oblique applicatives

What I call "oblique" applicatives in Umóⁿhoⁿ are a set of three applicative prefixes[22] that typically introduce inanimate arguments, such as locations (of different kinds), instruments, reason and some others. They are called "obliques", following Koontz (2001b), because cross-linguistically, these semantic roles are commonly expressed in oblique (peripheral) syntactic roles. This set of applicative prefixes are often called "locative prefixes" in descriptions of Siouan languages (Quintero 2004, Ullrich 2008, Graczyk 2007)[23]. As Helmbrecht (2006) observes, "locative" is somewhat misleading, because the prefix *í-* introduces instruments in most cases.

The most frequent meanings associated with the oblique applicative prefixes are presented in Table 4.2 (§4.3), in contrast with the meanings of the dative and benefactive-possessive prefixes. Basic pairs of base verbs and their applicative counterparts are shown in (369) through (372). In all these examples, the applicative marker adds an argument into the set of core arguments of the verb. The semantic role of the new argument does not need to be expressed by an adposition or adverb; it is specified by the applicative itself (and by the context, when the applicative is polysemic). We will see in Chapter 6 that the oblique applicative *í-* is attested with several other meanings extending from "adessive" and "instrument".

(369) Instrumental

a. *Kíde=hnoⁿ=i tʰe,*
shoot=HAB=PX EVID
Literally: He shot at him repeatedly;

b. {*móⁿ*} *í-kide tʰe;*
{arrow} AP:INS-shoot EVID

[22]They are also called "oblique prefixes" in a more general way. As will be seen, they are often lexicalized on verbs where they have no applicative function. However, the oblique prefixes share the same very specific morphological features, whether they have an applicative function or not. This is why it is sometimes useful to refer to them as "oblique prefixes".

[23]Quintero (2004: 226) calls them "locative and benefactive".

Literally: he shot at him with arrows. (Dorsey 1890: 369.10 / Nudóⁿ-axa)

(370) Inessive locative

a. *Xthíazhi noⁿzhíⁿ=i=ga.*
quiet stand=PX=IMP.M
Stand ye still (Dorsey 1890: 23.19 / Frank La Flesche)

b. {*tizhébe etá tʰe*} *u-nóⁿzhiⁿ égoⁿ, ...*
{door POSS:3 VERT} AP:INESS-stand as
As he stood in his door, ... (Dorsey 1890: 148.5 / Nudóⁿ-axa)

(371) Superessive locative

a. *shóⁿge amá nóⁿge agí=i.*
horse PX.MOV run come.back=PX
"His horse was coming back running to the camp." (Dorsey 1890: 464.9 / Óⁿpʰoⁿ-Toⁿga)

b. *ki zhoⁿthínoⁿge-'óⁿsagi* {*mazhóⁿ thoⁿ*} *á-noⁿga=i.*
and wagon-swift {land RND} AP:SUPESS-run=PL
Literally: And the swift wagons run on the land. (Dorsey 1891a: 103.1 / Tenuga-zi)

(372) Adessive locative

a. *wakóⁿdagi pa-péthoⁿba akʰá shkóⁿ=hnoⁿ=i thóⁿdi, ...*
water.monster head-seven PX.SG move=HAB=PX when
And whenever the Water-monster with seven heads moved, ... (Dorsey 1890: 111.10 / Frank La Flesche)

b. *Sni<thi>t'e!* {*Péde*} *í-shkoⁿ=ga!*
<P2>cold {fire} AP:AD-move=IMP.M
You are cold! Draw near the fire! (DD)

In all the examples above, the applicative prefixes have a clear applicative function introducing an NP. Nevertheless, the three prefixes do not always productively add a new core argument, or not only under the form of an NP. There are many examples of demotivation of the oblique prefixes, or examples where they derive new verbs without adding a new argument. Additionally, Umóⁿhoⁿ also has two morphologically complex applicative prefixes, *ithá-* and *uthú-* (combination of *í-* + *á-* and *í-* + *u-*), which are attested on a limited number of verbs. The simple and complex oblique prefixes are described in detail in Chapter 6.

4.6 Antipassive

As mentioned in previous chapters, in Umóⁿhoⁿ the majority of third person participants are not encoded on the verb, or receive an ambiguous marking. (The plural/proximate marker *=i~bi~b* is common to first, second, and third persons, and applies only once. See §3.1.2.) Moreover, the omission of arguments is frequent whenever they are recoverable in the context.

Thus, a transitive verb like *thixóⁿ* 'to break {x}' in (373) is understood as "S/he broke it" by default, if no subject and object are expressed elsewhere in the clause.

(373) *thixóⁿ*
break
She broke it. (Saunsoci & Eschenberg 2016: 72)

The transitive verb *thatʰé* 'to eat {x}' is illustrated in (374). In (374a), the 3rd person object is overtly expressed by an NP. In (374b), the argument *Ké-toⁿga* 'Big turtle' is introduced in the first clause, and is not repeated in the second clause. The second clause is headed by the verb *thatʰé*, and the verb' object is understood anaphorically.

(374) a. Transitive verb 'to eat' with overt NP as an object

égithe égasáni ki Ishtínikʰe akʰá {huhú wiⁿ} thatʰé akʰáma.
finally following.day when Ishtínike ANIM.PX {fish one} eat EVID

And on the following day Ishtinike was eating a fish. (Dorsey 1890: 96.14 / Frank La Flesche)

b. Transitive verb 'to eat' without overt NP as an object

Góⁿki Ké-toⁿga maxúde tʰe móⁿtʰe ithétha-bi-amá.
and turtle-big ashes VERT inside place-PP-REPORT

And he put the big turtle very quickly into the ashes.

zhégthoⁿ=biamá. shi {Ø} thatʰé tá akʰ-áma.
cook=PP.REPORT again eat IRR EVID

He put it in to bake, and he was about to eat it. (Dorsey 1890: 62.17 / Páthiⁿ-noⁿpázhi)

In order to suppress the object from the verb valency, the prefix *wa-* can be used. Some verbs also incorporate their object, in which case this object is no longer a syntactic constituent.

4.6.1 Antipassive marker *wa-*

The prefix *wa-* is very frequently found on verbs and nouns in Umóⁿhoⁿ, and is attested with a variety of partly overlapping functions. This makes it a difficult marker to analyze, and many instances of *wa-* in the corpora can receive several interpretations. The prefix *wa-* is described in detail in Chapter 7.

Sometimes, *wa-* saturates the object position of a transitive verb and makes it syntactically intransitive, in which case it acts as an antipassive marker, as typified in (375). This sentence comes in a context where no food, drink or tobacco has been previously mentioned. The antipassive verb *wathátʰe* 'to eat' is realized without any object. By contrast, the transitive

Table 4.4: Some antipassive verbs in Umóⁿhoⁿ

Base verb		Antipassive verb	
'í	to give {x} to {y}	*wa'í*	to give {x}; to make a gift to {y}
baxú	to write {x}	*wabáxu*	to write (something)
that^{h}é	to eat {x}	*wathát^{h}e*	to eat
uhó^n	to cook {x}	*úho^n*	to cook
zé_the	to doctor {x}	*wazé_the*	to doctor people
gíbaxu	to write {y} to {y}	*wagíbaxu*	to write (sth) to {y}
éthi^n	to have {x} for {y}	*wéthi^n*	to have {x} for somebody
shí	to ask {x} to {CL}	*washí*	to ask {x} to {CL}

verbs *tható^n* 'to drink {x}' and *í^n* 'to use {x}'; 'to smoke {x}' combine with overt NPs as objects.

(375) *"Wa-thát^{h}e thishtó^n, {ní} shti tható^n thishtó^n, {niní} shti í^n thishtó^n", a=í t^{h}e.*
ANTIP-eat finish {water} too drink finish {tobacco} too use finish say=PX EVID
"He has already taken food and drink, and he has smoked", said he. (Dorsey 1890: 378.18 / Nudóⁿ-axa)

Table 4.4 shows several antipassive verbs and their non-antipassive counterparts[24]. The antipassive marker can remove any of the objects of a ditransitive verb, as can be seen with *wa'í*. The antipassive marker also combines with other valency-modifying operators: in *wagíbaxu* 'to write (sth) to {y}' and *wéthi^n* 'to have {x} for somebody' (see (378)), the antipassive combines with the dative marker; in *wazéthe* 'to doctor people', it derives a causative verb. Three pairs of transitive verb and antipassive counterpart are exemplified in (376) through (378).

(376) a. *Unéthe gáge nétha ego^n {duáthi^{n}k^{h}e ké thi^{n}k^{h}e} uhó^n=biama.*
fireplace this make.a.fire[PX] having {this turtle OBV.SIT.SG} cook=PX.REPORT
They say he made fire (with those kindlings) in that fireplace and cooked this turtle. (Rudin et al. 1989-92: T. 16 / Clifford Wolfe)[25]

[24]Two charts of antipassive verbs with more examples are presented in Chapter 7: Table 7.4 and Table 7.8. The verbs presented here are reproduced from there.

[25]This sentence comes from a narrative by Clifford Wolfe, originally recorded, transcribed and glossed by Catherine Rudin with the help of Clifford Wolfe, Bertha Wolfe, and Mary Clay. The transcription, gloss and translation were later corrected by B. Gordon as part of the ULCC language program.

b. *Góⁿ úhoⁿ=biamá, wathátʰe gaxá=biamá.*
and ANTIP.cook=PL.REPORT food make=PL.REPORT
And they cooked; they prepared food. (Dorsey 1890: 124.19 / Joseph La Flesche)

(377) a. *shi {íe tʰe shéna} páxu ha.*
again {word VERT enough} A1SG.write DECL.M
Now I have written enough on this subject. (Dorsey 1890: 488.7 / Joseph La Flesche)

b. *íe thapí, wa-báxu shteóⁿ=i.*
language INS:mouth-*good ANTIP-write even(?)=PL
They speak English, and they even write letters. (Dorsey 1891a: 35.8 / Kaxé-Thoⁿba)

The antipassive derivation of a ditransitive verb is illustrated in (378). The ditransitive verb in (378a) encodes the beneficiary with D on the verb, while the theme is realized as an NP. In (378b), *wa-* fills the beneficiary position, so the beneficiary is unspecified. The theme remains the only object of the verb, and is expressed here as an NP.

(378) a. *{maxúde dúba} wé-thashniⁿ tha-tʰí ta=í, á=biamá.*
{gunpowder some} D1PL-A2.have A2-arrive IRR=PL say=PL.REPORT
You must bring us some powder when you come. (Dorsey 1890: 394.9 / Joseph La Flesche)

b. *{Hébe} wé-thahniⁿ shí ézhoⁿmíⁿ, á-biamá.*
{part} ANTIP.DAT-A2.have A2.arrive
"I think that you took a piece to some one." (Dorsey 1890: 43.16 / Nudóⁿ-axa)

4.6.2 Object incorporation

Some Umóⁿhoⁿ verbs incorporate their object, forming a new verb with the valency decreased by one, but this is not a frequent process in Umóⁿhoⁿ. Examples (379) and (380) illustrate two cases of object incorporation which are repeatedly attested, and which contrast with the equivalent transitive constructions. They are functionally similar to antipassive derivations. Nominal incorporation (NI) is described in Chapter 8. Note that among the NI verbs under study in that chapter, a few could be instances of intransitive verbs incorporating their subject (see §8.3.3).

(379) a. Non-incorporating verb (transitive)

{níⁿkagahi i-zhíⁿge akʰá} {thi-zhóⁿge} gthóⁿ góⁿtha=i, á=biamá.
{Chief POSS:3-son PX.SG} {POSS:2-daughter} marry want=PX say=PL.REPORT
SBJ OBJ

"The chief's son wishes to marry your daughter," said they. (Dorsey 1890: 200.15 / Shoⁿge-ska)

b. Incorporating verb (intransitive; inside a relative clause)

{*Níashiⁿga*} *míⁿ-gthóⁿ* *amá* *wóⁿgithe* *té* *wa-kʰída=biamá.*
{person} female-marry PX.PL all buffalo O3PL-shoot=PL.REPORT
SBJ

All of the persons who had taken wives shot at them [the buffalos]. (Dorsey 1890: 86.15 / Nudóⁿ-axa)

(380) a. Non-incorporating verb (transitive)

{*Noⁿbé tʰe*} *oⁿwóⁿthoⁿ=ga*
{hand the} P1SG.hold=IMP.M
OBJ

Take hold of my hands. (Dorsey 1890: 97.15 / Frank La Flesche)

b. Incorporating verb (intransitive)

Noⁿb-úthoⁿ=biamá
hand-hold=REPORT

They shook hands, they say. (Dorsey 1890: 349.9 / Óⁿpʰoⁿ-Toⁿga)

4.7 Reflexive/reciprocal

The reflexive/reciprocal morpheme is *ki(g)-*. Dorsey often writes <ki> for the reflexive use, and <kʰi> for the reciprocal use, but since then it has been consistently reported as only one morpheme (Rankin (2008: 1) specifies that most of the /kʰi/ sequences that remain in his retranscription of Dorsey's texts should be corrected to /ki/). According to Koontz (1993: 20), this morpheme was originally a comitative coverb which became a reciprocal marker, before ultimately extending to a reflexive interpretation in the Dhegiha group and in Hoocąk-Jiwere. Prototypical reflexive and reciprocal interpretations are illustrated in (381) and (382).

(381) Prototypical reflexive interpretation

Míkasi akʰá *kig-thí-azhí-xti=óⁿ=biamá.*
Coyote PX.SG REFL-INS:NEU-different-INTENS=AUX=PX.REPORT

The Coyote had thoroughly disguised himself. (Dorsey 1890: 99.17-18 / Mawadoⁿthiⁿ)

(382) Prototypical reciprocal interpretation

A-í=bi *thóⁿzha* *thóⁿxti* *góⁿ* *ki-páaze* *góⁿ* *óⁿhe*
come.here=PL *though* without.cause(?) RECP-scare.off therefore flee
átʰiágtha=biamá.
suddenly(?)=PL.REPORT

Though they were approaching, they were continually scaring each other, and starting suddenly to flee. (Dorsey 1890: 298.7 / Shoⁿge-ska)

The prefix *ki(g)-* can be associated with many other interpretations, however. One clear instance of collective meaning ("together") can be seen in (383). The autobenefactive interpretation is also frequently attested, as in (384). In such cases, it is no longer a valency-reducing marker, and it combines with intransitive verbs. (See also (930), p. 567.)

(383) Collective interpretation

tha-kí-banóⁿ=i tha-gí-oⁿshna tha-gthí ki, wa'ú tha-gthóⁿ ta=i,
A2-RECP-*run=PL A2-POSS(?)-A2.leave A2-arrive.back if woman A2-marry IRR=PX(?)
á=biamá.
say=PX.REPORT

If you run a race together, and you come back ahead of her, you can marry the other woman. (Dorsey 1890: 331.13 / Joseph La Flesche)

(384) Autobenefactive interpretation

Wathátʰe a-kí-paxe héga.
food A1SG-REFL-A1SG.make a.little

I have made a little food for myself. (Dorsey 1890: 653.8 / Moⁿchʰú-Noⁿba)

The reflexive/ reciprocal/ collective polysemy is interesting because it is apparently rare. Kemmer (1993: 100) mentions that she has found no such case of polysemy in her data, and adds: "[reciprocal markers] are in many cases morphologically related either to reflexives, or to collectives". Along the same lines, Elena & Nedjalkov (2013) cite the case of Imbabura Quechua which has two reciprocal markers: one encoding the reflexive and the reciprocal, the other encoding the collective and the reciprocal.

All these interpretations are semantically related and not always clearly demarcated one from the other. Kemmer (1993) reviews all situation types which are regularly encoded with middle markers (the middle marker in a language always or almost always includes the reflexive) and the semantic relationships between them. She presents the result in a semantic map (p. 202). Many verbs encoded with the reflexive/reciprocal marker in Umóⁿhoⁿ present semantic features midway between the reflexive, the reciprocal, the collective and the autobenefactive interpretation, or correspond to other situation types which are described by Kemmer. Table 4.5 illustrates this variety with many examples. Most of them are glossed as REFL even if they don't have strictly speaking a reflexive value, and the verbs having a reciprocal or collective meaning, or a meaning close to them, are glossed as RECP. All the examples in this table are derived from attested non-reflexive/reciprocal verbs, and the effect of *ki(g)-* on the valency is reported in the table. As can be seen, it is not necessarily valency-reducing; the autobenefactive value, in particular, does not affect the verb valency, but specifies that the agent or agent-like argument is also a beneficiary.

Table 4.5: Some verbs with the reflexive-reciprocal marker *ki(g)-*

Gloss	Verb	Translation	Valency	Reference / Example
RECP	*ákikithe*	to fight (together)	-1	390
RECP	*ákine*	to cuddle	-1(?)	ST
RECP	*ékigo^{n}*	to be alike {x}	=	DT:297.9
RECP	*ki'í*	to give {x} to one another	-1	(387)
REFL	*kigthát'e*	to kill oneself by crying	-1	DT:235.9
REFL	*kigthíazhi*	to make oneself different	-1	(381)
REFL	*kigthípasho^{n}*	to turn around, retracing one's steps	-1	DT:467.6
RECP	*kigthó^{n}*	to marry each other's {*relation*}	-1	(391)
REFL	*kikáxe*	to make {x} for oneself	=	(384)
REFL	*kimúgtho^{n}*	to steal away	=	(388)
RECP	*kipáaze*	to scare off one another	-1	(382)
REFL	*mákixo^{n}*	to cut off {x} for oneself	=	DT:618.11
REFL	*nákibeso^{n}so^{n}*	to curl up oneself by the heat	= / -1	Sanchez, Larson & Walker
REFL	*ukígthi'age*	to be indisposed	-1	(392)
RECP	*ukígtho^{n}*	to hold {*each other's x*}	-1(?)	DT:402.11
REFL	*ukík^{h}ie*	to talk to oneself	-1	DT:44.17
RECP	*ukíne*	to hunt {*lice*} for each other	-1(?)	(389)
RECP	*ukípat^{h}e*	to saw {x} together	=	DT:47.2
REFL	*uthéwi^{n}_kithe*	to assemble (themselves)	-1	(386)
REFL	*wéno^{n}de_kithe*	to make oneself full	-1	(385)
RECP	*zhú_kigthe*	to be together	-1	TA:Two Ghosts Story

We see that morphologically speaking, the prefix *ki(g)-* can combine with many other derivational prefixes. It combines with the causative bound root *-the*, as in (385) and (386), with a transparent meaning (see also Chapter 5). Both examples can be identified as reflexive, although (385) shows how the reflexive can at the same time be autobenefactive, and (386) describes some kind of spontaneous event that could be described as midway between a reflexive and a reciprocal interpretation. The reflexive/reciprocal also combines with instrumental prefixes having a causative function, as in (381); and like *mákixo^{n}* 'to cut {x} for oneself', derived from *máxo^{n}* 'to cut off {x}' (illustrated in (339c), p. 233) and *kigthát'e* 'to kill oneself by crying' (see Table E.3).

(385) Reflexive interpretation with causative *-the*

Wéno^{n}de-á-ki-the *tat^{h}é áho^{n}*
satisfied-A1SG-REFL-CAUS IRR EXCL.M

I will make myself full in a while! (Dorsey 1890: 62.14 / Páthi^{n}-no^{n}pázhi)

(386) Reflexive/reciprocal interpretation with causative *-the*

Uthéwiⁿ-thá-ki-the te, a=í átha, uuu! á=biamá.
gathered-A2-REFL-CAUS IRR say=PX indeed halloo! say=PX.REPORT

"He says that you will, indeed, assemble yourselves, halloo!" said the criers. (Dorsey 1890: 337.2)

Turning now to the syntax, (387) shows that the reflexive/reciprocal marker can apply to ditransitive verbs, with the example of *ki'í* 'to give {x} to one another'. In the same clause, the verb *uétakíkithe* is used, with an apparent double reflexive marker. It is glossed by Dorsey 'they caused themselves to own'.

(387) *shóⁿ waxúbe zhíⁿga u-éta-kí-ki-the thóⁿ tóⁿwoⁿgthoⁿ batété=ma*
and sacred.thing small OBL-POSS-REFL-REFL-CAUS REL:RND nation gentes=OBV.PL
ki-'í=biamá.
RECP-give=PL.REPORT
And the gentes of the tribe gave to one another the minor sacred things which they now possess. (Dorsey 1890: 468.7 / Óⁿpʰoⁿ-Toⁿga)

The reflexive can also apply to intransitive verbs, as in (388) with *kimúgthoⁿ* 'to steal away'. In this case, it appears that it is used to express an action involving the subject's own body, as opposed to the base intransitive stative verb which only applies to inanimate objects: *múgthoⁿ* 'to go astray', like a letter. In at least one other case, the prefix applies to a bivalent stative verb, and results in another bivalent stative verb: *égoⁿ* 'to be so; to be like {x}' becomes *ékigoⁿ* 'to be alike {x}'.

(388) *íⁿtʰoⁿ Póⁿka ushté amá ki-múgthoⁿ gí góⁿtha=i éde, Joe akʰá*
now Póⁿka remaining OBV.PL REFL-go.away come.back wish=PL but J. PX.SG
shkóⁿ=azhi gthíⁿ wágazhi.
move=NEG sit O3PL.command
At this time the rest of the Ponkas wished to steal off and come back to us, but Joe told them to remain where they were. (Dorsey 1890: 748.2 / Moⁿchʰú-Noⁿba)

Sometimes, the reciprocal meaning is transferred to body parts or objects "possessed" by the participants, as in (389). A similar analysis can be made of *ugthóⁿ* 'to hold each other's {*hand*}'.

(389) Reciprocal interpretation applying to possession

zhiⁿthé-ha, hé oⁿgú<ki>ne té, á=biamá
older.brother-VOC lice <RECP>seek.A1PL IRR A3.say=PX.REPORT

"Elder brother, let us hunt lice for each other", said the younger. (Dorsey 1890: 210.5 / Páthiⁿ-noⁿpázhi)

The verb *ákikithe* 'to fight (together)' is derived from *ákithe* 'to fight {x}'; 'to contend with {x}'. Fighting is among the "naturally reciprocal events" identified by Kemmer (1993:

102 ff.). Thus, we may conjecture that the sequence /ki/ in *ákithe* already corresponds to the reflexive / reciprocal marker, although the verb is used transitively. The prefix is added a second time, this time with a valency-reducing function, to derive the verb *ákikithe* 'to fight (together)'. Both verbs are illustrated in (390).

(390) a. *Goⁿtʰégoⁿ ki, shi wá-tha-kíhna ta=í, a=í.*
some.time(?) when again O3PL-A2-A2.fight IRR=PL say=PX
After some little time you may contend with them again [he said]. (Dorsey 1890: 421.2 / Kaxé-Thoⁿba)

b. *í=i=ga! óⁿg-a-ki-kítha ta=í, é=hnoⁿ, óⁿg-abágtha tá-bi ethégoⁿ égoⁿ.*
come=PL=IMP.M A1SG-(1)-REFL-fight IRR=PL say=HAB A1PL-draw.back think as
They kept on saying, "Come ye! let us contend together," as they thought that we would draw back through fear of them. (Dorsey 1890: 421.5 / Kaxé-Thoⁿba)

The verb *ákine* 'to cuddle', attested in Stabler & Swetland (1977) (Sanchez, Larson & Walker in progress also translate it as "to hug"), is derived from *áne* 'to climb on {*x*}'. This is a case of semantic narrowing of the reciprocal.

A peculiar case of reciprocal is found on the verb *kigthóⁿ* 'to marry {*one another's x*}'. The base verb is *gthóⁿ* 'to marry {*a woman*}', which only designates the marriage of a man (argument A) to a woman (argument P). The marriage of a woman (A) to a man (P) is expressed with the verb *áthixe* 'to marry {*a man*}'. Given the semantic peculiarity of such a verb, a reciprocal derivation would not be expected at first. It exists, however, and is used in reference to two men marrying each other's sisters, in (391a). It is similar to *ukíne* 'to hunt {*lice*} for each other', which can also be understood as a transfer of the reflexive towards a possessed object or a relative. A few sentences later, in (391d), the verb *kigthóⁿ_kʰithe* 'to make {*x*} marry one another' is used, in reference to other people of the tribe, and in this case no kinship relations are involved, apparently.

(391) a. *oⁿ-kí-gthoⁿ ta=í, á=biamá.*
A1PL-RECP?-marry IRR=PL say=PL.REPORT
"Let us marry."

b. *Góⁿ thé núzhiⁿga nóⁿba pahóⁿga akʰá wa'ú nóⁿba i-tóⁿge-wa-thá.*
and this boy two before PX.SG woman two POSS:3-sister-O3PL-CAUS
And these two leading boys had two sisters.

c. *ki é akʰíwaha ki-'í=bi egóⁿ wa-gthoⁿ=biamá.*
and that both RECP-give=PL as O3PL-marry=PP.REPORT
And each boy having given his sister to the other boy, they married them.

d. *Shi thé ushté amá ki-gthóⁿ-wa-kʰithá=biamá.*
and this remaining PX.PL RECP-marry-O3PL-DAT.CAUS=PX.REPORT

And they caused the rest [in the tribe] to marry one another. (Dorsey 1890: 86.5-8 / Nudóⁿ-axa)

Some diachronic links have been observed between the reflexive marker and the antipassive (Sansò 2017, Auderset 2021). In Umóⁿhoⁿ, there is at least one reflexive verb whose meaning compared to the base verb makes it similar to the transitive vs. antipassive correspondance described in §4.6: the verb *ukígthi'age* 'to be indisposed'; 'to be lazy', derived from *uthí'age* 'not to want {*to do it*}; to be unwilling about {*x*}'. Both the base verb and the derived verb are illustrated in (392).

(392) a. *Móⁿzeska utʰéthe kʰe-ta bthé tʰe ubthí'age.*
money put.in HORIZ-ALL A1SG.go COMP A1SG.not.want
I don't want to go to the bank. (Saunsoci & Eschenberg 2016: 146 / Alice Saunsoci)

b. *ki thé-ma shétʰoⁿ díxe iⁿchoⁿ giníⁿ tʰe noⁿpéhii tʰe Umóⁿhoⁿ amá; u-kíg-thi'age égoⁿ moⁿthíⁿ=i tʰe.*
and that=OBV.PL that.far smallpox now recover EVID hungry evid Umóⁿhoⁿ PX.PL (1)-REFL-not.want(2) thus walk=PL EVID
And these Omahas, who had now recovered from the small-pox, were hungry, and so they were indisposed to make any exertions. (Dorsey 1890: 399.3 / Óⁿpʰoⁿ-Toⁿga)

c. *uw-á-kig-thi'aga-choⁿ.*
(1)-A1SG-REFL-not.want(2)-INTENS
I am real lazy. (Rudin et al. 1989-92: T.18; elicitation / Mary Clay)[26]

4.8 Passive reading of transitive clauses

There is no passive voice in Umóⁿhoⁿ, or in other words there is no specific marking that would systematically demote the agentive argument or indicate that the action is focused on the patient. Example (393) shows the same verb, *gaxé*, which means "to make {*x*} {*state*}"[27] with an active reading (in (393a)) and a passive reading (in (393b)).

(393) a. Active reading

Góⁿki móⁿze kʰe ná-zhidé-xti gaxá=biamá Háxige akʰá.
and iron HORIZ INS:temp-red-INTENS make=PP.REPORT Haxige PX.SG

And Haxige made the iron very red-hot. (Dorsey 1890: 247.5 / Frank La Flesche)

b. Passive reading

Washóⁿge tʰe wáska gáxa=i.
corn.patties VERT cornmeal? make=PP

[26]The transcription of this elicitation session was done with the help of Octa Keen.

[27]In fact, the verb *gáxe*, which is glossed 'to make', has several possible interpretations, including "to make {*x*} of {*y*}" and "to pretend {*CL*}". It is also used in periphrastic causative constructions (see Chapter 5).

The corn patties were made of cornmeal. (Rudin et al. 1989-92: T6, Two Ghosts Story, nº31 / Mary Clay)

Note that in (393a), the subject is in a post-verbal position, probably because it has a recoverable referent (see §2.5.1.1). The word order is irrelevant for the distinction between active and passive readings. The sentence in (393a) can only be interpreted as active because of the presence of an overt NP for the agentive argument. The sentence in (393b) is interpreted as passive because there is no NP for the agentive argument, nor there is any available referent which could be referred to anaphorically in this context, since the sentence is extracted from a narrative describing how a man enters a house and finds some corn patties made of cornmeal.

Sentences such as (393b) are often translated into passive constructions in English. However, there is no formal marking in Umóⁿhoⁿ, either morphologically or periphrastically, which unambiguously signals the existence of a passive construction.

Some scholars, like Cobbinah & Lüpke (2012), consider that the presence of a formal encoding should not be obligatorily required in passive constructions. They present several languages having constructions that exactly match the typological definition of passive, except for the formal encoding (e.g., Bambara and Gur). Two of the main criteria for considering these constructions as passive are, on the one hand, the intransitivity of the clause, and on the other hand, the underlying presence of an agent (unlike the anticausative construction).

In Umóⁿhoⁿ, the first criterion is problematic. There is nothing that clearly prevents patient-focussed sentences from being interpreted as active constructions with a subject left implicit or being generic plural (generic "they"). Since third person agentive and patientive arguments are not encoded on the verb, it is often difficult to bring evidence that a given clause is transitive or intransitive. Two points can help determine the transitivity status of passive-like constructions: how speakers spontaneously translate these constructions into English, and the presence or absence of *wa-* O3PL on verbs. Both points favor an analysis of passive-like constructions as syntactically transitive.

In the first tape of Rudin's fieldwork recordings, the Umóⁿhoⁿ elders explain how to ask for an object's name, and how to answer. The dialog between Catherine Rudin (R) and Clifford Wolfe (W) is reproduced in (394)[28]. The Umóⁿhoⁿ sentences provided by Clifford Wolfe are glossed in (395).

(394) R: If I don't know the word, but I want to ask you.
W: Oh, *gá-tʰe* 'cup' – ah, how would we – *uxpé nithatʰoⁿ thadá*. "They call this a cup."
R: Okay. Then how would I ask you the question: "What do they call this?"

[28] For better readability, this dialog has been cleared of repetitions. In the missing part "(...)", Wolfe provided the Umóⁿhoⁿ name for "cup" instead of translating the question and Rudin asked again how to ask the question. "XX" corresponds to an unintelligible sequence.

W: (...) *shé-t^{h}e i^{n}dádo^{n} thadá-i a?*
R: Okay, and then you might – you give me the answer
W: *Níthat^{h}o^{n} thadá.* XX answer me back: "They call it cup."
(Rudin et al. 1989-92: Tape 1 / Clifford Wolfe)

(395) a. *shé-t^{h}e i^{n}dádo^{n} thadá-i a?*
that-VERT what call-PX Q
What do they call this?

b. *(gá-t^{h}e) (uxpé) ní-that^{h}o^{n} thadá.*
that-VERT dish water-drink call
They call this a cup. / They call it cup.

As can be seen in these examples, Wolfe spontaneously translated the Umó^{n}ho^{n} sentence *gá-t^{h}e uxpé nithat^{h}o^{n} thadá* into English using an active construction with a generic plural subject "they"[29], rather than saying, for example, "it is called a cup" or "we call it a cup". This active translation is then repeated by Rudin and by everyone until they switch subjects. Although this is not formal, language-internal evidence, it is a clue that speakers spontaneously interpret such constructions as bivalent.

Another indicator of the valency of passive-like constructions comes from verbal morphology. Example (396) shows a relative clause with only one overt argument, which has a patientive semantic role. At first sight, it could be considered either the subject P (the only argument of the clause), or the object P (in a transitive clause with a generic A). This patientive argument is 3rd person animate plural, however, and it is encoded on the verb with the indexation marker *wa-*. In §3.1.3 it has been shown that the inflectional prefix *wa-* O3PL is only realized in transitive constructions; as such, it does not index all patientive arguments, but only those that are objects. As a result, the overt argument *shí^{n}gazhí^{n}ga* in (396) is an object, not a subject, and the clause is transitive. By contrast, the English translation chosen by Dorsey has a passive construction.

(396) *gthébahíwi^{n}-tó^{n}ga no^{n}bá=biamá shí^{n}gazhí^{n}ga wa-ó^{n}thai=i amá.*
hundred-big two=PP.REPORT children O3PL-abandon=PL REL:PX.PL
The children who had been abandoned were two thousand. (Dorsey 1890: 88.9 / Nudó^{n}-axa)
Active reading: The children whom they [generic] had abandoned were two thousands.

At least one counterexample suggests that on occasions, a transitive verb can behave like an intransitive one: in (397), *wa-* O3PL is missing. In this case, the NP *waníta weágiúdo^{n}* ("the quadrupeds which are good for us") is the plural animate patient of the verb *múthi^{n}ge* 'to exterminate {x} by shooting', but it is not encoded on the verb with *wa-*. This means that *múthi^{n}ge* behaves as an intransitive stative verb ('to be exterminated'), and *waníta weágiúdo^{n}* should be considered the subject. The final *=i* on the verb marks this subject as plural.

[29]Interestingly, the same has been noted for objects: at one point Bertha Wolfe introduces new participants as undetermined objects, and says "them" instead of "people". See §7.5.1.

(397) *... waníta weági-údoⁿ Wakóⁿda thiⁿkʰé we-gáxa=i thóⁿzha, bthúga-xti*
animal B1PL-good W. OBV.SIT D1PL-make=PX though all-INTENS
mú-thiⁿga=í.
INS:shoot-lack=PL
... so the quadrupeds which had been made by the Mysterious Power for our advantage have been exterminated, they have been shot. (Dorsey 1890: 628.6 / unknown speaker)
Literally: Although Wakóⁿda has created animals for our advantage, they are all exterminated.

Sentences in (398) through (402) show more examples of constructions focused on P, where P is a third person plural animate argument. Each time, the presence of *wa-* O3PL signals syntactic transitivity. The subject is sometimes recoverable from the context, as in (399), (400) and (401). Other times it is generic, resulting in an impersonal construction with a dummy subject "they". This is the case of (396) above and (398) below.

(398) *Góⁿ wénaxithá=biamá.*
and O3PL.attack=PP.REPORT
And they were attacked. (Dorsey 1890: 88.1 / Nudóⁿ-axa)
Active reading: And they [generic or undetermined] attacked them.

(399) *tha-xúbe-wa-thá=biamá páthiⁿ amá.*
INS:mouth-sacred-O3PL-CAUS=PX.REPORT Pawnee PX.PL
The Pawnees were astonished. (Dorsey 1890: 378.5 / Nudóⁿ-axa)
Active reading: He [Agaha-moⁿthiⁿ] made the Pawnees speak in wonder.

(400) *Míⁿ-gthóⁿ tʰégoⁿ úhoⁿ=biamá ki tóⁿwoⁿgthoⁿ thoⁿ bthúga*
female-marry in.order.that ANTIP.cook=PL.REPORT when tribe RND all
wékʰu=biamá.
D3PL.invite=PL.REPORT
They cooked for the marriage. And all of the tribe were invited to the feast. (Dorsey 1890: 112.11 / Frank La Flesche)
Active reading: He [the Black man] invited the whole tribe to the feast.

The passive reading is possibly linked, in some instances, with the absence of the proximate/plural marker *=i~bi~b*. In (401a) and (402c), the verbs encode O3PL but have no proximate/plural marker. This contrasts with (401c) and (402a), where the same verbs take the proximate/plural marker. In each case, this contrast matches the active or passive voice chosen by Dorsey in his translation.

(401) a. *thíxthe égih ithá=biamá, ú-baaze.*
cane headlong go(?)=PL.REPORT O3PL.AP:INESS-scare.off

They were scared into the canes.
Active reading: They [the Umóⁿhoⁿ] scared them into the canes. (Dorsey 1890: 403.9 / Óⁿpʰoⁿ-Toⁿga)

b. ...

c. *tí=i tho^{n}-tá shi ú-gi-paazá=biamá.*
camp=PL RND-ALL again O3PL.AP:INESS-POSS-scare.off=PP.REPORT
The Omahas scared them again into their village. (Dorsey 1890: 402.9-10 / Óⁿpʰoⁿ-Toⁿga)

(402) a. *tháthuhá-xchi úxtha=biamá.*
almost-INTENS O3PL.overtake=PP.REPORT
She almost overtook them. (Dorsey 1890: 290.12 / Nudóⁿ-axa)

b. ...

c. *tháthuhá-xchi úxthe amá.*
almost-INTENS O3PL.overtake EVID
They were nearly overtaken. (Dorsey 1890: 290.13 / Nudóⁿ-axa)
Active reading: She almost overtook them.

The same phenomenon is observed in (403). Additionally here, the recoverable referent for the verb subject is the speaker herself (she just combed her daughter's hair). So, we should expect a A1SG subject, but the verb is not conjugated. This strongly favors a passive interpretation[30].

(403) *égo^{n}-dó^{n}zha i^{n}cho^{n}-xchi nazhíha giáhe thó^{n}shti.*
thus-though? now-INTENS hair DAT.comb heretofore
"Though it is so, she has just had her hair combed for her. (...)" said the mother.[31]
(Dorsey 1890: 287.3 / Nudóⁿ-axa)

There is no strong evidence that a passive construction exists in Umóⁿhoⁿ. Instead, the data suggest that a passive reading can be favored by context and maybe by use of the obviation system. See App. C.2.2 for two examples of *baxú* 'to write {x}' with a passive reading: one takes the proximate marker, the other does not. There are also two morphological features which trigger a passive interpretation: the absence of *wa-* O3PL when expected, as in (397), and the absence of a 1st or 2nd person marker for A when expected, as in (403).

[30] A similar example is found in OLIT-UNL (2018: 560): *Taní thithíta tho^{n} thanó^{n}xto^{n} ki, thiúdo^{n} te* "If you strain your soup, it might be improved". It is difficult to interpret the second clause of this sentence with a generic plural subject. There is a recoverable 2nd person referent for the subject, but the verb does not encode it.

[31] *égo^{n}dó^{n}zha* is not found anywhere else in Dorsey's materials. "Although" is usually said *thó^{n}zha*. It is possible that *égo^{n}dó^{n}zha* is a contracted form with *thó^{n}zha*, or that the /d/ here would be a variant of /th/, or that there is a typo.

4.9 Derivation, lexicalization, semantic demotivation

Throughout the previous sections we have seen many valency-changing constructions, whose formal manifestations fall under the domain of morphology or syntax. The continuum between morphology and syntax will be discussed in several of the following chapters (Chapters 5 and 8). The present section aims at presenting the degrees of semantic demotivation of the valency-changing affixes and the impact of such demotivation on morphology and syntax.

Derivation or inflection? Valency changing markers are variously treated as inflectional or derivational morphemes, according to the languages described and the authors. In Umóⁿhoⁿ, I consider valency-changing affixes to be derivational affixes (but see discussion in §3.6 about the dative and the benefactive-possessive). Peripheral arguments are not frequent in Umóⁿhoⁿ and are restricted to PPs expressing space (see §2.5.3, §6.3); otherwise all verb arguments are core arguments. Consequently, Umóⁿhoⁿ does not exhibit valency-changing operations aiming at backgrounding or foregrounding an argument by reorganizing core and peripheral syntactic roles. Instead, the causative, applicative, antipassive, and reflexive/reciprocal operations described in §4.2 through §4.7 actually modify the number of participants involved in the predicate[32]. Moreover, most affixes show some degree of demotivation in particular lexical units, as will be seen is this section. The lack of semantic compositionality is specific to derivation (e.g., Haspelmath & Sims 2010 [2002]: 90)

In this section, I will show examples of semantic demotivation for the valency-changing affixes (§4.9.1) and the effect that such demotivation has on the verb's morphology and syntax (§4.9.2).

4.9.1 Degrees of semantic demotivation

Following Mel'čuk's (1993:310) analysis and terminology, I distinguish two types of derivation (and derived forms). In Umóⁿhoⁿ, there are opaque forms as well.

- The term "STRONG DERIVATION"[33] corresponds to the most regular derivation, that is: when an attested word is derived with a derivational affix into a new, semantically compositional and predictable lexical unit.
- The term "WEAK DERIVATION" applies to:
    1. "derived" words with an identifiable derivational affix, but a non-autonomous base (either with identifiable meaning or not);

[32] A few counterexamples are observed, though. For instance, the dative prefix sometimes modifies the semantic role associated with the P argument without adding a beneficiary/maleficiary (§4.4.1.3), and the reflexive-reciprocal prefix has an autobenefactive interpretation which does not result in valency-reduction (§4.7).

[33] Original French version: "dérivation$_1$ 'au sens fort'" means "derivation in the strong/strict sense" and "dérivation$_2$ 'au sens faible'" means "derivation in the weak sense".

2. derived words with an autonomous base, but a non-compositional meaning.

- I use the term OPAQUE for a verb containing a derivational prefix, but whose semantics is completely opaque; the base is not autonomous and it is difficult to recognize the prefix meaning or function (either because of the semantics or because of the verb valency).

The diverse valency-changing functions of the affixes presented in this chapter were typified with examples of "strong derivation". For example, *gíxuka* 'to dance a dancing song for {x}' is a regular dative derivation from the attested verb *xuká* 'to dance a dancing song'. However, "weak derivations" and opaque formations are frequent in Umó^{n}ho^{n}. Below is a list of examples for every affix. The only affixes that I have only found used for "strong derivation" are *ígi-* BEN and *gi-* POSS.

- Causative *-the*:
  - "weak derivation": *pí_the* 'to love {x}' (with **pí* 'good'); *né_the* 'to start a fire' (**né* is not attested in any other word in reference to fire)
- Instrumental prefixes:
  - "weak derivation": *thadé* 'to pronounce {x}; to read {x}' (with *tha-* 'with the mouth', unknown base); *nó^{n}ge* 'to run' (with *no^{n}-* 'with the feet', unknown base); *nákade* 'to be hot' (with *ná-* 'by extreme temperature', unknown base)
  - opaque: *bakú* 'to put a blanket over the head' (with *ba-* 'by pushing'(?), unknown base)
- Dative *gí-*:
  - weak derivation: *gíthe* 'to be glad', unknown base; *gínashe* 'to steal {x} from {y}', unknown base
- Oblique prefixes:
  - weak derivation: *ít^{h}í^{n}* 'to strike {x} with {y}' (with **t^{h}í^{n}* 'strike', see *ut^{h}í^{n}* below)
  - opaque: *ágazhi* 'to command {x}' (with *á-* 'on', unknown base); *íbaho^{n}* 'to know {x}' (with *í-* 'with', unknown base); *uxpáthe* 'to fall' (with *u-* 'in', unknown base); *ut^{h}í^{n}* 'to strike {x}'.
- "Underspecified argument" *wa-*:
  - weak derivation: *wathí^{n}ge* 'to part with an object on account of the dead' (from *thi^{n}ge* 'to be without {x}; to be missing'
  - opaque: *wakó^{n}dithe* 'to be impatient; to be fired up', unknown base.
- Reflexive/reciprocal *ki(g)-*:

– opaque(?): *íkithe* 'to wake up'; *ákithe* 'to fight {x}', unknown bases. (Note that these verbs also contain demotivated *í-* and *á-* prefixes.)

The causative *-the*, dative *gí-* and reflexive-reciprocal *ki(g)-* are the most regular prefixes. The examples provided in the list are almost the only ones which are difficult to analyze. By contrast, the instrumental prefixes, the oblique prefixes and the polysemous prefix *wa-* are often attested in completely opaque forms, in which case the prefixes can only be recognized by their accent or by their specific morphophonological behavior.

Following Bauer (2001: 45), I use the term "LEXICALIZATION" to refer to "the whole process whereby an established word comes to diverge from the synchronically productive methods of word-formation". The "weak derivation" forms and the opaque forms can be seen as various stages in the lexicalization process, and in fact the frontier between them is not clear-cut (as seen in the examples above). I also use the terms "(semantic) demotivation" (of the affix), and "(semantic) opacity" (of the affix and base together). In §6.4.2, I present the lexicalization stages of the oblique prefixes in more detail (and with four stages instead of two here).

4.9.2 The impact of demotivation on morphology and syntax

The lexicalization of derived words into more or less semantically opaque verbs has an impact on the morphology and syntax of these verbs. At the morphological level, these frozen verbs can be newly derived, and the resulting verbs present prefixal sequences which do not follow the template presented in §3.4. At the syntactic level, some cases of lability (§4.1.6) can be explained by an ongoing lexicalization process of the prefix.

When a verb contains a demotivated prefix, it is sometimes derived by other prefixes placed at its left edge. In other words, the demotivated prefix is included with the root in slot 0 of the prefixal template. Other derivational prefixes are used at the left edge of the frozen unit. Several examples are given below, with the expected slot number of each morpheme in parentheses (from slots in Table 3.4). The prefix *wa-* is recognizable in the opaque forms because of its specific interaction with person markers when the verb is conjugated. See p. 181, and in particular (243).

- *thagíthe(†)* 'to make {x} glad by talking' (*tha-gí-X*: -1 + -5 + 0)
  → derived from *gíthe* 'to be glad', a frozen form with the dative marker *gí-*
- *íwakʰega* 'to be sick because of {x}' (*í-wa-X*: -6 + -7 + 0)
  → derived from *wakʰéga* 'to be sick'
- *kiwáshkoⁿ* 'to work hard for oneself' (*ki(g)-wa-X*: -2 + -7 + 0)
  → derived from *washkóⁿ* 'to make an effort; to persevere'
- *náwakoⁿdithe* 'to become impatient because of the heat' (*ná-wa-X*: -4 + -7 + 0)
  → derived from *wakóⁿdithe* 'to be excited, fired up, impatient'

- *ganákade* 'to heat {x} by hammering it' (*ga-ná-X*: -1 + -4 + 0)
  → derived from *nákade* 'to be hot'

- *thawáthishná* 'to speak plainly; to make {x} appear by biting/speaking' (*tha-wa-thi-X*: -1 + -7 + -1 + 0)
  → derived from *wathíshna* 'to be visible, clear, plain'
  → derived from *thishná* 'to pluck {*feathers*}; to make {x} plain/smooth by pulling'

At the syntactic level, we observe a certain number of morphologically complex verbs attested with two different valencies, something rather unusual in Umóⁿhoⁿ (cf. §4.1.6). This can be explained by ongoing lexicalization processes, where the valency-changing prefix is no longer obligatorily perceived as such. Below are a few examples[34].

- Ongoing lexicalization of locative applicative prefixes on the base. For instance, *uóⁿsi* is attested as 'to jump into {x}' and as 'to jump': the base **óⁿsi* does not exist as an independent word, and the locative meaning of the prefix here is no longer clearly visible. See §6.4.2.

- Ongoing lexicalization of the reciprocal prefix *ki(g)-*. The verb *ákipa* is sometimes attested as 'to meet each other' or 'to meet together', but is also very often attested as a transitive verb: 'to meet {x}'. The two valencies attested for *ákipa* are illustrated in (404).

- Ongoing lexicalization of a noun incorporating verb. The verb *gasí* means 'to fish {x}' according to Dorsey (n.d.b) but only *hú_gasi* 'to fish' (literally: "fish(n.)-fish(v.)") is attested in Dorsey's texts. In contemporary documentation, *hú_gasi* is attested as a transitive verb: "to fish {*a card*}" (in a card game) (OLIT-UNL 2018). See Chapter 8.

(404) a. *Ákipa* used as an intransitive verb: 'to meet each other'

Shi Umóⁿhoⁿ amá wénaxíth 'ítha=i. Ákipa=i.
again Umóⁿhoⁿ PL.PX O3PL.attack speak.of=PL meet=PL

Then the Omahas spoke of attacking them. They met. (Dorsey 1890: 463.12 / Óⁿpʰoⁿ-Toⁿga)

b. *Ákipa* used as a transitive verb: 'to meet {x}'

shaóⁿ ushté=ma wachʰíshka kʰe á-ki-thíte óⁿhe=ma Umóⁿhoⁿ
Dakotas rest=OBV.PL stream HORIZ (1)-RECP-cross(2) flee=OBV.PL Umóⁿhoⁿ
amá wákipa=í ha.
PX.PL O3PL.meet=PL

The Omahas met the other Dakotas who fled together across the stream. (Dorsey 1890: 422.7-8 / Kaxé-Thoⁿba)

[34] These examples are to be distinguished from cases of polysemous / polyfunctional prefixes which can derive two different verbs from the same base (e.g., the instrumental prefix *ga-* and the prefix *wa-*).

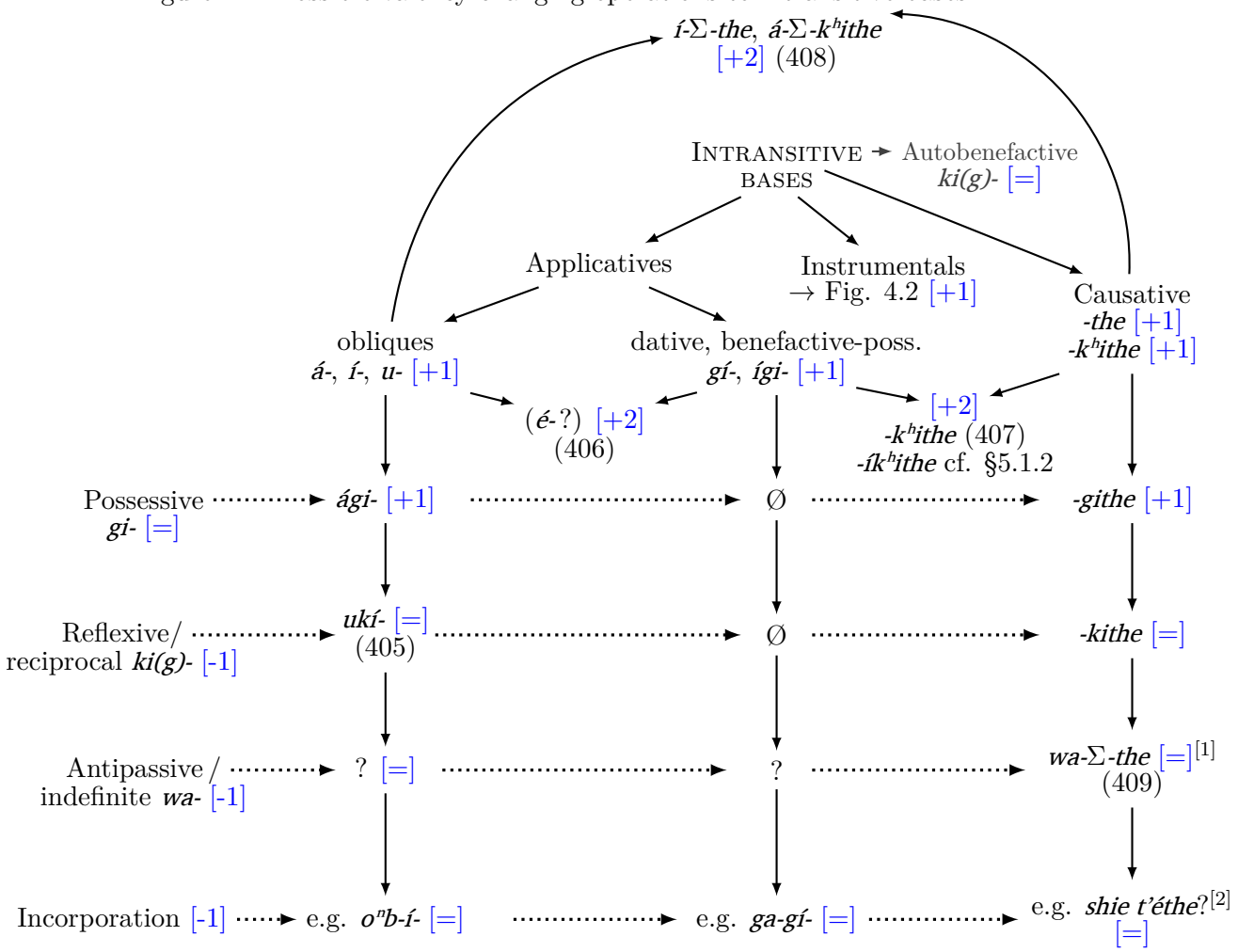
Finally, the verb *gísho^n* presents another interesting variation which can be explained by lexicalization. This verb corresponds to a "weak derivation" from an unattested base. It is defined by Dorsey as "to agree with {x}, be satisfied with {x}, approve {*another's act or conduct*}" (DD), and by OLIT-UNL (2018) as "pleased, happy, approves". This verb takes the conjugated forms of the dative paradigm. It is attested both as a transitive verb taking A person markers and a bivalent stative verb taking D person markers. Dorsey notes about the form *í^{n}sho^n* (D1SG): "'he agrees with me' or 'I approve it', both meanings right, F."

4.10 Summary of valency-changing operations

In §4.2 through §4.7, we have seen many different valency-changing affixes, as well as a few valency-changing operations involving syntactic constructions or the incorporation of lexical items. In this section, I provide a summary of valency-changing operations and their combinations applying to intransitive and transitive verb stems. (Only the causative constructions using *gáxe*to make {x} are excluded.) Figure 4.1 shows the possible valency-changing operations available for intransitive stems, and Figure 4.2 shows the same for transitive stems. For lack of space and time, these figures do not aim to present an exhaustive view of all possible combinations of valency-changing operations. The most frequent combinations are all presented. Some rare combinations are also included, in which case an illustrating example is provided. Two valency-preserving markers are included in the figures, in gray, because there were presented earlier in this chapter: the possessive *gi-* and the autobenefactive *ki(g)-* (a widespread function of the reflexive/reciprocal marker *ki(g)-*). When a combination of valency-changing affixes is not documented in the figures, this does not mean that the concerned morphemes are never attested together, but only that I have not found any example where they both have a valency-changing function; as mentioned in §4.9, most Umóⁿhoⁿ valency-changing morphemes are attested on verbs where they do not have any grammatical function.

Figure 4.1 presents the possible valency-changing operations applying to intransitive bases. As the valency-reducing operations existing in Umóⁿhoⁿ apply to the transitive object (antipassive *wa-*, object incorporation, reflexive/reciprocal), they cannot directly apply to intransitive verbs (i.e., they cannot derive impersonal verbs out of intransitive ones). This is why Figure 4.1 shows first the valency-increasing operations possible on intransitive bases, and then the various possible combinations of these valency-increasing operations with valency-reducing operations. I have not found any example of the antipassive or indefinite marker *wa-* combined with applicative prefixes; such combinations occur only with transitive base verbs, and the object suppressed generally is the base object (not the applicative object). The numbers and equal signs in square brackets indicate the difference in number of argument(s) in comparison with the base stem. Transitive verbs created with instrumental prefixes combine with many other valency-changing operations, as shown in Table 4.6 p. 271. As a result, the transitive instrumental verbs are considered as base transitive stems in Figure 4.2.

Figure 4.1: Possible valency-changing operations to intransitive bases



[1] The only example found corresponds to a deverbal noun, as can be seen in (409).

[2] See Chapter 8, and in particular §8.2, for a discussion of how to recognize nominal incorporation in Umóⁿhoⁿ. *Shie t'éthe* means 'to abort'.

Examples in (405) through (408) illustrate rare valency-changing combinations which were not presented thus far. The verb *étʰoⁿ* in (406) is not an example of "strong derivation" (cf. §4.9.1), since it is built on the unattested base **tʰoⁿ* 'to tread'. (The attested stem already takes the *á-* applicative: *átʰoⁿ* 'to tread on {x}'.) Additionally, the dative prefix in *étʰoⁿ* expresses possession; the interplay between possession and valency-increase needs further investigation. The conjugation of this verb is presented in Table B.15, p. 522.

(405) Reciprocal *ki(g)-* and oblique applicative *u-*: *ukígthiⁿ*
u-kí-gthiⁿ
AP:INESS-RECP-sit
"to sit in {x} together; to sit in {x} with one another" (Dorsey n.d.b)

(406) Oblique applicative and dative applicative: *étʰoⁿ*

a. *étʰoⁿ*
"to tread on it accidentally, said of what belongs to another; to tread on another's property, etc., for his injury" (Dorsey n.d.b)

b. *taháwagthe íⁿtha-tʰoⁿ té.*
shield A2.D1SG.AP:SUPESS-*tread IRR
You will tread on my shield. (Dorsey 1890: 264.7 / Te-úkoⁿha)

(407) Dative applicative and causative bound stem: *t'é_kʰithe*

a. *t'é-kʰi-the*
die-DAT-CAUS
"to kill {x} in order to give it to {y}" (Dorsey n.d.b)

b. *"Wa! kʰagé, wiⁿ t'e-óⁿ-kʰithá=ga há," á=biamá Ishtínikʰe akʰá.*
Oh friend one die-P1SG-DAT.CAUS=IMP.M DECL.M say=PX.REPORT I. PX.SG
"Oh! younger brother, kill one [wild turkey] for me," said Ishtinike. (Dorsey 1890: 595.4 / George Miller)

(408) Oblique applicatives and causative bound stems: *ágthiⁿ_kʰithe* and *íshkoⁿ_the*

a. *íⁿbehiⁿ kʰé-di á-gthiⁿ-kʰithá=biamá.*
pillow HORIZ-LOC AP:SUPESS-sit-DAT.CAUS=PX.REPORT
And they seated Ishtinikʰe on a pillow. (Dorsey 1890: 552.4 / Frank La Flesche)

b. *í oⁿthóⁿ-shkoⁿ-the taitʰé átha, á=biama.*
mouth AP:INS.P1SG-move-CAUS IRR indeed say=PX.REPORT
"By means of me mouths shall be caused to move," said he. (Dorsey 1890: 237.3 / Páthiⁿ-Noⁿpázhi)

(409) Antipassive and causative bound stem: *wat'é_the* (see also §7.6.3)

a. *wa-t'é-the*
ANTIP-die-CAUS

"one who has killed a person accidentally. a slayer; sometimes used in the sense of a murderer" (Dorsey n.d.b)

b. *é* *wa-t'é-the* *úzhu* *akʰá* *ithádi akʰá, ...*
that ANTIP-die-CAUS principal PX.SG father PX.SG
This was said by Kipazo, the father of the principal murderer, ... (Dorsey 1890: 425.10)

Other combinations could not be included in the figure but are worth mentioning:

- causative + autobenefactive: *áhigi_kithe* 'to make a lot of {x} for oneself' (Dorsey 1890: 27.9; *ahígi-ki-the* = many-REFL-CAUS)
- causative + causative: *t'é_the_kʰithe* 'to cause {x} to kill {y}' (Dorsey n.d.b); *bíze_the_-kʰithe* 'to allow {x} to dry {y}' (OLIT-UNL 2018). The combinations of several causative bound stems are described in §5.1.4.

Figure 4.2 attempts to capture most of the possible valency-changing operations applying to transitive stems. Transitive verbs can be derived with both valency-increasing and valency-reducing markers, and many different combinations of these markers exist, although most of them are rare. As previously mentioned, not all combinations could be represented.

Examples in (410) through (414) illustrate some combinations of valency-changing and/or valency-preserving morphemes which are very seldom attested and not necessarily provided in other sections or chapters of this dissertation.

(410) Oblique prefix with reflexive/reciprocal: *ukípatʰe*, *íkipaxapʰi*

a. *u-kí-patʰe*
AP:INESS-RECP-sew
"to sew {x} together" (Dorsey n.d.b)

b. *í-ki-paxapʰi*
AP:INS-RECP-pierce
"to pierce one another with {x}" (Dorsey n.d.b)

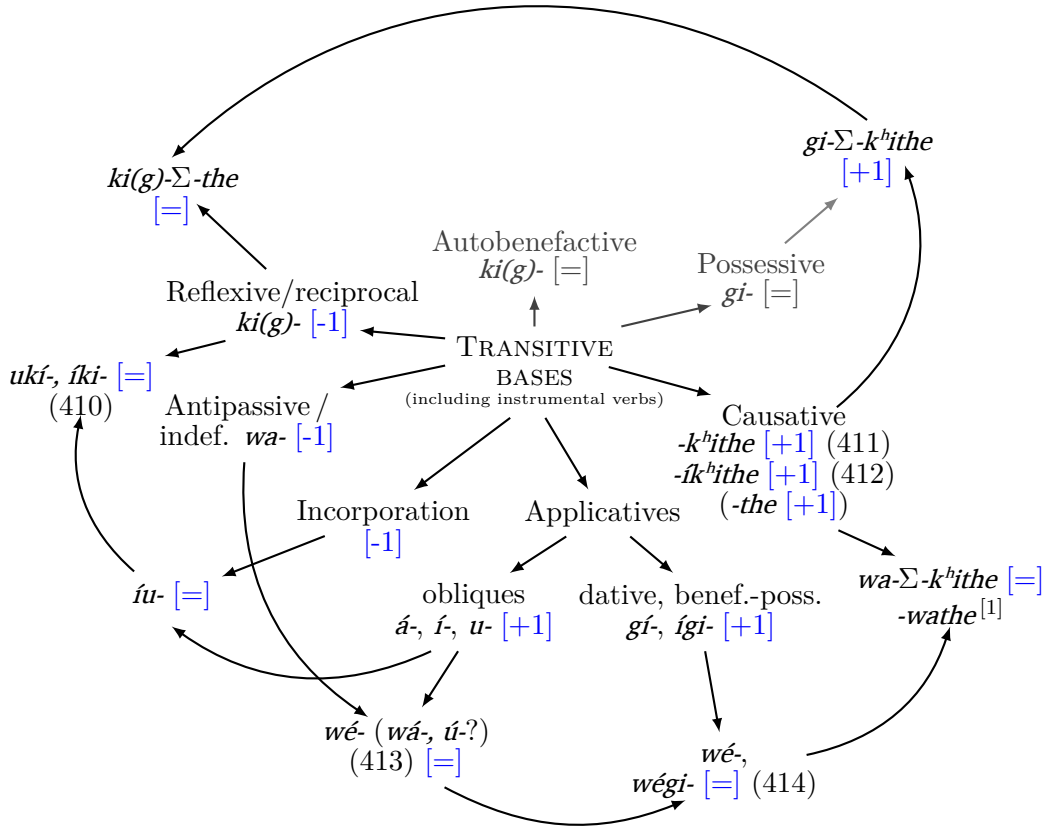
(411) Causative bound stem *-kʰithe* on a transitive base verb: *baxú_kʰithe*

shi *wi-kʰáge* *thé* *baxú-oⁿ-kʰithé,* *kʰagé-ha.*
again POSS:1S-friend this write-A1PL-DAT.CAUS friend-VOC

We have caused one of our friends to write this. (Dorsey 1890: 762.3 / Te-zhe-bate)

(412) Causative bound stem *-íkʰithe* on a transitive base verb: *zháhe_íkʰithe*
zháhe-íkʰithe
stab-BEN.CAUS
"to cause purposely {x} to stab {*an animal*} for or by request of the owner" (Dorsey n.d.b)

Figure 4.2: Possible valency-changing operations to transitive bases



[1] The sequence *-wathe* is very frequent. Dorsey (n.d.b) proposes one entry for it, and defines it as follows: "a termination, used in forming verbal adjectives and nouns; denoting possibility, or probability". For instance, *thatʰéwathe* (*thatʰe-wa-the*, 'eat-INDEF-CAUS') is translated as "what can be eaten" (DD), "edible" (U). The prefix *wa-* can be analyzed as an indefinite object marker here (see §7.3.2).

(413) Oblique applicative and antipassive/indefinite: *wégatʰoⁿ* 'to pound corn with {x}'; *wéthizha* 'to do washing with {x}'

a. *Wé-gatʰoⁿ* *ki* *noⁿbé bthúga-xti gastá=biamá.*
ANTIP.AP:INS-*pound when hand all-INTENS smash.flat=PX.REPORT
When she pounded on the corn with it, she mashed the whole hand flat. (Dorsey 1890: 261.7 / Te-úkoⁿha)

b. *And that ní akʰá gaspé-xchí égoⁿ wé-thizha shti údoⁿ.*
water PX.SG clear-INTENS as ANTIP.AP:INS-wash too good
And that water was very clear; it was good for washing too. (Rudin et al. 1989-92: T14 / Mary Clay)

(414) Antipassive *wa-* and benefactive-possessive prefix *ígi-*: *wégioⁿtha*
wégi-oⁿtha
ANTIP.BEN-leave
"to give her stuff away for her; give folks' stuff away for them" (ULCC 2015: 9)

Other combinations could not be included in the figure but are worth mentioning:

- Nominal incorporation + autobenefactive: *hukígthasi* 'to fish for one's own benefit' (Dorsey n.d.b), derived from the base verb *gasí* 'to fish {x}'[35].
- Antipassive + oblique applicative + reciprocal: *úkinoⁿthiⁿ* 'to be lost in a crowd' (Dorsey n.d.b), derived from *noⁿthíⁿ* 'to forget {x}; to be uncertain about {x}'. The meaning of *úkinoⁿthiⁿ* can be decomposed as follows: "to forget oneself in the middle of something" (here, a crowd).
- Antipassive + oblique applicative + possessive: *wégigthatʰoⁿ* 'to pound one's own corn with {x}', derived from the antipassive and oblique applicative verb *wégatʰoⁿ* 'to pound corn with {x}', exemplified in (413).
- oblique applicative + oblique applicative: *uthúbadoⁿ* 'to push {x} into {y} with {z}', derived from the transitive verb *badóⁿ* 'to push {x}'. See §6.1.4.

As previously said, transitive verbs created by the addition of a causative instrumental prefix to an intransitive verb combine with many other derivational morphemes. This is the reason why these verbs can be considered basic transitive bases, likely to undergo any valency-changing or valency-preserving derivation. Table 4.6 shows a few examples.

As an illustration of all possible derivations from a transitive base, I have investigated all the attested examples of the verb *baxú* 'to write {x}', and all the attested examples of verbs derived from it. The verb *baxú* is composed of an unattested root **xú* (with voiced [ɣ]) and

[35] A peculiar morphophonological rule applies when the reflexive/reciprocal prefix *ki(g)-* is added to verbs taking the instrumental prefix *ga-*: **kig-ga-* becomes *kigtha-*.

Table 4.6: Instrumental verbs serving as transitive bases to further derivations

Intransitive base	Instrumental verb	**Operation**	Resulting verb
sé 'broken in two'	*thisé* 'to cut {x}'	*gi-* POSS	*gthíse* 'to cut {*one's own* x}' (DT)
sé 'broken in two'	**noⁿsé* 'to cut {x} by walking' ?	*u-* AP + *ki(g)-* REFL ?	*ukínoⁿse* 'to break through the ice with his feet, cutting his leg' (DD)
zhóⁿ 'to sleep'	*thazhóⁿ* 'to make {x} sleepy by talking'	*ki(g)-* RECP	*kigtházhoⁿ* 'to make each other sleepy by talking' (DD)
xtóⁿ '{*liquid*} to drop'	*gaxtóⁿ* 'to pour away {*liquid*}'	*á-* AP	*ágaxtoⁿ* 'to pour {*liquid*} on {x}' (DT)
údoⁿ 'to be good'	*thiúdoⁿ* 'to make {x} better'	*gí-* DAT	*gíthiudoⁿ* 'to make {x} good for {y}' (DT)
híde 'base, bottom'	*thahíde* 'to ridicule {x} (by talking)'	*wa* ANTIP	*watháhide* 'to ridicule people' (DT)

the instrumental prefix *ba-* 'by pushing'. The verb *baxú* is bivalent: 'to write {x}'[36] (One counterexample is presented in App.C.2). From this base, a large number of other verbs can be derived, and several nouns are created through derivation or conversion from the verbal forms.) This gives us a good example of most valency-changing derivations found in Umóⁿhoⁿ, and how they work and intercorrelate. An exhaustive list of all the occurrences of these words in Dorsey's texts and in OLIT-UNL (2018) is presented in Appendix C.2. Most of them are glossed.

[36]This is the same for other instrumental verbs formed on the root **xú*: *máxu* 'to carve {x}'; *thixú* 'to draw {x}'; *náxu* 'to brand {x}'.

Part II

Case studies

Chapter 5

Causative constructions in morphology and syntax

This chapter describes the causative derivations and causative constructions in Umóⁿhoⁿ. There are at least three ways to increase a verb's valency by adding a causer: with the causative bound root *-the*, with the series of instrumental prefixes, and with the causative verb *gáxe* 'to make'.

In **§5.1**, I describe the causative bound root *-the* and its derived forms: the different causative markers built on *-the*, their semantics, the positioning and scope of inflectional and derivational morphemes co-occurring with them, their recursivity, and their morphological and syntactic features. I then turn to the series of instrumental prefixes in §5.2 and §5.3. Section **§5.2** includes a brief introduction to the series of instrumental prefixes and the database (§5.2.1-5.2.2), as well as a thorough study of one prefix: *ga-* 'by force' ('by striking', 'by throwing', 'by force of the wind', etc.), its meanings, its syntactic functions (the causative being one of them), and the semantic analysis of *ga-* verbs as complex predicates. The results of §5.2 are generalized to the other instrumental prefixes in **§5.3**, and in §5.3.3 I focus on the causative function of those prefixes. I then present, in **§5.4**, the syntactic causative constructions using *gáxe* 'to make'. First I present the different meanings of *gáxe* and the syntactic constructions into which it is inserted, and I go into more detail about the causative constructions specifically. Finally I present the derived verb *giáxe* and compare it with *gáxe*.

In **§5.5** I present other causative constructions or causative-like constructions in Umóⁿhoⁿ, and in **§5.6** I make a comparison between the different causative constructions described in §5.1 through §5.5. A summary of the chapter can be found in **§5.7**.

5.1 The causative bound root *-the* and its derived forms

The causative bound stems have been introduced briefly in §4.2. There is in reality one basic causative bound root, *-the*, which is derived with dative (resulting in *-kʰithe*), benefactive-

possessive (*-ík^{h}ithe*), possessive (*-gíthe*) and reflexive-reciprocal (*-kíthe*). Although the marker *-the* and its derived forms are probably of verbal origin (Carter et al. 2006: 235-6), and still behave as verb stems in a number of ways (to begin with, by taking derivational prefixes), they also display some features of morphological markers, especially when the root *-the* is used alone.

In the following, I will first focus on a semantic analysis and comparison of the two most frequent causative markers, basic *-the* and dative *-k^{h}ithe*, and conclude with a few remarks about the semantics of benefactive-possessive *-ík^{h}ithe* (§5.1.1). I will then turn to the positioning and scope of derivational and inflectional markers in causative verbs, including causative verbs with possessive and reflexive-reciprocal markers (§5.1.3). I present recursive causative constructions in §5.1.4. Finally, I will contrast the analytic and morphological properties of these constructions in §5.1.5.

This section builds on the analysis of more than 200 causative verbs collected in the Toolbox lexicographic database. A representative portion of them is reproduced in Appendix E.1. Due to time constraints, I left out verbal forms that could be old causative verbs but that are no longer analyzable, or are not semantically compositional[1].

5.1.1 Semantic analysis: *-the* vs. *-k^{h}ithe*

The two most frequent types of causative verbs are those built with basic *-the* or dative *-k^{h}ithe*. As mentioned in §4.2, the basic causative root *-the* mostly occurs on intransitive stative verbs expressing states, such as *bíze* 'to be dry'. By contrast, the dative causative *-k^{h}ithe* often derives verbs whose subject (the new causee) is animate and has at least some control over the process. As a result of these distinct general features, most verbs are attested with either one or the other of the causative markers. Tables 5.1 and 5.2 illustrate typical causative verbs of each kind (See the sources and more examples in Appendix E.1).

Table 5.1: Typical *-the* causative verbs based on state verbs

Base		Causative verb	
áhigi	(to be) many, much	*áhigi_the*	to multiply $\{x\}$
bíze	to be dry	*bíze_the*	to dry $\{x\}$
ná_kade	to be hot	*nákade_the*	to heat up $\{x\}$
téxi	to be difficult, precious	*téxi_the*	to prize $\{x\}$

[1]For instance, *né_the* 'to start a fire' might be a causative verb, but the base **né* is not attested alone. The verb *ɣí_the* 'to promise $\{x\}$ to $\{VP\}$' might be the causative form of *ɣí* 'to give $\{x\}$ to $\{y\}$', but if this is the case, it is not a semantically compositional construction. Both verbs are discontinuous stems (§3.4.1), with person markers introduced before *-the*. Their analysis will require further investigation.

Table 5.2: Typical *-k^{h}ithe* causative verbs based on verbs denoting activities

Base		Causative verb	
baxú	to write $\{x\}$	*baxú_k^{h}ithe*	to make $\{x\}$ write $\{y\}$
gthí^n	to sit	*gthí^n_k^{h}ithe*	to cause / allow $\{x\}$ to sit
uthó^n	to hold $\{x\}$	*uthó^n_k^{h}ithe*	to make $\{x\}$ hold $\{y\}$
wach^{h}ígaxe	to dance	*wach^{h}ígaxe_k^{h}ithe*	to make $\{x\}$ dance

The examples presented in Tables 5.1 and 5.2 are not representative of all the causative verbs derived with *-the* and *-k^{h}ithe*, however, and more precise semantic criteria are necessary to account for the differences between them. Table 5.3 presents the semantic differences attested between both causative markers. As can be seen, it is divided into two blocks. On the one hand, in most examples the two causative markers have the same basic causative function – i.e., they introduce a causer – but are associated with distinct semantic features. These semantic oppositions are listed in the first block of Table 5.3, based on Dixon's (2000) list of semantic criteria that can represent relevant distinctions between different causative markers in particular languages (see §1.2.1.2). On the other hand, a few examples illustrate the applicative function of the "dative" morpheme. In such cases, the dative causative *-k^{h}ithe* introduces a causer and a beneficiary. All the oppositions shown in Table 5.3 are illustrated and commented upon below.

Table 5.3: Semantic contrasts between *-the* and *-k^{h}ithe* causative markers

	Basic *-the*		Dative *-k^{h}ithe*
	-THE AND *-K^{h}ITHE* AS DISTINCT CAUSATIVE MARKERS		
Verb			
state/action	(often: state)		no states (?)
transitivity	(often: intr-s)		–
Causee			
control	no control, no volition		–
volition			
	low animacy	$\neq$	*high animacy*
Causer			
directness	no intermediary causer		–
intention	*accidentally*	$\neq$	*intentionally*
	-K^{h}ITHE AS AN APPLICATIVE VARIANT OF *-THE*		
	CAUS		CAUS + benefactive

Two systematic distinctions between *-the* and *-k^{h}ithe* correspond to restrictions on *-the*,

whereas *-k^{h}ithe* lacks restrictions. The "basic" causative verbs (i.e., derived with *-the* alone) have causees devoid of volition and control, and have causers who act directly upon the causee, without any intermediary person. All causative verbs which involve either a causee performing an action on which they have control, or a causer acting through another person, will be encoded with the dative causative marker. This tripartite distinction is illustrated in (415) with the base verb *thé* 'to go there'. This base verb, like other movement verbs (*t^{h}í* 'to arrive here', *gthé* 'to go back there', etc.), is often derived into a basic causative verb meaning 'to send {x}' and applying to inanimate patients (typically letters to be sent). Because the causee is inanimate, it lacks volition and control. These verbs often take the directional prefix *shu-* 'towards where you are'. The basic causative verb *thé_the* 'to send {x}' is exemplified in (415a). The examples in (415b) and (415c) illustrate its dative counterpart in two different contexts. In (415b), the causee is animate, and goes of her own volition under the causer's order. Thus, she is in control of the caused event, which prevents the use of the causative *-the*. In (415c), the causee is inanimate, but the causer is not acting directly; he does not send the letter himself, but makes someone else send it. As a result, the dative causative must be used.

(415) Causative markers contrast: volition/control; directness

a. Basic *-the*: no volition / control, direct action

waxí^{n}ha tho^n shú-the-á-the
paper RND DIR-go-A1SG-CAUS

I send a letter to you (Dorsey 1891a: 94.6 / Mo^{n}ch^{h}u-mi^n-xti)
Literally: I make the letter go towards you.

b. Dative *-k^{h}ithe*: the causee controls the action (animate)

shi égasáni édi thé-k^{h}itha=biamá.
again morrow there go=DAT.CAUS=PX.REPORT

And she sent her thither again the next day. (Dorsey 1890: 289.6 / Nudó^n-axa)

c. Dative *-k^{h}ithe*: the causer does not act directly

tha-nó^n'o^n ta=i égo^n waxí^{n}ha shu-thé-wi-k^{h}íthe.
A2-hear IRR-PP as paper DIR-go-A1SG/P2-DAT.CAUS

As I wish you to know this, I cause this letter to be sent to you.[2] (Dorsey 1890: 519.1 / Shúde-gaxe)

Thus far, I have not found any exception to these two restrictions on the use of the basic causative marker. The distinction between lack of control and lack of volition needs further investigation. Example (416) illustrates the use of a basic causative marker on the verb *shkó^n* 'to move', which is an intransitive active verb. The causative verb *shkó^n_the* 'to make {x} move' is used with a 1SG causee, encoded as a patientive argument, and this causee is definitely non-volitional in (416), as he defies people to make him move. It is not clear whether the verb

[2] Dorsey writes *tai-égo^n* as one word across two lines, glossed 'in order that'.

denotes a direct, physical intervention depriving the causee of control, or whether the causee is deprived of volition only.

(416) *théthu skéwo^n-xti* *azhó^n* *thó^{n}zha* *ébe shkó^n-o^n-the* *tá, á=biamá*
here long.time-INTENS A1SG-lie although but move-P1SG-CAUS irr say=PX.REPORT
Wasábe *ak^{h}á.*
Black.Bear PX.SG
"Though I should lie here a very long period, who could possibly dislodge me?" said the Black Bear. (Dorsey 1890: 16.3 / Joseph La Flesche)

The basic causative *-the* sometimes has a tropative meaning, indicating that the causer considers the causee to have the property expressed by the base (§1.2.3). Obviously, the causee has absolutely no control over this, and this interpretation is not attested with *-k^{h}ithe*. One glossed example is found below, in (427). Other examples involve causative verbs created on bound roots, such as *pí_the* 'to think well of {x}', 'to love {x}' (from **pí* 'good'). The root *-the* also has a tropative interpretation when it applies to kinship terms and a few other nouns with a denominal and causative function. One example is *ihó^n_the* 'to have / consider {x} as one mother' (from *ihó^n* 'their mother'). Two nouns created this way are 'agent' (they consider him their father) and 'president' (they consider him their grandfather) (see §2.4.8).

Table 5.3 shows two contrasts in italics. These are contrasts that are attested in particular examples, especially in dictionary definitions, but are not systematic. The contrast between low and high animacy is parallel to the causee's control/volition parameter. Dorsey sometimes includes animacy features in his dictionary definitions of causative verbs. The distinction between animate and inanimate is partly attested in the difference between basic causative *thé_the* and dative causative *thé_k^{h}ithe*, in (415). The causative verbs *t'é_the* and *t'é_k^{h}ithe*, derived from *t'é* 'to die', are defined in different ways by Dorsey (n.d.b), as shown in (417) and (418) respectively. (I have also included the definition of *t'é_k^{h}ithe* by OLIT-UNL 2018.) Some of the definitions suggest an opposition between human vs. nonhuman causee. Others illustrate another opposition: the causer's intention or lack thereof. The basic causative *-the* sometimes involves accidental causation, as opposed to *-k^{h}ithe* which presupposes intentional causation. Despite the definitions provided by Dorsey, many instances of *t'é_the* involve killing another human being by direct intentional action (e.g., by shooting at them). Maybe Dorsey means that even in such cases, the actual death was not an intended result when *-the* is used. Unambiguous examples illustrating this contrast remain to be found[3].

(417) Meanings of the basic causative verb *t'é_the*
a. "to cause {x} to die; to kill {x} by accident" (DD) → no unambiguous example found
b. "to slaughter {*cattle*}" (DD) → see (319) p. 223.

[3] A few other examples from Dorsey's dictionary suggest the same contrast. For example, he presents the verb *uhí_the*, which he defines as: "to cause (accidentally) him, not a relation, to win from another", derived from *uhí* 'to win from {x}'.

c. "to wound {*a foe*}" (DD) → no unambiguous example found

(418) Meanings of the dative causative verb *t'é_kʰithe*

a. "to kill {*a man*} purposely, to murder {*x*}" (DD) → no unambiguous example found. Maybe in Dorsey (1890: 162.7)

b. "to kill {*x*} in order to give it to {*y*}" (DD) → see Dorsey (1890: 595.4)

c. "to kill {*x's horse, etc.*} in revenge or for his disadvantage" (DD) → see Dorsey (1890: 17.1)

d. "to let {*x*} die" (U) → see OLIT-UNL (2018: 556) and perhaps Dorsey (1890: 369.6)

According to OLIT-UNL (2018: 425), the dative causative means that "one person [the causer] allows or makes it possible for another person to do the verb". This definition fits well with the directness parameter in Table 5.3, because it refers to indirect causation[4]. However, such a meaning of the causative marker is attested nowhere in Dorsey's texts, so it is probably a recent development. It is attested at least once in Rudin et al. (1989-92), in a narrative, if we rely on the translation. The sentence is reproduced in (419).

(419) *Shóⁿge ama wasékʰa ama goⁿ, níkashiⁿga zhúge-a=noⁿ=ma é pahóⁿga*
horse PX.PL quick PX.PL as person body(?)-?=HAB=OBV.PL that first
the-wa-kʰíthe=noⁿ=i tʰe, wa-gtháde.
go-O3PL-DAT.CAUS=HAB)PL EVID O3PL-stalk
The horses were faster, so they used to let the people on foot go first, stalking them [the buffaloes]. (Rudin et al. 1989-92: T10A, narrative, 59 / Coolidge Stabler)

As observed in Tables 5.1 and 5.2, the basic causative root *-the* typically derives intransitive stative verbs, while the dative causative *-kʰithe* typically derives intransitive active verbs or transitive verbs. However, there are no absolute restrictions on transitiveness or base verb category when choosing the causative marker. Rather, the verb categories that commonly combine with each causative stem are a result of the semantic restrictions that relate to the causee's control and volition, and the directness of the causation. For instance, there are two attested examples of *-the* deriving transitive verbs, but in each case the transitive verb receives a passive reading. Both verbs are related: *noⁿ'óⁿ_the* 'to cause {*x*} to be heard' (OLIT-UNL 2018)[5], and *unóⁿ'oⁿ_the* 'to cause {*x*} to be heard about' (DD). The second one is exemplified in (420).

[4]In Dixon's (2000) examples, indirect causation always refers to causation performed through another person. Shibatani & Pardeshi (2002: 90) propose an explicit definition of what "indirect causation", specifying that "[it] refers to conceptualization of a causative situation as involving two relevant sub-events that have two distinct temporal profiles and two potentially distinct spatial profiles." In view of this definition, the meaning that OLIT-UNL (2018) assigns to the dative causative *-kʰithe* is an instance of indirect causation.

[5]The textbook gives "to cause to hear" as a definition (p. 420), but in both attested examples, the passive reading of *noⁿ'óⁿ* 'to hear {*x*}' is used.

(420) Basic causative marker on a transitive verb

Wuhu + + +! káshi-xti-égo^n u-nó^n'o^n-ó^n-the áho^n, ethégo^n=biamá.
wuhu a.while-INTENS-thus OBL-hear-P1SG-CAUS XCLM think=PX.REPORT

"Wuhu+! They have heard about me for a very great while," thought Ishtinik^{h}e (Dorsey 1890: 40.4 / Nudó^n-axa)

The agentive argument of the transitive verb *unó^n'o^n* 'to hear about {x}' is left undetermined in the causative verb, leaving the patientive argument on its own. The patientive argument then fills the causee position in the causative predicate[6]. This is made explicit by the position occupied by the patientive person marker *-o^n* (see §5.1.3). Example (420) shows that the restrictions on the application of the basic causative marker *-the* are better described in terms of semantic features than syntactic features. In the same way, bivalent stative verbs are derived with *-the* (example: *uthúhi_githe* 'to make {*one's relative*} have enough of {y}').

Returning to Table 5.3, we see that the dative morpheme in causative constructions sometimes retains its original meaning of acting on someone's behalf, at someone's request, and/or for someone's benefit. It could be seen as a subcategory of indirect causation; the dative causative is used when the subject participant of the causative verb is acting indirectly, through an intermediary (in (415c) = original causer), or when the subject participant is acting on someone else's behalf or at their request (= intermediary causer).

Examples (421) and (422) illustrate the benefactive function of *-k^{h}ithe*, on intransitive base verbs. In the first, the same participant is both causee and beneficiary, so the verb valency increases by only one. In the second, one participant is the causee (the turkey 'caused to die'), and another is the beneficiary, so the verb valency increases by two[7]. Note that in (422), the beneficiary is encoded on the verb with the patientive person marker.

(421) *Gó^n Mí^{n}xa-zhí^{n}ga ishtá-théde t^{h}e só^n-k^{h}ithá=biamá Háxige ak^{h}á.*
and goose-small eyes-next.the.corners(?) VERT pale-DAT.CAUS=PX.REPORT H. PX.SG
And Haxige made the feathers whitish that were next to the outer corners of the Duck's eyes. (Dorsey 1890: 244.7 / Frank La Flesche)

(422) *"Wa! k^{h}agé, wi^n t'e-ó^n-k^{h}ithá=ga há," á=biamá Ishtínik^{h}e ak^{h}á.*
Oh friend one die-P1SG-DAT.CAUS=IMP.M DECL.M say=PX.REPORT I. PX.SG
"Oh! younger brother, kill one [wild turkey] for me," said Ishtinike. (Dorsey 1890: 595.4 / George Miller)

[6]This analysis is similar to the one presented by Alsina (1992) for Chichewa.

[7]In §4.4.1.3 we see that the dative applicative marker is also likely to be used to assign a beneficiary or maleficiary semantic role to an argument that is already part of the argument structure of the base verb. In such cases, it can be considered a valency-rearranging alternation .

5.1.2 Other derived causative stems

The three other causative stems briefly described in §4.2 are the possessive *-githe*, the reflexive-reciprocal *-kithe*, and the benefactive-possessive *-íkʰithe*. In the data gathered to date, *-githe* is a variant of the basic causative *-the*; it derives base verbs describing states or actions that are not under the control of the causee. The reflexive-reciprocal causative *-kithe* shows the same polysemy as the reflexive-reciprocal marker *ki(g)-*: it can have a reflexive, reciprocal, and autobenefactive meaning (§4.7). A few examples of *-githe* and *-kithe* will be shown in §5.1.3. The benefactive-possessive causative marker *-íkʰithe* is very scarcely attested, as previously mentioned. The two examples found in textual corpora so far show different patterns, however. The first, in (423) and already exemplified in Chapter 4, shows a benefactive-possessive derivation of a basic causative verb (*tha'é_the* 'to pity {x}', literally: to make / consider {x} pitiable). The second one, in (424), shows a benefactive-possessive derivation of a dative causative verb referring to an indirect causation (using an intermediary). The base verb means 'to send' and is similar to the construction illustrated in (415c).

(423) Benefactive-possessive derivation from a basic causative verb

Kʰagé-ha, wániⁿ niⁿkʰé shíⁿgazhíⁿga wiwíta éskana
friend-VOC O3PL.have A2.AUX child POSS:1SG OPT
tha'é-iⁿthíⁿ-tha-kʰithé koⁿbthégoⁿ.
pitiable-P1SG(1)-A2-BEN.CAUS(2) A1SG.hope

0 friend, you who have the control of the Indian children (Capt. Pratt), I hope that you will cause my child to be treated kindly. (Dorsey 1891a: 89.14-6 / Moⁿchʰú-hiⁿ-xti)
Event structure: the causer makes the beneficiary's relatives (=causee) be pitied for the beneficiary.

(424) Benefactive-possessive derivation from a dative causative verb

Uxthé-xchi íe tʰe xátha tʰí-iⁿthíⁿ-tha-kʰithé koⁿbthégoⁿ,
quickly-INTENS word VERT back.again arrive-P1SG(1)- A2-BEN.CAUS(2) A1SG.hope
kʰagé-ha.
friend-VOC

My friend, I hope that you will send me word back very soon. (Dorsey 1890: 715.13 / Louis Sanssouci)
Dorsey's interlinear gloss: "you will cause some one to bring my own hither".
Event structure: the causer makes the beneficiary's property (=causee) arrive to him (through an intermediary). (based on Dorsey's interlinear gloss)

In both cases, the causer is the beneficiary, and the benefactive-possessive marker links the causer/beneficiary to the patient. This contrasts with (425), a unique example where the possessive prefix *gi-* is prefixed to the dative causative marker *-kʰithe* in order to express a possessive relation between the causer and the causee. The causee is in this case a body part of the causer, apparently used metonymically.

(425) *shet^{h}ó^n wi-tígo^n o^{n}thó^{n}gu-názhi^n-bázhi, no^{n}bé t^{h}e*
that.far POSS:1SG-grandfather A1PL.OBL:uthu-stand=PL.NEG hand VERT
washkó^n-o^n-gí-k^{h}itha=i.
make.efforts-A1PL-POSS.DAT.CAUS=PL
We have not yet depended on the government for a support; we have caused our hands to make efforts. (Dorsey 1891a: 70.7 / Gahige)
Event structure: the causer makes his own causee make efforts

The benefactive-possessive causative marker does not seem to be very productive. Although it would be expected in (426), which describes the same situation as in (423) and (424), and where a non-causative verb is conjugated with the benefactive-possessive prefix, only a dative causative verb is used.

(426) *"íshibázhi, waií^n wéagi-'í^n=i=ga", á=bi egó^n, Íshibázhi*
I. robe B1PL-carry=PL=IMP.M say=PX as I.
'í^n-k^{h}ithá=biamá.
carry-DAT.CAUS=PX.REPORT
"Íshibázhi, carry them [our robes] for us" said they; and they made him carry them. (Dorsey 1890: 386.6 / Joseph La Flesche)

5.1.3 Positioning and scope of inflection and derivation

The Umó^{n}ho^n verb template has been presented in Chapter 3, §3.4. It shows that the derivational and inflectional prefixes follow a rather rigid order, being constrained by different rules but not by scope (which is why the verbal prefixes of Umó^{n}ho^n have templatic characteristics). In Chapter 4, §4.9, we have seen that this template can be altered when lexicalization processes result in opaque formations; in such cases, new derivational prefixes can be inserted leftwards of demotivated prefixes which should normally be further from the root.

According to Koontz (1989a), the causative markers take the slot of the root (slot 0 in Table 3.4, p. 176), and the lexical verb then takes the slot of an incorporated stem. This explains why the person markers for the causer and the causee are not prefixed to the lexical verb stem, but to the causative stem, as in (427) and (428). The causer is encoded with the agentive prefix, and the causee is encoded with the patientive prefix.

(427) -4 -3 0
Eát^{h}o^n gthó^{n}thi^n- o^n-thá- the a.
why foolish- P1SG-A2- CAUS Q
Why do you consider me a fool? (Dorsey 1890: 435.16 / Páthi^n-no^{n}pázhi)

(428) -4 -3 0
xagá=zhi a, thí thi-síhi hithá- a-thi- k^{h}itha.
cry=NEG IMP.F you INS:NEU-clean bathe- A1SG-P2- DAT.CAUS
Don't cry, I will make you have a bath to clean you. (my translation) (Rudin et al. 1989-92: T14, Babytalk discussion / Bertha Wolfe)

When the causative verb derives a transitive verb, the result is a three-argument predicate with a causer, a causee, and a patient, the latter being the object of the base verb. In such cases, the object of the base verb remains in place, i.e. prefixed to the base verb. A three-argument causative construction is illustrated in (429). The object of the base verb is *wa-* P1PL, and the causee is *wa-* O3PL, prefixed to the causative marker.

(429) *wákʰihíde-wa-kʰitha=í=ma, ithádithaí=ma, íⁿshte*
P1PL.watch.over-P3PL-CAUS.DAT=PL=PX.PL agent=PX.PL as.it.were(?)
wá-thi-udóⁿ=bi ethégoⁿ=noⁿ gthiⁿ tʰé.
A1PL-INS:NEU-good=PX think=HAB sit vert.
He [the president] continues to think that the agents whom he employs to watch over us are benefiting us. (Dorsey 1890: 757.13)

So, ditransitive causative verbs can index up to three arguments, two encoded as patientive (causee and patient) and one as agentive (causer). The different positions of the patientive person markers prevent ambiguities. Another example is shown in (430) (see also (432a)).

(430) *Eátʰoⁿ wanáshe óⁿ-thize-wa-thá-kʰitha=í a?*
why soldier P1SG-take-O3PL-A2-DAT.CAUS=PP Q
Why did you cause the soldiers to take me? (Dorsey 1890: 126.4 / Joseph La Flesche)

The positioning of person markers in causative verbs can be explained in terms of scope: the object of the base verb remains within the scope of this verb, while the causee and causer have a wider scope, and are prefixed to the causative marker. The same is true of derivational prefixes and negation. Grammatical morphemes such as the reflexive-reciprocal, possessive, antipassive prefixes and the negation marker can apply only within the scope of the caused event, or within the wider scope of the causing event. In the first case, they will attach to the base verb. In the second case, they will attach to the causative marker. These contrasts are typified in examples (431) through (434). The event structure provided with each example highlights the scope of the grammatical morphemes in each case. They represent the caused event, between brackets, as embedded in the causing event.

(431) Reflexive/reciprocal marker on causative verbs

a. *Shi thé ushté amá ki-gthóⁿ-wa-kʰithá=biamá.*
and this remaning PX.PL RECP-marry-O3PL-DAT.CAUS=PX.REPORT
And they caused the rest to marry one another. (Dorsey 1890: 86.8 / Nudóⁿ-axa)
Event structure: the causers make the causees [marry each other].

b. *Wénoⁿde-á-ki-the tatʰé áhoⁿ*
satisfied-A1SG-REFL-CAUS IRR EXCL.M
I will make myself full in a while! (Dorsey 1890: 62.14 / Páthiⁿ-noⁿpázhi)
Event structure: the causer makes himself [full].

(432) Possessive marker on causative verbs

a. *shó^n Umó^{n}ho^n-zhí^{n}ga=ma ak^{h}ítha wa-gí-no^n'ó^n-wa-k^{h}ithá=ga!*
and Umó^{n}ho^n-small=OBV.PL both O3PL-POSS-hear-O3PL-DAT.CAUS=IMP.M
Cause both of the Omaha young men who are with you to hear about (the deaths of) these two. (Dorsey 1890: 653.16 / Mo^{n}ch^{h}ú-No^{n}ba)
Event structure: the causer makes the causees [hear about their relatives]

b. *Gá=biamá kéto^{n}ga: Wéshno^n-o^n-thá-gi-the, á=biamá.*
say=PX.REPORT turtle-big pleased-P1SG-A2-POSS-CAUS say=PP.REPORT
The Big Turtle said as follows: "You make me thankful". (Dorsey 1890: 261.19 / Te-úko^{n}ha)
Event structure: the causer makes his related causee [be glad]

The negation marker can attach to the base verb or to the causative marker. The former case, however, is not very well attested. It appears on verbs that are lexicalized with the negation marker, like *gíthazhi* 'to be sad' (literally, 'not to be glad'), or on antipassive causative markers (see (434)).

(433) Scope of the negation marker in causative verbs

a. *égo^n=n[ó^n] shti ukíte gítha=zhi-wa-thá-the=nó^n=i.*
thus=HAB too nation glad=NEG-O3PL-A2-CAUS=HAB=PP
You have been making the nations sad by the course which you have been pursuing. (Dorsey 1890: 708.3 / Unázhi^n-ska)[8]
Event structure: the causer makes the causees [not glad].

b. *shó^{n}ge mí^{n}ga t^{h}ó^n, Nelly, wa-thíto^n-k^{h}ithá=zhi=ga, xthá eshé i^{n}wí^n-tha-na.*
horse female OBV.STD N. ANTIP-work-DAT.CAUS=NEG=IMP.M lean A2.say P1SG(1)-A2-tell(2)
You have told me that the mare Nelly is lean; therefore do not allow any one to work her. (Dorsey 1891a: 116.3 / George Miller)
Event structure: the causer does not make the causee [work].

The antipassive marker *wa-*, described in Chapter 7, also shows some scope differences. In dative causative verbs built on transitive verbs, the antipassive is placed on the base transitive verb and saturates the object position. This is what happens in (433b); the transitive verb *thitó^n* 'to work (on) {x}' is derived into *wathíto^n* 'to work'; 'to work on various things'. By contrast, the antipassive *wa-* is often prefixed to the basic causative marker *-the* to suppress the causee and create some property words, like in (434). Antipassive causative *-wathe* regularly occurs on negative verbs.

(434) *núzhi^{n}ga uné atha=í t^{h}e, i^{n}dé tho^n íkipahó^n=zhi-wá-the t^{h}édi.*
boy seek go=PX EVID face RND RECP.recognize=NEG-CAUS when

[8]This sentence starts with *égo^n né shti* in the text, but the gloss refers to a note which says that according to Frank La Flesche and 'W.' (Wajepa?), it should be *=no^n*. The example here is modified accordingly.

when it was too dark for persons to distinguish one another's faces, he started to seek the boy. (Dorsey 1890: 624.9-10 / George Miller)
Event structure: an inanimate entity (=causer) makes people [not recognize each other's faces].

5.1.4 Recursivity

Recursive causative constructions can be found in Umó^{n}ho^n, but they seem to be very rare, and almost no examples are found in Dorsey's (1890, 1891a) texts or Rudin et al.'s (1989-92) transcriptions. OLIT-UNL (2018) and Dorsey (n.d.b) provide several examples of verbs taking double causative markers. Almost all of them have the sequence *-the-k^{h}ithe*; some causer makes a causee act directly on an object. The causee necessarily controls his action, which is why *-k^{h}ithe* is used as the second causative marker. OLIT-UNL (2018) provides several examples of such double causative verbs in sentence exercises, like the one in (435) with *bíze_the_k^{h}ithe*.

(435) *Unó^{n}zhi^n bíze-a-the-o^n-k^{h}itha.*
shirt dry-A1SG-CAUS-P1SG-DAT.CAUS
S/he let me dry my shirt. (OLIT-UNL 2018: 555)

Despite the fact that Dorsey has some *-the-k^{h}ithe* causative verbs in his dictionary (like *t'é_the_k^{h}ithe*), the only attested textual example found so far is *t'é_kithe_the* 'to cause {x} to kill themselves', reproduced in (436)[9].

(436) *kig-thí-bthaze t'é-ki-the-wá-the mo^{n}thí^n=biamá.*
REFL-INS:NEU-*open die-RECP-CAUS-O3PL-CAUS walk=PL.REPORT
He went about, causing them [the Buffaloes] to kill themselves by tearing themselves open. (Dorsey 1890: 141.11 / Mikasi-Nazhi)

Sequences of several causations in one sentence are achieved in Dorsey's texts by means of multiple-clause constructions and verbs that are not purely causative. One example provided by Dorsey (1890: 428.19) combines *t'é_the* 'to kill {x}' and *shí* 'to ask {x} to {VP}', as exemplified in (501) p. 332. (See also §5.5 for a presentation of constructions using *shí* 'to ask {x} to {VP}'.)

5.1.5 Morphological and syntactic features of causative bound roots

As previously said, the bound causative root *-the* is probably of verbal origin, and retains some features proper to verb stems. But it also displays some features which suggest that *-the* has grammaticalized and should now be considered a causative suffix. The same contradictory

[9] Dorsey (n.d.b) also provides the verb *t'é_the_the* 'to cause (accidentally) him, no relation, to kill (accidentally) a person or animal'. This is presented as a sequence of accidental events, which implies no control or volition, and explains why *-the* can be used twice.

features seem to be found in other Siouan languages, as reflected in the literature.

The cognate causative markers *-yA* and *-khiya* in Lakhota are considered to be morphological causatives by Ullrich (2018: 56). Quintero (2004: 169) labels the Osage causative marker *ðe* a "morphological causative", but on the same page she calls it a "causative stem". Helmbrecht (2009) considers the cognate Hoocąk marker *=hii* to be a verb, but specifies that it is certainly "the most grammaticalized form of all causative verbs. Its personal inflection is irregular to some degree; it tends to be cliticized to the preceding verb". Helmbrecht (2009) considers all cognates of this marker in different Siouan languages to be instances of analytical causative constructions[10].

In fact, as Shibatani & Pardeshi (2002: 106) show, there are no clear-cut boundaries between the different formal categories of causative constructions, but rather they form a continuum[11]. The causative marker *-the* and its derived forms display some features that suggest they form periphrastic causative constructions, and others that suggest they have become grammaticalized (in particular *-the*). Below, I describe these contradictory features.

Syntactic causative construction features. First of all, in Umóⁿhoⁿ, person markers on verbs are prefixes; they can accordingly attach to lexical bases or other prefixes, but not to suffixes. With causative verbs, person markers are prefixed to the causative stems. This unambiguously shows that these causative markers were originally verbs, and that they retain some stem-like properties. Likewise, *-the* combines with derivational prefixes, and it also undergoes Ablaut, a morphophonological change that affects the last vowel of verb stems (§3.5.2).

Secondly, when the base verb is transitive, the encoding and positioning of the three arguments (causer, causee, patient) is reminiscent of syntactic constructions involving clausal complements with argument raising (§2.5.5). Two arguments can be encoded with the same grammatical role (patientive), but the different positioning of each is linked to the scope, making the structure different from the "double object marking" presented in §4.1.4.4. Such constructions are easily analyzed as cases of embedding, where the verb of the caused event retains its object. The examples of derivational prefixes being prefixed to the base verb or to the causative marker according to their scope can be analyzed similarly.

Grammaticalization features. The causative marker *-the* and its derived forms have no lexical meaning (in contrast to the instrumental prefixes), and *-the* is not an independent

[10]Helmbrecht posits an opposition between analytical causative constructions and morphological causative constructions. He does not distinguish between monoclausal and biclausal causative constructions.

[11]Shibatani & Pardeshi (2002: 106) provide examples of blurred boundaries between bi-clausal and monoclausal periphrastic constructions on the one hand, and morphological causative constructions and lexical causatives on the other. However, although they comment that many affixal causative markers historically come from verbs, they do not discuss the boundary between syntax and morphology, which would be of interest here.

verb, like ***gáxe*** 'to make {x}' which functions as a causative marker among other functions. The causative stems are usually treated as derivational markers, since the causativized verbs are entetered as dictionary headwords; this is usually not the case of analytic causative constructions[12].

The basic causative marker ***-the*** forms a phonological unit with the base to which it is suffixed, and is always written together with the base as one word. There are also a few cases where a causative verb using ***-the*** is derived with the instrumental applicative prefix ***í-***. Example (437) presents the basic causative verb ***nié_the*** '{*bodypart*} to hurt', where the possessor is indexed with a patientive person marker. As usual, the person marker is prefixed to the causative stem. The second part of the sentence contains a verb derived from ***nié_the***: ***ínie_the(†)*** '{*instrument*} to hurt {x}'. As can be seen, in this case the person markers move to the front of the verb. Thus, the sequence ***nié_the*** acts as a single stem when it is derived with an applicative prefix[13].

(437) ***sí*** ***ni-ó^n-the*** ***t^{h}ethó^n*** ***zhó^{n}zhi^{n}ga*** ***o^{n}thó^n-nié-the*** ***k^{h}é*** ***bthíze***
foot *pain-P1SG-CAUS which(?) splinter AP:INS.P1SG-*pain-CAUS HORIZ A1SG.take
édego^n, ...
but
my foot was hurt, and I took the splinter which hurt me; but .... (Dorsey 1890: 219.9 / Joseph La Flesche)

Such evidence is not found for other causative stems, however. The authors of previous documentation all reveal in their spelling a tendency to treat the shortest causative markers as more tightly bound to their base verbs. Dorsey writes all causative markers as a single word together with the base verb except for the benefactive-possessive ***-ík^{h}ithe*** which is actually written as an independent word. Saunsoci & Eschenberg (2016) write dative ***k^{h}ithe*** as an independent word (p. 138), but write the other ones together with their base as one word (e.g., p. 150). OLIT-UNL (2018) separates ***-k^{h}ithe*** from the base with a hyphen, but not ***-the***. These are intuitive choices, as far as I can tell, because to date no explicit study has been made of the nature of causative markers and their degree of boundness to their bases.

As seen in §1.4.4.3, causative constructions expressed by complex predicates do not seem to allow for recursivity, while analytic constructions do, as in English: "she made me make him finish his homework". Recursivity of morphological causative markers is also known to be possible in some languages, e.g. Adyghe (Testelets & Lander 2017: 959)[14]. So, the causative

[12]For instance, causative constructions with ***gáxe*** are generally not included in Dorsey's dictionary. It is more frequent in the Sabler lexicon (Stabler & Swetland 1977), but this lexicon was first an English-to-Umó^{n}ho^n lexicon.

[13]As specified in §3.4.2, Koontz (1989a) assumes that when a causative stem is added, the base verb stem takes the preverb slot in the prefixal template (see Table 3.5). It is normal for the oblique prefix to be placed at the left edge of the preverb, and to attract the person markers. In any case, this shows that causative verbs fit into the verb template of §3.4, and behave like one word.

[14]It is difficult to find examples of recursive morphological causatives where both markers are productive and

constructions attested in Umóⁿhoⁿ suggest that they can be considered morphological recursive constructions, or analytical constructions with one clause embedded in the other, but not complex predicates. See more discussion in §5.6.3.

5.2 Case study: semantics and syntax of *ga-* 'by force'

In this section, I analyze the semantic and syntactic functions of the prefix *ga-*. I use "syntactic functions" to refer to the change undergone by a base when *ga-* is prefixed to it (derivation into a verb, or change of a verb's verb class, among the verb classes presented in §4.1). 'Semantic functions', refers to the way that the lexical meanings of *ga-* and the base combine to create the meaning of the instrumental verb.

In §5.2.1 I provide an overview of all Umóⁿhoⁿ instrumental prefixes. I then present the databases used for the analysis of instrumental prefixes in general, and *ga-* in particular (§5.2.2). The three remaining subsections focus on the prefix *ga-*, describing its different meanings (§5.2.3), its syntactic functions (§5.2.4), and how it semantically combines with its bases (§5.2.5).

5.2.1 Instrumental prefixes: overview

In many Native languages in the western part of North America, we find a series of affixes with similar functions and meanings, indicating which movement, instrument, body part or natural forces take part in a verb process. (See description and map in Mithun 2015: 55.) The name "instrumental prefixes" (or suffixes) has been widely used to refer to them, at least since Sapir (1930), writing about Southern Paiute (Thornes 2013). They apparently constitute an areal feature of the western part of the continent (mainly in the United States, less so in Canada), a hypothesis reinforced by the fact that the Numic branch of Uto-Aztecan languages is the only one spoken in this area, and also the only one using such affixes (Mithun 2015: 54)[15]. Mithun (1999: 119) notes that despite the diversity of the languages in which they are attested, the series of instrumental affixes found in each language remain remarkably similar; they denote body parts, movements, instruments and natural forces[16]; and they tend to evolve towards a neutral causative function. Finally, many languages that have a series of instrumental affixes also have a group of bound verbal roots which are only attested with them.

have a causative function. Testelets & Lander (2017) observe that "the second causative marker sometimes is absent and the causative semantics is only implied from the presence of the 'unexpected' dative complex". Jacques (2021: 847) mentions constructions with double morphological causative markers in Japhug (Gyalrongic), but one of them takes an instrumental applicative function.

[15]See also Thornes (2013) on instrumental prefixes and causation in Northern Paiute, a Numic language of the Uto-Aztecan family.

[16]Mithun does not mean that the instrumental affixes in any given language is linked to one of these categories of meaning, but, more remarkably, that each language's series tends to cover several or all of these categories.

Table 5.4: Instrumental prefixes in Umóⁿhoⁿ: common meanings

Prefix	Glose	Meaning
tha-	INS:mouth	'with the mouth' (eat, drink, speak, swallow, bite, etc.)
thi-	INS:pull	'by pulling'; 'with the hands'; neutral causative function
ba-	INS:push	'by pushing'; 'by punching'; 'by pounding'
bi-	INS:press	'by pressing'; 'by bearing on'; 'by rubbing'; 'by blowing with the mouth'
ga-	INS:force	'by striking'; 'by falling'; 'due to the force of water or wind'
noⁿ-	INS:foot	'with the foot/feet' (walk, run, dance, kick, trample, etc.); 'by a machine'; 'by an unknown force'
mú-	INS:shoot	'by shooting with a weapon'; 'by the effect of water or wind'
má-	INS:blade	'with a blade' (mainly cut)
ná-	INS:temp	'by extreme temperature', 'by heat', 'by fire'

Siouan languages possess a series of nine instrumental prefixes in all branches of the family (except for the prefix *bi-* 'by pressing', which may be restricted to Mississippi Valley Siouan). They have been the object of several diachronic studies (Carter et al. 2006, Rankin n.d.). All of them are attested in Umóⁿhoⁿ. The four main categories of meaning (body parts, movements, instruments, natural forces) are represented in Siouan, as can be seen in (438):

(438) A few examples of instrumental verbs
tha-sé 'to cut {x} by biting' (*tha-*: the mouth) → body part
ga-sé 'to chop {x}' (*ga-* here: abrupt/sudden strikes and movements) → movement
má-se 'to cut {x} with a knife' (*má-*: a blade) → instrument
ná-se 'to be burned apart by the fire' (*ná-*: fire) → natural forces

Table 5.4 presents the nine instrumental prefixes of Umóⁿhoⁿ and the meanings commonly associated with them (based on Dorsey n.d.b, Rankin n.d., Marsault 2016). These meanings are easily identifiable in a number of occurrences where the prefixes are used in transparent derivations with a causative meaning, such as *uxpáthe* 'to fall' (intr-s) → *ubáxpathe* 'to make {x} fall by pushing him/her/it' (tr). However, the instrumental prefixes are also found in lexical units where their original meaning is hardly recognizable (such as *batʰé* 'to sew {x}', with the prefix *ba-* 'by pushing' and a root **tʰe* of unknown meaning). They combine with a large number of bound roots which sometimes have a retrievable meaning, and sometimes do not. This is another widespread feature of the instrumental affixes.

Instrumental prefixes attach to diverse bases[17] (verbs, nouns, adverbs, bound roots), and

[17] I use the term 'base' rather than 'root' because instrumental prefixes can derive constructed stems. It is also possible for an instrumental verb (a verb with an instrumental prefix) to be derived again with a different one. The word 'stem' is not convenient either, because the instrumental prefix becomes part of the stem. The word 'base' avoids generalization about its nature.

derive 'instrumental' verbs with different valency values. Table 5.5 illustrates this diversity with four bases, each derived into several instrumental verbs. Each column represents a distinct base and all the instrumental verbs attested with it. In the first column, containing the root *xóⁿ* 'to be broken', the prefixes have a causative function. (See a few glossed examples in §4.2.2.) The third column, with *óⁿba* 'day', typifies the denominal function of the instrumental prefixes. It can be seen that all instrumental verbs created from one root share the same valency value, except for those derived with *ná-* 'by extreme temperature'[18], which are always intransitive (cf. §5.3.4).

Instrumental prefixes in Siouan languages have been described as regularly having a transitivizing function, as Helmbrecht (2002a) finds for Hoocąk. He observes that the manjority of instrumental verbs in Hoocąk are built on bound roots, and that sometimes the prefix meaning is difficult to identify. For Lakhota, Ullrich (2008: 740) comments that instrumental verbs are often transitive, but can also be intransitive stative.

The prefix *ga-* and its cognates in other Siouan languages are glossed 'by force' by Rankin (n.d.), a gloss which is used here too. The original meaning is apparently 'to strike', and Catawba still retains it as an independent verb: *ka?* 'to strike' (Siebert 1945: 103). In Umóⁿhoⁿ, Dorsey (n.d.b) describes *ga-* as follows:

> "It shows that the action expressed by the verb is performed by striking, as with an ax, hoe or club, or by the object falling and striking against the ground, etc.; It also shows effect of wind or water."

5.2.2 Database and methodology

A database of instrumental verbs was created to analyze the syntactic functions and semantic values of the instrumental prefixes. As noted in §2.1.2, the available documentation on Umóⁿhoⁿ provides data of a different nature: "lexicographic data" and "textual data". The first corresponds to dictionary entries or lexicons. The second is that which presents complete sentences in Umóⁿhoⁿ (sentences from texts, or isolated sentences from exercises, examples, or elicitation). Both types are used as complementary data sources for the study of instrumental prefixes.

The database used for this survey was created by first searching all possible instrumental verbs in the textual corpora[19], and especially in Dorsey (1890, 1891a). More than 520 instru-

[18]The meaning 'by extreme temperature' seems to be common to all Siouan languages that possess a cognate of *ná*. In all the Umóⁿhoⁿ textual data searched so far, *ná-* is always associated with heat (fire, heat of the sweat-lodge, boiling water, heat of the sun). Two definitions in Dorsey's dictionary also refer to extreme cold: *ná_ku* '{*inanimate*} to curl up, having been dried by heat, or after being frosted' and *ná_'a* 'to fail, for want of time, in burning or freezing'. This is evidence that *ná-* refers to extreme temperatures in general, and not only extreme heat.

[19]The corpus from Rudin et al. (1989-92) has not been searched for this database. It was searched later for the database on the prefix *ga-*.

Table 5.5: A few examples of instrumental verbs

base	*xó*^{n} 'be broken'	**shtó*^{n} 'to stop'	*ó*^{n}*ba* 'day'	*thi*^{n}*ge* 'to lack {x}'; 'to be gone'
tha-	*thaxó*^{n} 'to break {x} by biting'	*thashtó*^{n} 'to stop talking, eating etc.'; 'to release {x} by opening the mouth'	*thaó*^{n}*ba* 'to speak until day'	*thathí*^{n}*ge* 'to say / eat everything (= there is nothing else to say / eat)
thi-	*thixó*^{n} 'to break {x} with the hands'	*thishtó*^{n} 'to stop holding {x}'; 'to finish ({x})'	*thió*^{n}*ó*^{n}*ba* 'to flash repeatedly' (?)	*thithí*^{n}*ge* 'to destroy {x}'
ba-	*baxó*^{n} 'to break {x} by pushing'	*bashtó*^{n} 'to stop writing, pushing, punching, etc.'		*kibáthi*^{n}*ge* 'to destroy oneself by pushing'
bi-	*bixó*^{n} 'to break {x} by pressing'	*bishtó*^{n} 'to stop bearing, pressing, sitting or lying on, etc.'		*bithí*^{n}*ge* 'to wear out {*clothes*} in a short time'
ga-	*gaxó*^{n} 'to break {x} by throwing it'	*gashtó*^{n} 'to stop striking'	*gaó*^{n}*ba* 'to beat (e.g. a drum) until day'	
no^n*-*		*no*^{n}*shtó*^{n} 'to stop walking, dancing etc.'	*no*^{n}*ó*^{n}*ba* 'to walk until day'	*no*^{n}*thí*^{n}*ge* 'to destroy {x} by trampling'
mú-	*mú_xo*^{n} 'to break {x} by shooting'	*mú_shto*^{n} 'to stop shooting at {x}'		*mú_thi*^{n}*ge* 'to exterminate {x} by shooting'
má-	*má_xo*^{n} 'to cut {x} with a knife'	*má_shto*^{n} 'to stop cutting or sawing'		*má_thi*^{n}*ge* 'to take {x} off with a knife'
ná-			*ná_o*^{n}*ba* 'to burn until day'	*ná_thi*^{n}*ge* 'to be destroyed by fire'

mental verbs were gathered at first. Words were labeled "verbs" if they were attested with verb inflection or as predicates. Instrumental verbs that were regular derivations of other instrumental verbs already included in the database were left out, as exemplified in (439)[20].

(439) Basic instrumental verb: *gaxtó*^{n} 'to pour out {*liquid*}'
Derived verb: *ágaxto*^{n} 'to pour {*liquid*} on {*y*}' (eliminated from the database)

The initial list of verbs gathered in this way was then supplemented by searching the lexicons and dictionaries for more possible translations and as many minimal pairs as possible (of the kind given in Table 5.5). In this way, the meanings associated with each prefix and the bound bases were more adequately described.

A detailed database focusing on the prefix *ga-* was then created from the first database. It was expanded with *ga-* verbs found in Rudin et al. (1989-92) and through extensive searching in Dorsey's dictionary and among all the example sentences that he provides.

At the morphological level, the prefix *ga-* is recognized because its /g/ regularly lenifies (Rule 3 of the morphophonological rules, p. 194). It is this feature that enables us to distinguish the instrumental prefix *ga-* from homophonous syllables which do not undergo lenition (in particular, the first syllables of the verb *gáxe* 'to make {*x*}' and other verbs from the athematic *g*-stem paradigm; see §3.7, especially (301), p. 210). Verbs with the prefix *ga-* are part of the 'leniting *ga-* paradigm', whose conjugation chart is found in Table B.7, Appendix B.

In total, *ga-* instrumental verbs have been found with 112 different bases. Since the prefix *ga-* is polysemous, in many cases one <*ga-*+*base*> association is attested with different meanings in different contexts or sources. In such cases, each meaning is considered to correspond to a separate verb with its own valency, as illustrated in (440)[21]. As a result, the database of *ga-* instrumental verbs contains in total 156 instrumental verbs to be analyzed, derived from 112 bases. The database of all 156 *ga-* verbs is presented in Appendix E.2. For each instrumental verb with *ga-*, the following information is filled into the database: the verb's definition and valency, sources where it is attested, the base, the base meaning, minimal pairs with other instrumental prefixes, the base's syntactic category (and valency, if it is a verb), the prefix meaning, and some semantic features of the prefix-base combination.

[20]Words which did not display any verbal feature (regarding either morphology or function) included some nouns which were probably converted from verbs, like *ną́xpe* 'roasting stick'. The derived verbs that were eliminated included applicative, reflexive and causative derivations.

[21]I consider there to be several instrumental verbs derived from one base when the verbs are associated with different valencies, or when the definitions attested are markedly different, suggesting that different meanings of *ga-* are used.

(440) *ga-*: to strike → *gasnú* 'to make {x} slide by hitting' (DD)
ga-: wind → *gasnú* '{*wind*} to make {x} slide' (DD)
ga-: unknown force? → *gasnú* 'to slide' (like a car or an otter, on ice) (DD, SE, U)

The database of other instrumental verbs is presented in Appendix E.3. Around 25 verbs that have absolutely no semantic link with the corresponding instrumental prefixes were removed from it (see list in App. E.3).

5.2.3 Prefix *ga-*: meanings

The prefix *ga-* is often described as meaning "by striking (with a weapon such as an ax, a club)", "by effect of the wind or water", "by effect of a fall" (Dorsey n.d.b: headword *ga-*). OLIT-UNL (2018) adds related meanings: "by impact", "impersonal forces of the environment" (e.g., gravity), reflexive or instinctive actions (U)[22].

These meanings are more or less linked to one another. Identifying and classifying the diverse meanings associated with *ga-* is a difficult task, like all research on lexical meaning. Wechsler (2015: 45) maintains that any lexical unit encompasses some polysemy, and that the notion of "vagueness", initially applied to boundaries between the meanings of two lexical units, also applies between several meanings within one lexical unit. Applying these distinctions to Umóⁿhoⁿ is all the more difficult, as we are in possession of very little semantic documentation on this language.

I have surveyed the database and the verbs beginning with *ga-* found in Dorsey's dictionary (around 400 verbs)[23] with the aim of producing a list of as many, and as precise as possible, meanings for *ga-*. In doing so, only instrumental verbs whose base has a known or identifiable meaning were taken into account, and they were assumed to be semantically compositional[24].

In Figure 5.1 I propose a semantic map of all the meanings associated with *ga-* found in the data. To some extent the map avoids drawing arbitrary boundaries between them. Each meaning is associated with at least one verb, and with one letter. The same letters are used in (441) to provide examples for each meaning. In the database of *ga-* verbs reproduced in App. E.2, each verb is associated with one or several meanings in the column called *ga-*. The

[22]The examples provided by OLIT-UNL (2018) are *gabízhe* 'to blink {*an eye*}', and *gabthá* '{*bud*} to open'; '{*flower*} to bloom'.

[23]For lack of time, only a portion of the 400 verbs beginning with *ga-* in Dorsey's dictionary have been incorporated into the database for systematic study. The remaining verbs have only contributed to the survey of all possible meanings associated with *ga-*.

[24]Bases "with identifiable meaning" are bound bases attested in several verbs, whose meaning is identified by comparing minimal pairs. For an example, see the column **shtoⁿ* 'to stop' in Table 5.5.

Some of the verbs with bases of unknown meaning can still be linked to one of the meanings of *ga-* on the semantic map. For instance, the verbs *gasápi* 'to lash {x}' and *gathúzhe* '{*water*} to slosh' are clearly linked to the meanings "striking" (a.) and "water" (p.), respectively, but **sapi* and ipa*thuzhe are not autonomous and are of unknown meaning. In the database (App. E.2), the letters indexing meanings in such examples are included in parentheses.

nodes that are not linked to any example on the map are putative intermediary steps, like "sharp motion" between "to strike" and "to brush".

(441) Meanings of *ga-* identified in Figure 5.1

a. to strike: *gahúto^n* 'to make {x} cry out by hitting' < *húto^n* 'to cry out'

b. to throw: *gaxó^n* 'to break {x} by throwing' < *xó^n* 'broken'

c. to chop: *gasé* 'to chop {x}' < *sé* 'separated, broken'

d. with effort: *gahó^n* 'to lift {*smth heavy*}'[25] < **hó^n* 'lift, raised?'

e. with violence, rapidity: *gazí* 'to strain {*a muscle*} by sudden throwing' < **zí* 'stretched'

f. to shake: *gazhó^{n}zho^n* 'to shake out {x}' < **zho^{n}zho^n* 'shaken?'

g. to spill: *gaxtó^n* 'to pour out {x}' < *xtó^n* 'to drop, as a liquid'

h. to brush: *gatéga* 'to renew {x} by brushing with a whisp' (DD) < *téga* 'new'

i. action done on hair: *gazó^{n}de* 'to plait {x}' < *zó^{n}de* 'motionless, quiet'

j. to bounce: *gastápitho^n* "{*deer*} to jump and come down again on the ground, making the sound *stapi* suddenly" (DD) (origin / meaning of the final syllable *tho^n* unknown)

k. movement: *gagthá*, DD: "said of a horse carrying a pack: as he walks the motion causes the thongs to come undone (*gthá*)" < **gthá* 'undone'

l. fall: *gat'é* 'to die by falling' < *t'é* 'to die'

m. gravity: *ágapamu* '{*tree*} to have weight that bears down branches' < *pamú* 'downhill'

n. impersonal / unknown cause: *gashnúde* 'to moult' < **shnúde* 'bare, bold'

o. wind: *gak^{h}iáho^n* 'to arise (by effect of the wind)' < **k^{h}iáho^n* 'to arise'

p. water: *ganázhi* '{*rain, water*} to extinguish the fire' (DD) < *ná_zhi* 'to be extinguished'

q. to spread, to produce (always combined with the oblique prefix *u-* with an unclear meaning): *ugáshabe* 'to make a distant shadow' < *shábe* 'black'

r. instinctive actions, reflexes: *gabízhe* 'to blink {*eyes*}' < **bizhe* 'move'

The examples listed in (441) represent what I consider clear evidence of the meaning they are associated with. For instance, I identified a meaning "to chop" because of the verb *gasé* 'to chop {x}'. This verb constitutes a minimal pair with another instrumental verb, *má_se* 'to cut {x}'. (See also examples in (438).) As the prefix *má-* originally means "with a blade", nothing prevents it from being used for chopping (with an ax). I consider the difference here

[25] In OLIT-UNL (2018: 450), this verb is provided with the following explanation: "Lifting something light and easy is *thihó^n*, lifting done by hand. But lifting something very heavy, like furniture or one end of a boat, is *gahó^n*, raising it despite a great weight. In this case, it seems that action taken *against* an external force is also *ga-*". Unlike the authors of the textbook, I link this formation to the meaning 'with effort', which seems to me better linked to other agentive meanings on the semantic map.

to be that "chopping" implies a sharp and quick movement. In like manner, "gravity" (m.) is already implied in the meaning "fall" (l.), which is documented in Dorsey (n.d.b) and OLIT-UNL (2018). "Gravity" was identified as a separate meaning because of the verb ***ágapamu*** '{*tree*} to have weight that bear down branches', which implies gravity without denoting a fall. Other verbs possibly imply the idea of gravity, but in a less clear way than ***ágapamu*** (see App. E.2). Many verbs from the database have meanings that can be linked to several nodes of the semantic map at once. For instance, ***gabthábthaze*** 'to gash {x} repeatedly' is linked in the appendix to "to strike" (a.), "to chop" (c.), and "with violence, rapidity" (e.). The semantic map is an initial attempt to capture the interrelations between the different meanings listed in (441), and may need to be revised after further discussion.

The semantic map in Figure 5.1 is divided into two poles: the "agentive processes" clustered around "to strike*"', which is the original meaning of ***ga-***, and the "non-agentive processes", in which the meanings "provoked by wind / water" are the best documented. Agentive processes are naturally expected to be expressed in transitive clauses, with a participant in the semantic role of agent as a subject, and a patient as object. Conversely, non-agentive processes lack an agent, and are thus low on Hopper & Thompson's (1980) transitivity scale. We expect them to be expressed with one-argument predicates, or with two arguments but no agent (like '{*wind*} to make {x} slide' in (440)). This distinction will be relevant in the analysis of the syntactic functions of ***ga-*** (§5.2.4).

Verbs that refer to movements (k.) or leaps (j.), as well as instinctive actions and reflexes (r.), represent an intermediate level because they have an animate subject that has partial control over the action, like ***gabízhe*** 'to blink {*an eye*}'. The meaning "impersonal / unknown cause" is problematic. It gathers verbs expressing a process that unfolds by itself, like ***gashnúde*** 'to moult'. One could classify every verb in which the meaning of ***ga-*** is unclear as belonging to such a category. As an example, the verb ***ga'ó^{n}si*** 'to bounce' shares with ***u'ó^{n}si*** 'to leap ({*in x*})' the same bound root ****'o^{n}si***[26], and it is not clear what the semantic contribution of ***ga-*** is. The only textual example where it is attested is reproduced in (442). In an earlier study (Marsault 2018), I assumed from the context (after eating candy) that ***ga-*** expressed an impersonal / unknown cause, as if the sugar made the children over-excited, but ***ga-*** could also serve to highlight the bouncing movement (j.). I have also classified the verb ***gabthá*** '{*flower*} to bloom' under "impersonal / unknown cause". Gordon (p.c.) suggests that this verb could be linked to the idea of suddenness if it expresses the speaker's point of view (from one day to another, the flower has bloomed). Gordon's interpretation can apply to several other verbs.

(442) ***Shí^{n}gazhi^{n}ga=ama zho^{n}ní gthúba that^{h}é ki, ga-ó^{n}si~si.***
child=PX.PL candy all eat when INS:force-*leap~redup
After the children ate all the candy, they were bouncing. (OLIT-UNL 2018: 562)

The node "to spread, to produce" (q.) on the semantic map is not connected to any other,

[26]The oblique prefix ***u-*** can serve as a locative applicative prefix. In ***u'ó^{n}si*** 'to leap ({*in x*})', it seems to be halfway lexicalized, and the verb is attested both with and without the applicative object. See §6.4.2.

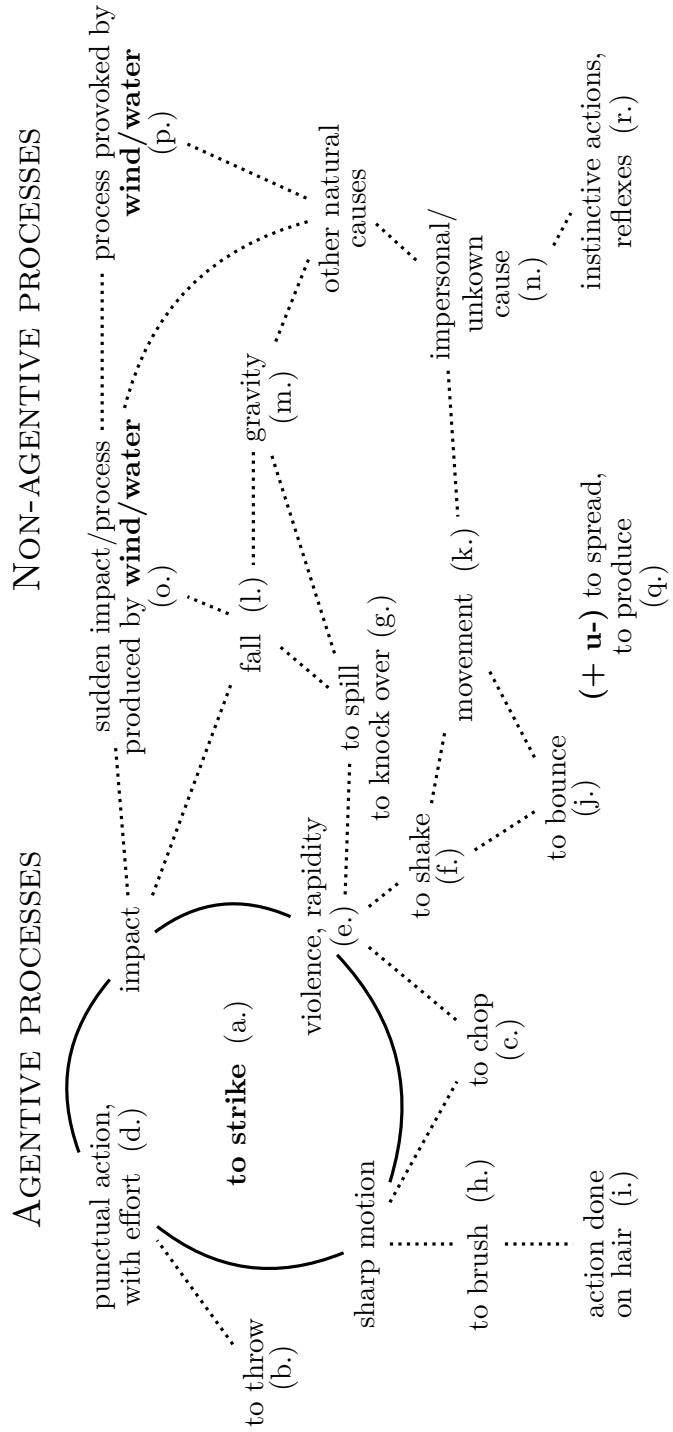


Figure 5.1: Semantic map of the meanings of *ga-*

because as a meaning it is always associated with the *ugá-* sequence, and not with the prefix *ga-* alone. The prefix *u-* can serve as an applicative prefix that adds a location ("in", "inside"), and may play a role in the overall meaning. This category has at least four members, where the base always designates something that is not solid or liquid, like a "shadow" or "fog". (See verbs beginning with *ugá-* in App. E.2.)

5.2.4 Prefix *ga-*: syntactic functions

Table 5.6: Categories of bases in instrumental *ga-* verbs

Verbs, including:	32	27%
transitive (tr)	1	1%
intransitive active (intr-a)	7	6%
intransitive stative (intr-s)	25	22%
Nouns	4	4%
Adverbs	2	2%
Non-autonomous, including:	73	65%
ideophones (id)	5	4%
TOTAL	112	100%

Taking into account each different prefix-base association (112 associations).

Instrumental verbs have different types of bases, which are indexed in Table 5.6. We see that a majority of bases are non-autonomous. Among these, there are five onomatopoeic ideophones, like *táxi* in *gatáxi* 'to produce the sound "taxi" while chopping {x}'. These onomatopoeia are classified as a subcategory of non-autonomous bases because they have clear and immediately accessible meanings. Moreover, ideophones are well known for often being distinguished by specific phonetic, phonological and grammatical properties, in addition to their expressivity (Dingemanse 2017, Jacques 2013b). Although they are not the focus of the present survey, it seems important to mention their presence in instrumental constructions as non-autonomous bases. Ideophones are apparently widespread in Siouan languages, but have not yet been the object of extensive studies (but see Dorsey 1892, Lundquist 2017). They are probably numerous in Umóⁿhoⁿ, but the only ones indexed as such in Table 5.6 (and in Tables E.2 and E.3 in the appendices) are onomatopoeia, which are the most easily identifiable ones.

Turning to autonomous bases, we see that a majority of them are stative intransitive verbs denoting states. We also find seven active intransitive verbs, four nouns, and possibly two adverbs[27]. There is also one instrumental construction, *ga'é* 'to dig a hole'; to dig {x}' (according to OLIT-UNL 2018), which has a transitive verb as a base: *'é* 'to dig {x}'; 'to peel

[27] As noted in §2.4.5, the category of verb-modifying adverbs is difficult to establish in Umóⁿhoⁿ, because they could easily be analyzed as verbs in a verb series. The two "adverbs" identified as bases are *ápamu*, from *pamú* 'downhill', with an extra oblique prefix *á-* with an uncertain value here; and *kʰúthe* 'quickly' (DD), which could be an ideophone grammaticalized with an adverbial function by means of the instrumental prefix.

{x}' (DD). This is a unique example, and the definitions and examples attested for each verb do not enable us to discern any difference of meaning between them. I consider *ga-* to refer to the manner of digging (with effort and physical strength), although that is not specified in the definitions. (See in line 13 in the database, App. E.2.)

The 156 instrumental verbs with *ga-* range over several verb classes; most are transitive (61) and intransitive stative (41) verbs, but there are also intransitive active verbs (15). Six are intransitive but could not be classified as either stative or active[28]. Several verbs are opaque semantic constructions, derived from non-autonomous bases with no known meaning (for instance: *ugáshoⁿ* 'to travel'). Finally, we may mention one impersonal verb: *ugánoⁿpaze* or *ugáhanapáze* 'to be dark'[29].

The precise syntactic functions of *ga-*, in relation to its meanings, can only be determined for a relatively small number of verbs: those which have an autonomous or onomatopoeic base (which can be categorized) and where the prefix *ga-* has a meaning which that be classified as "agentive" or "non-agentive". Fifty-six verbs fulfilling these conditions are presented in Table 5.7. They range from transitive verbs to intransitive stative verbs, as seen in the first column. The second column divides each category according to the syntactic category of the base. The number of verbs filling each subcategory is then divided between the "agentive process" column and the "non-agentive process" column.

***ga-* with agentive meaning.** We see that almost all the verbs where *ga-* has an agentive meaning are transitive. Thus, except for the peculiar case where the base verb is already transitive (see comments above), *ga-* has a causative function in these cases, introducing a causer and specifying its mode of action (striking, throwing, chopping, etc.). In Table 5.7, we see that out of 35 verbs where *ga-* is associated with an agentive meaning, there are 17 transitive verbs derived from intransitive stative verbs, and six derived from intransitive active verbs. Altogether this makes 23 causative derivations that increase verb valency. The causative function is combined with a denominal function in cases where *ga-* derives a transitive verb from a noun, like *ugásne* 'to split {x} by hitting', from *usné* 'a split'. The same could be said of the transitive verbs derived from ideophones: *gapʰúkitʰe* 'to make the sound pʰuki by falling', if we associate the ideophone with the class of nouns, by default. In total, the 'agentive' *ga-* has a causative function in 31 out of 35 verbs.

[28]In the database presented in App. E.2, active and stative verbs identified solely by semantic criteria are treated differently from those that are identified from morphological evidence. The "-s" or "-a" category of the former is mentioned in parentheses. A few verbs could not be classified according to morphological or semantic criteria, and were left as "undetermined". One example is *gapámoⁿgthe* '{*animal*} to lower the head to charge'.

[29]This verb is attested as *ugánoⁿpaze* in OLIT-UNL (2018: 567), and as *ugáhanapaze* by Dorsey (1890: 616.8). Given that the spellings are very similar (especially if we consider the frequent correspondence between <a> in Dorsey and <oⁿ> in modern documentation), I consider it the same verb. I retained OLIT-UNL's spelling in the database. In fact, Dorsey (n.d.b) considers it a noun, and translates it as 'darkness'. It is included in the database because it is attested at least once as a predicate (Dorsey 1890: 616.8).

Table 5.7: Class changes with **ga-** in relation with its meaning

Verb category	*Base category*	*Agentive process*	*Force ; non-agentive process*
Transitive verbs		**32**	**4**
(*tr*)	tr	1	
	intr-a	6	
	intr-s	17	4
	n	4	
	id	4	
Intransitive active verbs		**2**	
	n	1	
	adv	1	
Intransitive stative verbs		**1**	**17**
(*intr-s*)	intr-a		1
	intr-s	1	11
	n		2
	adv		1
	id		2
TOTAL		**35**	**21**

*Taking into account verbs where **ga-** can be associated with "agentive" or "non-agentive" meaning, and with autonomnous or onomatopoeic bases (56 verbs)*

There are only two intransitive active verbs, which are built according to the 3rd "semantic configuration" (see §5.3.2.3). Only one is classified as an intransitive stative verb: ***ugáshte*** 'to remain alive after a slaughter'. This is probably the passive reading of a transitive verb meaning 'to spare $\{x\}$ during an attack / slaughter', but it is attested only with this passive reading, and is defined this way in Dorsey (n.d.b)[30].

In the database (App. E.3), I indicate for each instrumental verb whether the prefix ***ga-*** has a causative function (last column, "Caus."). Three levels of causation are distinguished: "CAUS" denotes the causativization of a verb; "CAUSb" denotes a causative and denominal derivation (e.g., 'a split' becomes 'to split $\{x\}$ by hitting', line 146); and "CAUS sem." denotes an instrumental verb that has causative semantics but does not have an autonomous base. Neither "CAUSb" nor "CAUS sem." exactly fits the definition of a causative operation, since the base is not a verb.

[30]The verbs ***umúshte*** 'to remain alive after being shot at' and ***unáshte*** 'to remain after a fire', which are derived from the same base, are also presented as intransitive stative verbs in Dorsey's sources. Only ***utháshte*** is attested with a transitive construction: 'to keep $\{x\}$ without eating'.

***ga-* with non-agentive meaning.** By contrast, *ga-* does not have a causative function when it is associated with a non-agentive meaning. Out of 21 verbs in this category, 11 are intransitive stative verbs derived from other intransitive stative verbs. As an example, *wak^{h}éga* 'to be sick' derives into *gawák^{h}ega* 'to be carsick, seasick'; '{*horse, wagon*} to make {x} sick (because of the movement)' (labile verb). The prefix *ga-* also has a denominal function, but without any causative function, as in *gakúge* 'to make a hollow noise by falling', from *kúge* 'box'[31]. In most cases, *ga-* stands for a natural force such as 'wind', 'water', which can optionally be expressed as an NP. In the last cases, the NP fills the subject position, despite not being an agent, and this corresponds to the four "transitive" verbs in the column.

Three out of the four verbs classified as "transitive" are two-place predicates which take 'the wind' as a subject. They probably are intransitive verbs with ergative lability (see §4.1.6), but they are classified as transitive because they are only attested in constructions with two arguments. The fourth is a very difficult verb to categorize, and I have defined it as a bivalent verb: *gabthó^n* '{*bad odor*} to penetrate {x}'. In any case, the four "transitive" verbs are low on Hopper & Thompson's (1980) transitivity scale. They may be categorized as bivalent stative verbs (§4.1.3.3).

There is a peculiar case in the "non-agentive process" column: an intransitive stative verb is derived from an intransitive active verb, which might suggest that *ga-* actually decreases the agentivity. In fact, this is not the case, at the semantic level. The verb in question is *gat'é* 'to die from a fall', from *t'é* 'to die'. The latter is semantically non-volitional and not controlled, and it is one of the intransitive verbs that unexpectedly receive A person markers (see §2.5.2.2). The derived verb *gat'é* is not attested with person markers, and is assigned to the "intr-s" category on semantic criteria (no volition, no control), and by analogy with *ná_t'e* 'to die from heat'[32]. In sum, we see that at the semantic level, this example is similar to the intransitive stative verbs derived from other intransitive stative verbs. Its peculiarity is not due to the prefix *ga-*, but to the base verb *t'é*, which does not fall into the expected verb class. We could say that the non-agentive instrumental prefix "corrects" the exception of *t'é* by assigning the semantically-predicted verb class to the derived verb.

5.2.5 Prefix *ga-*: semantic analysis of complex predicates

This subsection uses the term "complex predicates" (CP), because it analyzes how two units with lexical content combine together, each contributing in its own way to forming the meaning of a complex predicate (an instrumental verb)[33]. In §5.2.3 we saw that *ga-* is associated

[31] *Kúge* is attested as a noun, but all instrumental derivations from it refer to a hollow sound. Either 'box' is used metaphorically as an onomatopoeia of a hollow sound, or the noun itself originates from an onomatopoeia.

[32] *Nát'e* 'to die from the heat' is attested with the second person marker in *náthit'e* 'you will be scalded to death' (Dorsey 1890: 264.13). This establishes that the verb is stative.

[33] This subsection presents a semantic analysis originally inspired by Samvelian & Faghiri (2013) on the semantic compositionality of complex predicates. While they focus on the problem of whether or not Persian CP are semantically compositional (claiming that they are), I soon realized that I could not adopt the same

with many different meanings, but forms CPs with compositional meanings. I define a COMPOSITIONAL CP as one whose meaning can be distributed between the prefix and the base, following Nunberg et al.'s (1994) definition[34]. We now turn to the analysis of how each part (the prefix and the base) contributes to the meaning of the CP.

The predication and semantic contribution of each part of the CP. Instrumental verbs combine an instrumental prefix that has a lexical meaning with a base that also has a lexical meaning. The resulting verb can thus be defined as a complex predicate (cf. §1.4.4). As mentioned previously, the prefix *ga-* historically comes from an independent verb 'to strike', which is no longer attested in Umóⁿhoⁿ, but still exists in Catawba. As a verb, it mainly had a predicative function. There are reflexes of this original predicative function in some Umóⁿhoⁿ instrumental verbs, like *gaóⁿba* 'to beat (something) until day' (Dorsey 1890: 439.7). In other cases, such as *gashtóⁿ* 'to stop hitting, cutting, beating a drum', the prefix and base both correspond to predicates.

There are at least four distinct semantic configurations where the prefix and the base each contribute in different ways to the meaning of the CP. These are summarized in (443). Note that these four possibilities do not cover all the instrumental verbs indexed in the database, but they do illustrate their diversity. The first two represent the most frequent casesm while the latter two are easily analyzable and show the predicative value of *ga-*. Each will be described in more detail in §5.3.2, with examples from all instrumental prefixes.

(443) Several possible semantic configurations:
1. **ga-** manner, CAUS + **base** result
xóⁿ 'broken' → *gaxóⁿ* 'to break {*x*} by striking, throwing, dropping'
sáda 'to be stretched, straightened out' → *giásada* 'to brush {*x's hair, mane*}' (lit.: 'to stretch {*x's hair, mane*} by brushing it')
2. **ga-** force, cause + **base** result
béni '(to be) bent forward' → *gabéni* 'to bend by effect of the wind'
3. **ga-** predicate + **base** adverb / circumstantial
óⁿba 'day' → *gaóⁿba* 'to beat (something) until day'
4. **ga-** predicate + **base** predicate
**shtóⁿ* 'stop' → *gashtóⁿ* 'to stop hitting, cutting, beating a drum' (Dorsey n.d.b, 1890: 564.12)

perspective. The exact meanings of the instrumental prefixes are not perfectly understood, and I deduced a series a meanings for *ga-* based on the assumption that instrumental verbs *are* semantically compositional. (See §5.2.3.)

[34]In their study of English idioms, Nunberg et al. (1994: 498) define compositionality as "the degree to which the phrasal meaning, **once known**, can be analyzed in terms of the contributions of the idiom parts" (bolding mine). So it must not be mistaken for a lack of conventionality: an idiom or a complex predicate can be compositional and conventional at the same time.

Resultative interpretation. Despite the diversity of configurations summarized in (443), it emerges that almost all the instrumental verbs with *ga-* have a feature in common, namely that the base can be interpreted as a result, and the prefix as a direct or indirect cause leading to this result. In this view, many *ga-* instrumental verbs can be assimilated to resultative constructions, with the exact number depending on how broadly we interpret the latter concept. Some instrumental verbs that clearly resemble resultative constructions are shown in (444).

(444) Resultative structure of *ga-* verbs: type 1
a. *gaxtházhe* → 'to make {x} cry out$_{base}$ by striking them$_{ga}$'
b. *ugásne* → 'to make a split$_{base}$ in {x} by striking it$_{ga}$'
c. *gak^{h}iáho^n* → 'the wind$_{ga}$ to make {x} to arise$_{base}$'
d. *gatáxi* → 'the fall$_{ga}$ to produce the sound 'taxi'$_{base}$'

Constructions that can be interpreted as resultative in a broader sense are illustrated in (445). In such cases, the base can be interpreted as some existing state of affairs, denoted by the instrumental verb, which does not directly result from the action or force represented by *ga-*. In the case of *ugáshte* 'to remain alive after a fall', the state of affairs 'to be alive' is verified *despite* the process denoted by *ga-* (a fall).

(445) Resultative structure of *ga-* verbs: type 2
a. *gaó^{n}ba* → 'to beat$_{ga}$ (e.g. a drum) until day$_{base}$'
b. *ugáshte* → 'to remain alive$_{base}$ after a fall$_{ga}$'
c. *gashnó^n* → 'to strike$_{ga}$ {x} and miss$_{base}$ them'

I call the examples in (444) "Type 1" resultative constructions, and the examples in (445) "Type 2" resultative constructions. Table 5.8 shows that up to 90% of *ga-* instrumental verbs can be assimilated to resultative constructions.

Table 5.8: Instrumental verbs allowing a resultative interpretation

Resultative constructions	**107**	**89.2%**
Type 1	77	64.2%
Type 2	30	25%
Non-resultative constructions	**9**	**7.5%**
Not analyzable	**3**	**2.5%**
TOTAL	119	100%

Taking into account verbs where ga- has an identified meaning (119 verbs).

5.3 Other instrumental prefixes

5.3.1 Generalization of the properties of *ga-* to the other prefixes

A very basic introduction to instrumental prefixes in Umóⁿhoⁿ is presented at the beginning of the previous section (see §5.2.1). A database of more than 550 verbs was gathered to make it possible to study the functions of the instrumental prefixes in detail. This database and the methodology employed for including or not including borderline forms were briefly presented in §5.2.2. The database of the prefix *ga-* includes 156 verbs, and can be consulted in Appendix E.2. The database presenting the other instrumental prefixes can be consulted in Appendix E.3. (The verbs with *ga-* have been removed from the latter to avoid redundancy.)

The database in E.3 has basically the same structure as the database of *ga-* instrumental verbs, presenting the Umóⁿhoⁿ form, definition, and category of the instrumental verbs, followed by the same information about the base. The percentages of bound roots and of morphologically complex bases which are not attested as independent words are very high. The last column indicates whether the instrumental prefix has a causative function.

Five instrumental prefixes only have agentive meanings (although they can be polysemous, cf. Table 5.4): *thi-* 'with the hands'; *tha-* 'with the mouth'; *bi-* 'by pressing'; *ba-* 'by pushing'; and *má-* 'with a blade'. The prefix *ná* 'by extreme temperature' has only a non-agentive meaning. Finally, the three remaining prefixes have both agentive and non-agentive meanings; in addition to *ga-*, there is *mú-* which can mean 'by shooting' or 'by effect of water / wind', and *noⁿ-* which can mean 'with the foot' or 'by an unknown force / by a machine'.

Table 5.9 shows the extent of the causative function for each of the nine instrumental prefixes in Umóⁿhoⁿ. The prefixes are divided into three blocks representing the types of meanings they convey, agentive, non-agentive, and both, thereby making it possible to link the prefixes' meanings with the causative function. The columns distinguish instrumental verbs from autonomous and non-autonomous bases, the latter being the majority. These non-autonomous bases are often bound roots with an identifiable meaning, which led Dorsey (n.d.b,n) to draw up a list of them, and to introduce them as dictionary headwords. The frequency of bound roots is also noticed in related languages, like Hoocąk (Helmbrecht 2002a) and Lakhota (Ullrich 2008 includes bound roots as headwords in his dictionary, indicated by a hyphen).

When the base is autonomous, verbs are classified according to the function of the instrumental prefix: causative CAUS[35], non-causative, and a third category for dubious cases. When the bases are non-autonomous, the instrumental verbs are classified by verb classes, which can indirectly reflect the possible causative semantics of the instrumental prefixes. When

[35] In the database (App. E.3), I distinguish between the categories CAUS, which corresponds to the prototypical causative function (an intransitive verb becoming transitive with the addition of a causer), and CAUSb, which concerns nouns and adverbs derived into semantically causative verbs. In Table 5.9, the column CAUS includes both types.

the base meaning is known, it is sometimes possible to establish a causative meaning for the prefix. The number of verbs with causative semantics is indicated in parentheses next to the total number of transitive verbs from unattested bases.

Table 5.9: Number of causative instrumental verbs

	Autonomous base:			**Non-autonomous base:**				
	CAUS	non-CAUS	?	tr (CAUS sem.)	intr-a	intr-s	others	TOTAL
				PREFIXES WITH AGENTIVE MEANING(S)				
thi-	39	3	4	56 (21)	4	1	0	**107**
tha-	18	9	0	23 (4)	2	0	1	**53**
bi-	11	1	0	13 (5)	1	1	0	**27**
ba-	14	3	0	33 (14)	4	3	0	**57**
má-	7	1	1	6 (5)	1	0	0	**16**
				PREFIXES WITH AGENTIVE AND NON-AGENTIVE MEANINGS				
ga-	27	26	3	60 (28)	10	24	6	**156**
no^n-	12	7	0	20 (7)	11	0	0	**50**
mú-	5	11	0	9 (0)	2	6	1	**34**
				PREFIX WITH NON-AGENTIVE MEANING(S)				
ná-	2	27	0	3 (1)	1	12	1	**46**

Like with the prefix *ga-*, the majority of instrumental verbs are derived from unattested bases. The number of verbs gathered in the database probably reflects the frequency with which each prefix is/was used for deriving verbs. The only exception is the prefix *ga-*, whose high number of attested verbs is due to the thorough study presented in §5.2, where I have included many verbs from Dorsey's dictionary.

When comparing the three blocks, we observe a correlation between the semantic content of the prefix and its causative function. The prefixes *thi-*, *tha-*, *bi-*, *ba-*, and *má-* have a diversity of meanings, but all of them imply an agentive action. As a consequence, the majority of the verbs derived with these prefixes from attested bases have causative functions. The verbs where the prefix has no causative function generally correspond to semantic configurations described in §5.3.2.3 and §5.3.2.4, or fall under other types of semantic compoundings still to be studied. When the base is not attested, the majority of verbs are transitive, and it is possible to assign causative semantics to a portion of them.

The prefixes *ga-*, *no^n-* and *mú-* are linked to agentive and non-agentive meanings, and they are often attested without any causative function[36]. When they derived non-attested bases,

[36]In fact, the prefix *no^n-*, despite being is regularly linked to the meanings 'by a machine' and 'by an unknown

we also find a greater proportion of intransitive verbs.

Finally, the prefix *ná-* is only linked to a non-agentive meaning: 'by extreme temperature'. Accordingly it almost never has a causative function. The only instances where it is linked to a causative function come from examples in OLIT-UNL (2018). See §5.3.4.

5.3.2 Semantic analysis of instrumental verbs

In §5.2.5 I have introduced four ways by which the meaning of the prefix *ga-* combines with the meaning of the base. The instrumental verb is the resulting complex predicate (a compound). These four configurations, which can be extended to all instrumental prefixes, are presented in the list below.

1. **Ins** manner, CAUS + **base** result (described in §5.3.3)
    - Types of bases: intransitive stative verbs; intransitive active verbs; nouns; onomatopoeic ideophones.
2. **Ins** force, cause + **base** result (described in §5.3.4)
    - Types of bases: intransitive stative verbs; nouns; onomatopoeic ideophones.
3. **Ins** predicate + **base** adverb / circumstantial
    - Types of bases: manner adverbs; nouns denoting time (+ intransitive stative verb used as a manner adverb)
4. **Ins** predicate + **base** predicate
    - Types of bases: bound roots with easily established meanings (multiple minimal pairs)

Remarkably, the three outer instrumental prefixes are regularly found with predicative function in configurations three and four, despite in all probability historically stemming from incorporated nouns or nominalized verbs (Rankin n.d.: 1). In a few cases, the meaning of the instrumental verb can be deduced from the syntactic category of the base or the semantic field to which it belongs. In particular, adverbial bases predictably act as adverbial modifiers, in which case the instrumental prefix has a predicative function. However, a few counterexamples exist[37].

force', is almost never attested with these meanings in the verbs indexed in the database. The important proportion of non-causative *nó^n-* in Table 5.9 concerns verbs where *no^n-* means 'with the feet'. See examples in §5.3.2.3 and §5.3.2.4

[37] For instance, the intransitive stative verb *di^{n}dí^n* 'to be tight/stiff' acts as an adverbial modifier (configuration 3) in the verb *thadí^{n}di^n* 'to speak loudly'.

The first two configurations are briefly presented in §5.3.2.1 and §5.3.2.2, and are the object of a more detailed description in §5.3.3 and §5.3.4, respectively. Configurations three and four are presented in §5.3.2.3 and §5.3.2.4.

5.3.2.1 Causative construction: instrumental expressing manner, base expressing result

One of the most frequent constructions combines an agentive-meaning prefix with a stative intransitive base, yielding a transitive verb whose object enters the state described by the base as a result of the action expressed by the prefix. In such cases, the prefix has a causative function. See §5.3.3.

5.3.2.2 Instrumental expressing non-agentive force, base expressing result

When the prefix refers to a natural force such as wind, fire, water, machinery, etc., another kind of semantic construction is operative. As previously shown in Table 5.7, the overwhelming majority of instrumental constructions with a non-agentive meaning for *ga-* are derived from intransitive stative verbs. Such verbs remain intransitive stative verbs, and they still denote the same state, but the instrumental prefix adds a reference to the cause leading to this state, as exemplified in (446). Instrumental prefixes denoting natural forces also derive verbs from nouns, as illustrated in (447). See §5.3.4 for further detail.

(446) **Ins** force, cause + **base** caused event/state/noise

a. *béni* '(to be) bent forward'
→ *gabéni* 'to bend by effect of the wind'

b. *skó^{n}* 'to be melted, thawed'
→ *ná_sko^{n}* 'to melt or thaw (because of the heat)'

c. *t'é* 'to die', 'to be badly hurt'
→ *no^{n}t'é* 'to be killed / badly hurt by a machine'
→ *ná_t'e* 'to die from the heat'
→ *gat'é* 'to die from a fall'

d. *táxi* (onomatopoeia)
→ *gatáxi* 'to make a tapping sound by falling'

(447) **ga-** force, cause + **base** created result
uk^{h}íba 'a crack or open space bounded by two parallel lines' (DD)
→ *ugák^{h}iba* 'to crack by effect of the wind'; '{*wind*} to make a crack' (DD)

5.3.2.3 Instrumental with predicative function, base with an adverbial or circumstantial function

In some cases, the instrumental prefix bears the predicative function, and the base adds a circumstantial meaning referring to a manner, quantity, quality, or time. This is attested

with few bases, both nouns and adverbs. Contrary to the cases above, these verbs cannot be interpreted as resultative constructions.

(448) **Ins** predicate + **base** adverb / modifier

a. *k^{h}úthe* 'quickly' (DD)
→ *gak^{h}úk^{h}uthe* "to beat (something) rapidly" (Dorsey 1890: 602.7)
→ *mú_k^{h}uk^{h}uthe* 'to shoot more rapidly than before' (DD)

b. *hégazhi* 'a lot' (also *hégabazhi, hégamazhi*)
→ *mú_hegazhi* 'to make a lot of noise while shooting' (449a)
→ *no^{n}hégazhi* 'to run fast'
→ *thahégazhi* 'to make a great noise (with the mouth)' (449b)
→ (?) *mú_hegazhi* 'to shoot down a lot of $\{x\}$'

c. **pí* 'good' (DD, who adds: "not used as a separate word") (451)
→ *no^{n}pí* 'to dance well'
→ *thipí* 'to be good at $\{VP\}$'
→ *thapí* 'to speak $\{a\ language\}$ well'

Remarkably, not all the instrumental verbs built on this pattern have the same valency. Most of them seem to be intransitive active verbs focusing on the activity.

The base *héga(b)azhi* seems to serve as an intensifier which can be employed differently according to the context and the instrumental prefix, as can be observed in (449) and (450). *Thahégazhi* 'to make a great noise (with the mouse)' is attested only twice, and each time it is as the second verb of a verb sequence[38]. Remarkably, the base *héga(b)azhi* combined with the prefix *mú-* creates two verbs with distinct meanings and valency. The first one, exemplified in (449b), is similar to *thahégazhi*.

(449) *hégazhi* as an intensifier

a. *Kída=biama, mú-hega=zhi.*
shoot=PX.REPORT INS:shoot-little=NEG
He fired a gun with a loud bang, they say. (OLIT-UNL 2018: 564)

b. *Pa'ú bthá-hega=mazhi.*
A1SG.burp A1SG.INS:mouth-little=1SG.NEG
I burped really loud. (Saunsoci & Eschenberg 2016: 75 , written as one word with a hyphen / Alice Saunsoci)

Conversely, *mú_hegazhi* 'to shoot down a lot of $\{x\}$' is clearly transitive, as observed in (450). In such examples, *hégazhi* represents a sort of result ("many have been shot"), and the instrumental verb is somewhat reminiscent of the examples in §5.3.3, where the instrumental acts as a causative marker.

[38]The other example is attested in (Dorsey 1890: 433.11 / Frank La Flesche): *bó^n thahégabazhi-hnó^n* 'the Pawnee hallooed, and made a great noise by calling'.

(450) *hégazhi* as a result?

té=ma *mú-wa-hega=bázhi* *amá.*
buffalo=OBV.PL INS:shoot-O3PL-little=PL.NEG report

They shot down many of the buffaloes. (Dorsey 1890: 350.6 / Ónphon-Tonga)

The bound root **pí* is not attested as an independent word, although its meaning is easy to retrieve. It is attested several times combined with fully independent verbs, where it also acts like an adverbial modifier, as typified in (451).

(451) *Ki* *wakíde-pi-xtí=biamá,* *núzhingа akha.*
and ANTIP-shoot-good-INTENS=PX.REPORT boy PX.SG
The boy became an excellent marksman. (Dorsey 1890: 586.6 / George Miller)

There are also several series of instrumental verbs formed with nouns denoting time. The instrumental verb then refers to an action which continues until the point in time denoted by the noun. Some examples are shown in (452).

(452) **Ins** predicate + **base** time circumstancial (limit of time)

a. *óⁿba* 'day' (see Table 5.5)
→ *gaóⁿba* 'to beat (something) until day' (Dorsey 1890: 439.7)
→ *ná_oⁿba* 'to burn until day'

b. *hóⁿ* 'night'
→ *shóⁿ thihóⁿ* 'to work until night without stopping'
→ *mú_hoⁿ* 'to shoot all day until nightfall' (UNL)

c. *míthumoⁿshi* 'noon'
→ *noⁿmíthumoⁿshi* 'to walk until noon'

A methodological problem arises with several of the instrumental verbs of this category. It is namely difficult to ascertain whether the verbs *gaóⁿba* and *gakʰúkʰuthe* (in (448)) are transitive or intransitive stative verbs. Both *gaóⁿba* 'to beat (something) until day' and *gakʰúkʰuthe* 'to beat (something) rapidly' are attested in contexts where a patient is retrievable and is referred to in the previous sentences. These verbs are exemplified in (453) and (454) with the preceding sentence(s) where the patient is expressed as an NP. The question becomes: Is this patient the grammatical object of the instrumental verbs, or is it only implied?

(453) a. *Wa'óⁿ gthíⁿ=i, péxe* *ga-sáthu=i* *tʰe,* *íⁿbehiⁿ ámoⁿtʰiⁿ* *gthíⁿ=i.*
sing sit=pl gourd INS:force-rattle=PL EVID pillow strike.against sit=PL
They sat singing, making the gourds rattle by striking them against the pillow.

b. *Hóⁿ* *tʰe* *snéde-goⁿ, shóⁿ-xti* *ga-óⁿba=i.*
night VERT long-as continually-INTENS INS:force-day=PL
As the night was long, they beat the rattles even till day. (Dorsey 1890: 439.6-7 / Páthiⁿ-noⁿpázhi)

(454) a. *Gi-úzhawá-xti=ó^n=biamá* *ní^{n}kashí^{n}ga amá* *néxigakú t^{h}e* *ut^{h}í^n t^{h}édi.*
DAT-pleased-INTENS=AUX=PP.REPORT person OBV.PL drum VERT hit when
The people were enjoying themselves when he beat the drum. (602.1)

b. *ki ítho^{n}bó^n* *ut^{h}í^n=bi ki,* *mo^{n}shiáha zhí^{n}ga gahá* *ihá=biamá.*
and second.time hit=PX when high.up little on.top(?) in.line=PL.REPORT
When he beat it a second time he made them jump a little higher. (602.1)

c. ...

d. *ki* *ga-k^{h}úkuthá=bi* *egó^n,* *ní^{n}kashí^{n}ga=ma uxíde* *shtewó^n*
and INS:force-quickly=PX as person=OBV.PL glimpse whatever
wathíshna=bazhí=biamá.
visible=PL.NEG=PP.REPORT
He beat the drum rapidly, sending all the people so high into the air that one could not get even a glimpse of them. (602.7 / George Miller) (Dorsey 1890)

In the database, I have categorized both verbs as intransitive active for two reasons. First, like all other verbs where the base functions like a modifier, both are focused on the activity and are atelic. Secondly, almost all the other instrumental verbs with the configuration "predicate + manner/circumstance" are intransitive active[39]. However, there is no formal evidence that would enable us to establish whether these verbs include objects in their valency, given that 3rd person objects are not indexed on the verb. All we can say is that these verbs are never attested with an overt NP expressing the object.

5.3.2.4 Both prefix and base having predicative functions

Finally, in the last regularly attested configuration, both the prefix and the base have predicative functions. This is attested with at least three bound roots each of which refers to an action. Many minimal pairs are attested for each case, and the meanings of the instrumental verbs derived from these roots are always predictable.

The first base is **shtó^n* 'to stop, let go', already illustrated in Table 5.5 (p. 292). The other two bases are **shnó^n* 'to miss (the objective)', and **'á* 'to fail', as illustrated below. Some of them are glossed or translated as intransitive.

(455) **Ins** predicate + **base** predicate

a. **shnó^n* 'to miss (the objective)'
→ *bashnó^n* 'to miss {x} while pushing' (DT)
→ *mú_shno^n* 'to miss ({x}?) while shooting' (DT, SE, U)
→ *thishnó^n* 'to drop {x}' (DT)

b. **'á* 'to fail'
→ *tha'á* 'to fail to drink / eat {x}'

[39] The only counterexample is *mú_hegazhi* 'to shoot down many {x}', already discussed.

→ *ná_'a* 'to fail, for want of time, in burning or freezing' (DD) → *ga'á* 'to fail (in finishing) to chop wood/strike ({x}?)' (DD, U)

In the instrumental verbs built with "to stop V" and "to fail at V", it looks like the instrumental prefix is complementing the base; the instrumental verbs are semantically close to the clausal complements constructions described in §2.5.5. In verbs built with **shnó^n* 'to miss (the objective)', in turn, it seems that the parts of the instrumental verb express successive actions. For example, *múshno^n* can be decomposed as 'to shoot at {x} and to miss'. This is semantically similar to the fourth type of verb sequences described in §2.5.6 ("sequential actions").

5.3.3 The causative function of the instrumental prefixes

We have seen in §5.3.2 that when the instrumental verbs are semantically decomposed, they fall into at least four different configurations. The first and the most frequent of them corresponds to the causative function of the instrumental prefixes.

5.3.3.1 Causative derivation of verbs

Causative instrumental verbs typically derive transitive verbs from intransitive stative verbs denoting states, like *búta* 'to be round'. This is also the configuration found with the bases *xó^n* 'to be broken' and *thi^{n}ge* 'to be gone' in Table 5.5 (p. 292).

However, intransitive active verbs and intransitive stative verbs denoting events are also attested, as shown in (456)[40]. All base verbs share a common point in common: they denote non-volitional and not-controlled processes. (One does not choose to be round, to fall, or to cry). The intransitive active verbs serving as bases for causative derivation are all verbs related to crying: *húto^n* 'to bellow', *xagé* 'to cry', *xtházhe* 'to bellow'. Note that here, too, the verb can be semantically decomposed into two events. The prefix denotes an action that corresponds to the causing event, and the base corresponds to the resulting event.

(456) **Ins** manner, CAUS + **base** result

a. *búta* 'to be round'
   → *thibúta* 'to crumple up {*a sheet of paper*}'
   → *bibúta* 'to press {x} round'

b. *túbe* 'to be ground, broken up'
   → *má_tube* 'to cut {*meat, tobacco*} tolerably [sic] fine' (DD)
   → *gatúbe* 'to crush {x}'
   → *bitúbe* 'to rub {x} to powder'
   → *thitúbe* 'to grind {x}'

[40] There are also two examples of instrumental verbs derived from bases that are attested as adverbs: *thinúshi* 'to lower {x}' from *núshi* 'low', and *thibás'i^n* 'to put {x} down, face first' from *bas'í^n* 'upside down'. However, as these bases represent states in the instrumental verb, they are classified as intransitive stative verbs. See §2.4.5 for a presentation of verb-modifying adverbs and the difficulty of distinguishing them from stative verbs.

c. *uxpáthe* 'to fall'
→ *ubáxpathe* 'to make {x} fall by pushing'
→ *ubíxpathe* 'to make {x} fall by pressing, rubbing'
→ *ugáxpathe* 'to strike down {x}'

d. *xagé* 'to cry'
→ *no^{n}xáge* 'to make {x} cry by kicking them'
→ *thaxáxage* 'to make {x} cry repeatedly by biting them'

The causative function of instrumental verbs is exemplified in (457) through (459).

(457) a. *Xthabé tho^n búta ha.*
tree RND round DECL.M
The forest was a curvilinear one. (Dorsey 1890: 421.13 / Kaxé-Tho^{n}ba)

b. *Wamóske pí-buta.*
bread A1SG.INS:press-round
I make the bread into a ball.[41] (ULCDP 2002: 1)

(458) a. *Xthabé t^{h}e etá-t^{h}o^n o^{n}wó^{n}xpathe ki, shetó^n=no^n aníta.*
tree VERT there-ABL P1SG.fall when that.far=HAB A1SG.alive
I fell out of the tree but I'm still alive. (Saunsoci & Eschenberg 2016: 48 / Alice Saunsoci)

b. *téska=má wa-'í^n agí=i t^{h}e pó^{n}ka mazhó^n-adi*
beef=OBV.PL O3PL-carry come.back=PL EVID Pa^{n}ka land-LOC
ú-ba-xpátha=i t'e=má.
(1)-INS.press-fall(2)=PL die=OBV.PX
Other white people, not railroad officials, when returning with the stock cars from Oklahoma, shove out the carcasses of the dead cattle upon the Ponka land. (Dorsey 1891a: 103.3)

(459) a. *Zhi^{n}gá thi^{n}k^{h}e xagé a?*
small OBV.SIT.SG cry Q
Is the baby crying? (Saunsoci & Eschenberg 2016: 86 / Alice Saunsoci)

b. *Ishtínik^{h}e no^{n}t^{h}é-shte=ó^n=biamá, no^n-xáge athí^n=biamá Ishtínik^{h}e ak^{h}á.*
I. kick-even=AUX=PX.REPORT INS:foot-cry have=PX.REPORT I. PX.SG
He kept kicking at Ishtinik^{h}e; he kept Ishtinik^{h}e crying as he kicked him. (Dorsey 1890: 96.11 / Frank La Flesche)

5.3.3.2 Causative derivation of non-verbal bases

Instrumental prefixes also derive verbs from nouns, adverbs, ideophones, and bound roots with a causative meaning. These cases do not exactly match the prototypical definition of a

[41] The original corpus writes *pipúta*.

causative derivation because, as seen in Chapter 1, the causative construction is the result of a valency-increasing process normally applied to verbs. Nonetheless nouns, adverbs, ideophones and bound roots are often derived into transitive verbs in ways very similar to (457) above, when the base is an intransitive stative verb.

"Causative" derivations from nouns are categorized as "CAUSb" in the database, to signal that they do not correspond to prototypical causative constructions. One is illustrated in (460).

(460) a. *Gó^{n}ki zho^{n}xthú'a t^{h}e to^{n}gátheha u'úde t^{h}e gaxá=biamá.*
and hollow.tree VERT large.around(?) hole VERT make=PL.REPORT
At length they cut the tree, cutting a hole in it. (Dorsey 1890: 75.15 / Mo^{n}ch^{h}ú-No^{n}ba)

b. *tí-ha to^{n}gá u-má-'ude ki, ugás'i^{n} amá.*
tent-skin large (1)-INS:blade-hole(2) when peep.in EVID
He cut a large hole in a tent-skin and peeped out. (Dorsey 1890: 427.11 / Ó^{n}p^{h}o^{n}-To^{n}ga)

In one particular example, the prefix *tha-* derives a modified noun: *thatádesaga* 'to make wind with the mouth' (Dorsey 1890: 324.11) has *táde-sage* as a base, literally 'strong wind'. *Táde-sage* is lexicalized. (The alternation of the final vowel is due to the Ablaut phenomenon, presented in §3.5.2.)

"Causative" derivations from ideophones or bound roots are categorized as "CAUS sem" which stands for "causative semantics". Some glossed examples are provided in (461) and (462).

(461) *xthabé thé-xchi thó^{n}di zhó^{n} gá-sai, ga-táxi, a=í.*
tree this-INTENS RND-LOC wood INS:force-broken INS:force-taxi say=PX
"O warchief, at this very place they cut wood, for they make the sound 'taxi'," said he. (Dorsey 1890: 456.2-3 / Kaxé-Tho^{n}ba)

The examples in (462) illustrate causative-like derivations from the bound root **shpé* to which I have assigned the meaning "to be split off" (glossed 'off').

(462) a. *Míkasi ak^{h}a wahí k^{h}e hébe tha-shpá=i egó^{n}, thasní^{n} ígasko^{n}tha.*
Coyote PX.SG bone HORIZ piece INS:mouth-*off=PX as swallow try
After Coyote bit off a piece of the bone, he tried to swallow. (OLIT-UNL 2018: 559)

b. *Té ak^{h}á mo^{n}thí^{n}ka hébe no^{n}-shpé áiátha=biamá.*
buffalo PX.SG earth piece INS:foot-*off away=PP.REPORT
The buffalo had gone, having kicked off a piece of the soil. (Dorsey 1890: 345.13 / Ó^{n}p^{h}o^{n}-To^{n}ga)

5.3.3.3 Evolution of *thi-* towards a neutral causative marker

The prefix *thi-* seems to have evolved towards a neutral causative marker. This was already identified by Dorsey, who gives two definitions of the prefix *thi-* in his dictionary:

> [1.] Prefixed to adjectives [= verbs of state] and sometimes to nouns, it changes them to verbs, and means "to make" or "to cause to be", as *thiúdo^n* 'to make good', *thiní^{n}kashi^{n}ga* 'to make a man of him'.
> 2. Prefixed to verbal roots, it conveys the idea of performing the act by pulling towards with the hands.
> (Dorsey n.d.b)

Dorsey makes a distinction between the type of base and the meaning and function of *thi-*, but this does not hold, as can be verified with the definition he provides for *thithí^{n}ge*, derived from *thi^{n}ge* 'to be gone; to have no more of {x}' (see Table 5.10). There is a stative verb as a base, and *thi-* still retains a meaning of action by hands.

As hands are the natural or default "instrument" for doing most things, this is naturally one of the most attested instrumental prefixes most attested (being outnumbered by *ga-* in the database only because *ga-* was the object of a particular in-depth survey). Many of the definitions provided for *thi-* instrumental verbs derived from intransitive verbs do not clearly refer to an action performed by hand, but the action itself is naturally done using the hands. Table 5.10 shows a few examples of *thi-* instrumental verbs where the prefix clearly has a causative function. The column "mode of action" shows the extent to which the meaning of the verb can be restricted to action by hands. I have identified four "levels": at Level 1 the definition clearly describes actions done by hand. At Level 2, the definition does not specify such a thing, but by default it refers to actions that are done by hand, like 'to turn on {*lights*}'. Level 3 concerns a definition which supposes that the action is not necessarily done with the hands, but contextualized examples are needed to verify it. Level 4 is the verb *thiúdo^n* mentioned by Dorsey (and attested in various sources), and refers to non-manual actions.

Note that the neutralization of the meaning of *thi-* is quite obvious in many instances where it derives bound roots. For example *thipí* means 'to be good at {*VP*}' (cf. §5.3.2.3)[42]; *thishtó^n* means 'to finish' in a general sense, and opposes the other prefixes of the series which refer to stopping a particular activity (see Table 5.5). In several instances, *thi-* refers to 'work', like in *thitó^n* 'to work {x}' and *thiésa* 'to work for more time than intended' (see below).

[42] An interesting example illustrates the neutralization of *thi-* in *thipí*. This verb is regularly used to refer to speaking a language well, in which case it becomes homonymous with *thapí*. For instance, *thipí* is used by Saunsoci & Eschenberg (2016: 128) in the sentence *Umó^{n}ho^n íye thipí tait^{h}e.* 'She should know [the] Omaha [language]'. As an example of *thapí*, Elizabeth Stabler translates 'parrrot' as *wazhí^{n}ga íe thapí*, or 'bird speaks well' (Stabler & Swetland 1977).

Table 5.10: A few causative instrumental verbs with *thi-*

Umó^{n}ho^n	Definition	Mode of action	Source
thibébthi^n	to roll up {*cigarettes, bread, other*}	1: restricted to action by hand (?)	SE (see p. 165)
thibíze	to dry {x}	3: needs clarification	U
thinákon^n	to turn on {*lights*}	2: using the hands by default	SE
thithí^{n}ge	to pull {*fruits, corn*}, leaving none; to tear up and destroy {x}, as a book	1: restricted to action by hand	DD
	to demolish / tear down {x}	3: needs clarification	ST, U
thiúdo^n	to make good to {x}; to improve {x}	4: no hands	DT, DD, ST, U
uthíxpathe	to make {x} fall; to drop {x}	2: using the hands by default	DT, SE, U

If we focus on the causative function of *thi-* alone (like in Table 5.10), a thorough survey is needed of the contexts where *thi-* causative verbs are used to ascertain how far the prefix *thi-* has evolved towards a neutral causative marker. Despite the fact that OLIT-UNL (2018) only refers to *thi-* as a causative prefix denoting actions performed by hand, it provides very broad definitions such as 'to dry {x}', or 'to bleach out {x}' (for *thiská*), and it is not clear whether or not such verbs can only be used when describing manual actions.

I have found very few examples where *thi-* has a causative function and clearly *does not* refer to action done by hand. The first one is *thiúdo^n*, exemplified in (463):

(463) *wák^{h}ihíde-wa-k^{h}itha=í=ma, ithádithaí=ma, í^{n}shte*
P1PL.watch.over-P3PL-CAUS.DAT=PL=PX.PL agent=PX.PL as.it.were(?)
wá-thi-udó^n=bi ethégo^n=no^n gthi^n t^{h}é.
P1PL-INS:NEU-good=PX think=HAB sit vert.
He [the president] continues to think that the agents whom he employs to watch over us are benefiting us. (Dorsey 1890: 757.13)

I have found at least two more: *thizhú(b)azhi* and *thiésa*. *Thizhúbazhi* means 'to injure {x}', 'to treat {x} ill'. As can be observed in (464), this is not limited to physical injury, as here the injury consists of stealing horses. It is a causative derivation from the stative verb *zhú(b)azhi*

'to be inferior, to be unlucky'[43].

(464) a. *shó^{n}ge bthúgaxti wáthi^n ák^{h}i-ágtha=i tho^n+++, a=i t^{h}e.*
horse all-INTENS P1PL.have arrive.back-go.back=PL EVID(?) say=PL EVID
"They have taken away every horse!" said they.

b. *Xe-í! wá-thi-zhu=bázhi hége=bázhi, a=i.*
(surprise) P1PL-INS:NEU-body=PL.NEG little=PL.NEG say=PL
"Alas! they have done us a very great injury." (Dorsey 1890: 438.8-9 / Páthi^n-no^{n}pázhi)

Finally, the verb *ésa* means 'to last longer than anticipated' (attested in Dorsey 1891a: 95.1), and from it comes the verb *thiésa* 'to continue working for a longer period than intended' (DD). It is not clear, though, whether or not this verb is really transitive. The form *wáthiesa* is attested in Dorsey (1891a: 33.4), but the context is unclear. *Wáthiesa* is included in the database devoted to the prefix *wa-* (p. 620), but I did not assign it to any function of *wa-* for lack of data.

Thornes (2013) documents exactly the same evolution in Northern Paiute. In this Aztecan language (Numic branch), the instrumental prefix *ma-* 'with the hands' has evolved towards a morphological causative marker. He notes: "the development of a morphological causative from ma- includes both the loss of its lexical semantics (i.e., use of the hand) and, additionally, its use with human causees" (p. 245). We see that in Umó^{n}ho^n, examples of neutral causative *thi-* also appear with human causees, which is rarely the case otherwise (though it does occur).

5.3.4 Instrumental prefixes expressing non-agentive forces

Instrumental prefixes with non-agentive meanings form complex predicates with their bases, but do not have a causative function. The resulting verbs are typically intransitive verbs denoting states, as in (465). Their semantic composition follows Configuration 2 presented in §5.3.2.2.

(465) *Ní^{n}kashí^{n}ga wa-nó^{n}zhu=má-di éde ní^{n}kashí^{n}ga wí^n no^n-t'a=í thó^{n}zha, shet^{h}ó^n níta zhó^n.*
person ANTIP-thresh=PL.PX-LOC but person one INS:machine-die=PX although that-far alive lie
Among the men who have been threshing there is one who has been severely injured by the machine, but he is still alive. (Dorsey 1890: 710.2-3 / Lion)

The non-agentive prefix gives additional information by introducing a semantic role, that of being a cause or an instrument, which is not part of the argument structure of the base verb. As such, it acts as the equivalent of an adjunct which is added to the lexical meaning of

[43]This verb is attested at least twice in Dorsey (1890): 258.16, 426.8. It is also used by Bertha Wolfe in Tape n°9, when saying that she cannot sew because her eyes are bad.

the verb. This is observed in (466); we see in (466a) the base verb *wakó^{n}dithe* 'to be excited, fired up, impatient' (DT, SE)is used with an adjunct specifying the cause. By contrast, *ná_-wako^{n}dithe* 'to be impatient from the heat' in (466b) includes this cause in its lexical meaning, in (466b).

(466) a. *No^{n}péhi^n wakó^{n}dithe-xtí=biamá.*
hungry impatient-INTENS=PX.REPORT
They were very impatient from hunger. (Dorsey 1890: 317.1 / Nudó^n-axa)

b. *égithe té-wa'uzhí^{n}ga ná-wako^{n}dithá=biamá*
finally buffalo-old.woman INS:temp-impatient=PX.REPORT
At length the aged Buffalo-woman grew impatient of the heat (Dorsey 1890: 153.2 / Nudó^n-axa)

Verbs with non-agentive prefixes need a causative marker to be used transitively (but see exceptions below). As an example, *ná_tube* 'to be cooked until falling apart' and *ná_sage* 'to be hardened by the heat/cooking' are intransitive verbs, as exemplified in (467). They refer to the effect of the heat on the meat; the meat is cooked by the heat. In (468), by contrast, *nátube* is derived with the causative marker *-the* in order to be used transitively and agentively. In this case, an agent/causer uses the heat (*ná-*) in order to cook the meat.

(467) *Tanúka shé-tho^n ná-sage a? Nátube a? Awí^{n}o^{n}wo^n?*
meat that-RND INS:temp-hard Q INS:temp-into.pieces Q which.one(?)
Is that meat hardened by heat? Or is it cooked tender? (OLIT-UNL 2018: 563)

(468) *káshi-xti Wakó^{n}dagi ná-tube-wá-the.*
a.while-INTENS Water.Monster INS:temp-into.pieces-O3PL-CAUS
[V]ery long ago he cooked the Water-monsters till the meat fell to pieces[.] (Dorsey 1890: 232.19 / Páthi^n-no^{n}pázhi)

Many *ná-* instrumental verbs are derived with the causative marker *-the* (at least 14; see a few examples in Table E.1, App. E.1). This is presumably because fire, and more generally heat, are often used by humans as an instrument. By contrast, no causative derivation of non-agentive verbs with *mú-* has been found. One causative derivation of *ga-* meaning 'by a fall' is attested: *gat'é_the* 'to kill {x} by letting/making him/her fall' (Dorsey 1890: 602.16-7; see (454) for the context).

By contrast, some of these verbs are attested transitively. First, the prefix *no^n-* 'by machine' is attested at least once as a transitive predicate, in (469). In this case, the causative marker is not required in order to introduce a human agent, and assigned an instrument semantic role to 'machine' denoted by the prefix.

(469) {*Wamúske*} *no^n-sé thishtó^n=i t^{h}édi, wagáxe tha-gí-shto^{n}be et^{h}é-go^n.*
{wheat} INS:machine-cut finish=PL when debt A2-POSS-A2.see HYP-thus
When they finish harvesting the wheat, you will be apt to see what is due to you. (Dorsey 1891a: 18.6 / No^{n}zadazhi)

The same is observed with a few *ná-* instrumental verbs in OLIT-UNL (2018). In Chapter 17.7 (pp. 453-6) the textbook introduces many verbs derived with *ná-*, some in intransitive clauses (like *nátube* in (467) above), and some in transitive clauses, like *ná_xu* 'to brand {x}', illustrated in (470). The full conjugational paradigm is provided in the textbook, with agentive and patientive person markers. The verb is constructed on a non-attested root **xu*, which I gloss '*marked', and which is also found in *baxú* 'to write {x}', *má_xu* 'to carve {x}' and *thixú* 'to draw {x}'. Because transitive verbs with *ná-* are only attested in OLIT-UNL (2018), I suppose that this could be a specific trait of contemporary Umóⁿhoⁿ. Note, however, that the data found in Stabler & Swetland (1977), ULCDP (2002), and Saunsoci & Eschenberg (2016) are consistent with the data found in Dorsey. As an example, Saunsoci & Eschenberg (2016) contrasts *ná_zi* 'to be toasted, to be browned' (p. 61) with *názi_the* 'to toast, to make brown' (p. 195).

(470) *"Ná-wa-tha-xu shkóⁿzhiⁿga," á=biama, té ama.*
INS:temp-P1PL-A2-*marked A2.not.know say=PL.REPORT buffalo PX.PL
"You do not know how to brand us," the buffalo supposedly said. (OLIT-UNL 2018: 455, 563)

5.4 Periphrastic causative *gáxe*

The verb *gáxe* broadly means 'to make'. Its most basic meaning refers to making an object in the sense of creating it, as in (471).

(471) *Washíⁿzhegthoⁿ páxe.*
frybread A1SG.make
I made frybread. (ULCC 2018: 7)

This verb does not conjugate with the regular paradigm. It is one of the few members of the athematic *g1-* stem paradigm. Its conjugation pattern distinguishes it from verbs derived with *ga-* instrumental prefix, which follows the leniting *ga-* paradigm. Both the athematic *g1-* stem paradigm and the leniting *ga-* paradigm are introduced in §3.7.1, along with the other conjugational paradigms which involve initial consonant alternation (see in particular (301) for an illustration of the differences between the leniting *ga-* paradigm and the athematic *g1-* paradigm). The full conjugational paradigm of athematic *g1-* stem verbs can be consulted in Table B.11 (p. 520), and those that are derived with the dative prefix (*giáxe*) are in Table B.22 (526).

The verb *gáxe* 'to make' has a clear causative function in some contexts, as illustrated in (472). Here, the verb has lost its lexical meaning, and only serves to express the causation.

(472) *Makóⁿ tʰé-ta ahí ki (...), wapé gi-sítha=zhi wáxa=i*
medecine VERT-ALL arrive when weapon POSS-remember=NEG O3PL.make=PP
CAUSER PATIENT

Páthi^{n}=ma
Pawnees=OBV.PL
CAUSEE
When the medicine arrived at the place, (...) it made [the Pawnees] forget the weapons. (Dorsey 1890: 402.17 / Ónpʰoⁿ-Toⁿga)

In reality, the verb ***gáxe*** is very polysemic, and it is used in many different syntactic constructions. There is no clear boundary between its use as a lexical verb and as a pure causative marker. In this section, I will first present the different meanings of ***gáxe*** and the syntactic constructions associated with them, and discuss the boundary between its use as a main predicate and as a causative marker (§5.4.1). I will then proceed to describing its characteristics as a causative marker (§5.4.2).

5.4.1 Meanings of *gáxe* and corresponding syntactic constructions

Table 5.11 summarizes the different meanings of ***gáxe***, the syntactic constructions associated with it, and semantic and functional features of relevance for this discussion. The different meanings of ***gáxe*** are written in bold font in the table: 'make', 'do/act', 'pretend', 'transform', 'consider', etc. The meaning 'cause' is used for the purely causative function of ***gáxe***. The syntactic constructions associated with ***gáxe*** are represented here by mentioning the syntactic units or lexical units that come with the verb: NP, VP, bare noun, 'good', etc. All of these represent verb complements except for 'good' and 'wrong', which are verb modifiers. As can be seen, ***gáxe*** takes both noun phrases and clausal complements (see §2.5.5 for a presentation of clausal complements). For instance, when ***gáxe*** means 'to consider', it can take as objects two NPs, or an NP and a clausal complement.

The meanings associated with ***gáxe*** are linked to one another, and the distinctions made in Table 5.11 are necessarily arbitrary to some degree. For instance, there is no clear distinction between 'transform' and 'use as', nor between 'use as' and 'consider'[44]. There is also no clear boundary between 'do' and 'cause'.

Examples of distinct meanings and constructions. Each syntactic construction mentioned in Table 5.11 is illustrated below. The English translations of the examples are reported in the table for easier comprehension.

[44] Admittedly, this lack of clear distinctions is partly due to uncertainties in the documentation. Two examples of ***gáxe*** are sentences from ***hígo^{n}*** (traditional and/or sacred legends) describing how a dead body was 'made into' a door flap. In one of them, there seems to be a clear transformation of the skin into a door (Dorsey 1890:246.14). In the other one, there seems to be no transformation. The translation is: "And behold, their sister had been made into a door: having been tied by her arms on both sides, she had been hung up." (Dorsey 1890:81.19)

Table 5.11: Meanings and syntactic constructions of *gáxe*

Meanings; syntactic constructions; examples		Link of identity	CAUS
Make/create			
+ bare noun	*I made frybread* (471)	no	no
+ noun, mod.	*He made very sharp thorns* (473)	?	no
+ noun, det.	*That song was made by (...) Yellow Smoke.* (474)	no	no
Do/act			
+ 'good'/'wrong'	*You did well!* (884), p. 562)	no	no
+ 'this'/'thus'	*Don't do that any more* (475)	no	no
Pretend; Pretend to be / imitate			
+ NP	*They wish to live as white men* (476)	?	no
+ CL	*He pretended to be sick* (477)	?	no
Transform, use as			
+ NP, NP	*He used a **wéaxthade** as a weapon.* (478)	yes	?
Consider			
+ NP, NP	*I regard you as a person just like him* (479)	yes	?
+ NP, CL	*They consider you to have abandoned it.* (480)	yes	yes
Cause			
+ NP, CL (with intr-s)	*they made it powdery.* (499), p. 329	yes	yes
+ NP, CL (with tr)	*He made them forget the weapons* (472)	?	yes

(473) {*Wáku paí-xti*} *gaxá=biamá.*
{awl sharp-INTENS} make=PX.REPORT
OBJ VERB

He made very sharp thorns, resembling awls. (Dorsey 1890: 291.3 / Nudó^n-axa)

(474) {*Shúde náze ak^{h}á*} {*waó^n k^{h}e*} *gáxa=i t^{h}e.*
{smoke yellow PX.SG} {song HORIZ} make=PX EVID
SBJ OBJ VERB

That song was made by Old Man Yellow Smoke. (Rudin et al. 1989-92: Handgame discussion / Mary Clay)

(475) *ítho^{n}bo^n thi-tó^{n}shka ná-hide aní=no^n t^{h}e* {*égo^n*}
second.time POSS:2-nephew A2.INS:mouth-bottom A2.have=HAB COMP {thus}
OBJ

gáxa=zhí=ga a=biama.
make=NEG=IMP.M say=PX.REPORT
VERB

"Don't tease your nephew any more", he said. (Rudin et al. 1989-92: Two Ghosts Story discussion / Mary Clay)

(476) {*Umóⁿhoⁿ amá*} {*wáxe*} *gáxe* *góⁿtha=i ha.*
{Umóⁿhoⁿ PX.PL} {white} make want=PL DECL.M
SBJ OBJ VERB

The Omahas wish to live as white men. (Dorsey 1890: 645.2 / Maxpíya-xága)

(477) *góⁿ* {*wakʰéga*} *gaxá=i* *tʰe.*
and {sick} make=PX EVID
OBJ VERB

He pretended to be sick. (Rudin et al. 1989-92: T18 / Mary Clay)

(478) *Wétʰiⁿ athíⁿ-biamá,* {*wéaxthade*} {*wétʰiⁿ*} *gáxe*
weapon have=PX.REPORT {weaxthade} {weapon} make
OBJ OBJ VERB

He used a *wéaxthade*[45] as a weapon; (Dorsey 1890: 402.13 / Óⁿpʰoⁿ-Toⁿga)

(479) {*Níⁿkashíⁿga ékʰigóⁿ-xti*} *wi-páxe* *éde,* ...
{person like-INTENS} A1SG/P2-make but
OBJ OBJ-VERB

I regard you as a person just like him, but ... (Dorsey 1890: 665.2 / Maxpíya-xága)

(480) {*tha-óⁿna*} *thi-gáxa=i.*
{A2-A2.abandon} P2-make=PL
OBJ OBJ-VERB

They consider that you have abandoned it. (Dorsey 1890: 766.7 / Gahige)

The next to last column of Table 5.11 highlights a semantic feature common to several meanings of *gáxe*, including its causative meaning, namely that *gáxe* often establishes a link of identity between two entities, or between an entity and a property. This is true of the meanings 'transform, use as', 'consider' and 'cause': all these meanings are included in constructions with two verb complements, and a semantic link between them. This link is clear when *gáxe* causativizes an intransitive stative verb denoting a state: 'They made it powdery' in (499). It is less clear when *gáxe* causativizes a verb denoting an event, as in (472).

Finally, the last column of Table 5.11 identifies the causative function of *gáxe*. The meaning 'to cause' is the only one where the causative function is completely clear. Other meanings, however, could be considered causative too, especially those which establish an equation between two complements. I include among causatives those constructions where *gáxe* means 'consider', and where it introduces a clause, because the same verb is used in the same syntactic construction [46]. 'Consider' corresponds to a tropative interpretation of causation, a

[45] Dorsey (1890: 403) defines the *wéaxthade* thus: "a kind of war club, with an iron point on one side of the lower end, and a ball of wood on the other". See further detail in the original note.

[46] The meaning 'to pretend / imitate' also introduces clausal complements, but in this case the subject of *gáxe* and the subject of the clausal complement is the same, in sharp contrast with the causative construction.

polysemy that it shares with the causative marker *-the* (see §5.1.1), and with other languages (e.g., Japhug; Jacques 2021: 874). It is further commented upon in §5.4.2.

The first two meanings of *gáxe*, 'to make' and 'to do', are clearly distinct from the causative function. As a verb meaning 'to create' and 'to do', *gáxe* can undergo a causative derivation with *-kʰithe* (**gáxe_the* is not attested because *gáxe* typically has a volitional and controlling subject), as in (481) and (482). The sequence of lexical *gáxe* followed by causative *gáxe* is not attested.

(481) *thi-négi áhigí-xti moⁿ gáxe-wa-kʰithá=a he, á=biamá.*
POSS:2-uncle many-INTENS arrow make-O3PL-DAT.CAUS=IMP.F DECL.F say=PX.REPORT
And she said as follows: "Cause your mother's brothers to make very many arrows." (Dorsey 1890: 27.19 / Nudóⁿ-axa)

(482) *Wanóⁿxe pézhi akʰa gáxe-oⁿ-kʰítha.*
spirit bad PX.SG make-P1SG-DAT.CAUS
The devil made me do it. (Saunsoci & Eschenberg 2016: 138 / Alice Saunsoci)

Ambiguities between the causative construction and other meanings. *Gáxe* always takes an NP as a complement when it means 'to make/create'. I have distinguished three kinds of NPs. Indeed, most of the time the complement takes the form of either a bare noun or a noun modified by an intransitive stative verb denoting a property[47]. In the latter case, the syntactic construction is superficially similar to the causative function. Compare (473) above with (486) (on p. 324); in each case *gáxe* follows a noun and a stative verb, and the free translation must be referred to in order to distinguish the causative function (to cause an already existing object to be V) from the meaning 'to create' (i.e., to create an object which is V).

The idiomatic expression *mazhóⁿ údoⁿ gáxe*, literally 'land good make', means 'to make peace'. As shown in (483), *gáxe* can be considered to be either a causative marker (to make the land good) or just a verb meaning 'to make / to create' (to make good land).

(483) *Mazhoⁿ údoⁿ oⁿ-gaxe ta=i!*
land good A1PL-make IRR=PL
Let us make peace! (Dorsey n.d.b)
Literally: Let us make good land. (?) / Let us make the land good. (?)

The interpretation will depend on whether we assume that the noun and modifier together form a verb complement, an NP, or that the noun alone is the causee, and the intransitive verb is the caused state. In any case, *mazhoⁿ* is a bare noun. In most causative constructions

[47] Due to time constraints, I have not gathered an extensive database of constructions with *gáxe*. I have indexed 25 constructions where *gáxe* means 'to make/create'. Of these, 12 take a bare noun as object, nine take a noun modified by a state verb, and four are other kinds of NPs.

with *gáxe*, the causee is definite and is determined with an article, as in (485). However, definite nouns with no article are regularly attested; see (486) and §8.4 for a presentation of bare nouns in general.

Example (484) shows another kind of ambiguity. The word *waxúbe* can be analyzed as an intransitive stative verb or as a noun. I analyze it as a noun in Chapter 7 (§7.3.3) because it is glossed 'sacred thing' by Dorsey, and because the prefix *wa-* normally does not derive or inflect intransitive stative verbs. Under such an interpretation, *gáxe* means 'to transform {x} into {y}', 'to use {x} as {y}'. However, Dorsey's free translations of sentences with *waxúbe* suggest a causative reading where *waxúbe* means 'to be sacred'[48].

(484) *shi égithe másho^n nó^{n}ba í^{n}bezíga másho^n waxúbe gaxá=biamá;*
again finally feather two yellow.tailed.hawk feather sacred (thing?) make=PX.REPORT
At length he made sacred two quill-feathers of a sparrow-hawk. (Dorsey 1890: 384.12 / Joseph La Flesche)

Crosslinguistically, causative constructions derived from nouns are frequent, and they are equivalent to the 'to make' meaning of *gáxe*. As such, they do not correspond to the causative constructions described in Chapter 1, which increase the valency of a verb by introducing a causer. In §5.2 and §5.5, instrumental verbs deriving nouns are considered a non-prototypical type of causatives, labeled 'CAUSb' in the databases. The instrumental verbs, in contrast to *gáxe*, are derivational prefixes that turn the base noun into a verb. In constructions with *gáxe* 'to make {x}', the noun remains a noun, and the construction is not considered causative at all.

5.4.2 Causative constructions using *gáxe*

The present section describes the syntactic and semantic features of causative constructions using *gáxe*. This corresponds to the meaning of *gáxe* 'to cause' in Table 5.11, and its meaning 'to consider' when it takes a clausal complement.

The causative marker *gáxe* is in several respects similar to the causative marker *-the* presented in §5.1. The most striking feature they have in common is that both markers only express causation on causees without any control and volition. As a result, *gáxe* is regularly used to describe a direct intervention by an animate causer on an inanimate causee, as in (485) through (487).

(485) a. *Gó^{n}ki í^n'e ge ná-zhidé-xti gaxá=bi egó^n, ní á-gaxto^n gthí^n=biamá.*
and stone SCT INS:temp-red-INTENS make=PX as water AP-pour sit=PX.REPORT

[48] If *waxúbe* is indeed a verb, this must be taken into account in the functions of *wa-* described in Chapter 7; the function 'indefinite object' or the putative aspectual function should be redefined to be compatible with intransitive verbs.

b. *Tí zhí^{n}ga t^{h}e nák^{h}adé-xti gaxá=biamá.*
lodge small VERT hot-INTENS make=PX.REPORT
And having made the stones very red-hot, he sat pouring water on them; he made the small lodge very hot. (Dorsey 1890: 249.16-7 / Frank La Flesche)

(486) *i wamí gaxá=biamá.*
mouth bleed make=PX.REPORT
he made his mouth bloody. (Dorsey 1890: 57.11 / Páthi^{n}-no^{n}pázhi)

(487) *tége uxpáthe gáxa=biamá, hégа=zhi.*
walnut fall make=PX.REPORT little=NEG
... causing a great many black walnuts to fall to the ground. (Dorsey 1890: 555.18 / Frank La Flesche)

In contrast to the marker *-the*, however, *gáxe* is attested with transitive verbs and their patients[49], as in (472) above, repeated in (489). Examples (488) and (489) show three causative constructions following one another in the same tale. In all of them, *gáxe* causativizes transitive verbs.

(488) *tadé t^{h}é-ta Ø thé-the gaxá=biamá.*
wind VERT-ALL go-CAUS make=PX.REPORT
CAUSEE (destination) PATIENT
He caused the wind to send it off to the place. (Dorsey 1890: 402.16 / Ó^{n}p^{h}o^{n}-To^{n}ga)

(489) a. *Makó^{n} t^{h}é-ta ahí ki,*
medecine VERT-ALL arrive when
CAUSER

b. *wazhí^{n} gi-sítha=zhi wáxa=i t^{h}e,*
temper POSS-remember=NEG O3PL.make=PP EVID

c. *wapé gi-sítha=zhi wáxa=i Páthi^{n}=ma*
weapon POSS-remember=NEG O3PL.make=PP Pawnees=OBV.PL
PATIENT CAUSEE
When the medicine arrived at the place, it made the Pawnees forget their warlike temper; it made them forget the weapons. (Dorsey 1890: 402.16-17 / Ó^{n}p^{h}o^{n}-To^{n}ga)

Although both of the base verbs *thé_the* and *gisítha* are transitive, the causee in not volitional and has no control. In (488), the causee is 'the wind', inanimate. In (489), the base verb is a psychological verb, *gisíthe* 'to remember {*one's own*}', whose subject typically has no control or volition. Thus, *gáxe* can be used on a syntactically transitive verb to create a causative construction, but the causee retains its non-volitional, non-controlling characteristics. The caused event has low transitivity on Hopper & Thompson's (1980) transitivity scale.

[49] As seen in §5.1, the marker *-the* is only attested a few times with transitive verbs as bases, and each time the verb had a passive interpretation. The causee was the patient of the base verb.

As previously mentioned, when *gáxe* means 'to consider' and introduces a clausal complement I analyze it as a causative marker. This corresponds to the tropative interpretation of causation. In this case, the "caused" event can be transitive, but the meaning 'to consider' makes it an irreal event, and makes the causee devoid of volition and control. In both cases, Dorsey uses 'to make' in interlinear glosses. When *gáxe* introduces a transitive verb whose subject (the causee) is an agent, as in (490)[50], this forces us to interpret of *gáxe* as 'to consider' rather than 'to cause'.

(490) *á-tha-nóⁿ'oⁿ=zhí-xti* *tatʰé iⁿ-thí-gaxa=bázhi.*
OBL-A2-hear=NEG-INTENS IRR A1PL-D2-make=PL.NEG
We do not consider that you will disregard what has been said by me. (Dorsey 1891a: 76.13 / George Merrick)
Event structure: the causer does not consider (=make) that the causee [will not listen to them]. = the causer considers that the causee will listen to him.

The distinction between "direct" and "indirect" causation is very important, as it is often a semantic contrast attested between several causative constructions within a particular language. However, these terms have been used in different ways by different scholars, and sometimes without a precise definition[51]. Moreover, Umóⁿhoⁿ texts are not always very clear about the precise context and mode of causation. I have not found any example of *gáxe* as a causing event whose temporal profile and/or spatial profiles are distinct from those of the caused event (one of the criteria proposed by Shibatani & Pardeshi 2002 for indirect causation). However, *gáxe* sometimes refers to causation by magic, as in (488) and (489) above, and (492) below. It is also used for causation by God, and ambiguities between 'make/create' and 'cause' are frequent in this context.

As with the causative constructions with *-the* and *-kʰithe*, the negation, possessive, and reflexive-reciprocal prefixes are attached to the embedded verb or to the matrix verb depending on their scope. In (489), the embedded verb *gi-sítha=zhi* 'they do not remember their own' takes a negation marker and a possessive prefix. Their scope is limited to the embedded clause: 'the causer makes the causees [not remember their own warlike temper/weapons]'.

This contrasts with (491) and (492), where the matrix verb *gáxe* takes the negation marker and the possessive marker, respectively.

(491) *Tanúka tʰé ná-xude páxe=mázhi.*
meat VERT INS:temp-gray A1SG.make=1SG.NEG
I do not let the meat scorch. (ULCDP 2002: Waxthá ígahi)

[50] In (490), the dative prefix serves to mark the causee as being particularly affected. It has no impact on the present analysis.

[51] See Shibatani & Pardeshi (2002), who discuss the issue and propose a definition and criteria. See also Jaggar (2017) for a review and discussion of the opposition between direct and indirect causation.

(492) *Wahó^{n}thishíge ak^{h}á ikó^{n} thi^{n}k^{h}é wathíshna=zhi*
Orphan PX.SG POSS:3-grandmother OBV.SIT.SG visible=NEG
gi-káxa=biamá.
POSS-make=PX.REPORT
The Orphan, by his magic power, had rendered his grandmother invisible (Dorsey 1890: 590.10 / George Miller)

Unlike the other causative markers described so far, *gáxe* is an independent verb. Causative constructions involving *gáxe* are clearly productive, although they are not very frequently attested among all the other possible meanings of *gáxe*. It is difficult to state whether *gáxe* forms a complex predicate with the verb denoting the caused event/state, or if it participates in a bi-clausal causative construction. In §1.4, I constrasted the French CP causative construction with the English bi-clausal causative construction. The French causative verb *faire* 'make/cause' takes the person markers of the causer, causee, and patient, and reassigns the case marking of the participants, which shows that it only forms one CP with the causativized verb. Conversely, in English causative constructions with *make*, each verb encodes its object(s), which enables recursivity.

I have not found any example of a recursive causative construction with *gáxe*, but this can easily be explained by its semantic value. (The causee has neither control nor volition, so the causer of a causative construction with *gáxe* cannot serve as a causee of another causative construction with *gáxe*.) There are very few examples where the caused verb is conjugated. In such cases, like (490) earlier, both verbs seem to be independently inflected, suggesting that each verb selects its own arguments, and the embedded verb alone takes an irrealis post-verbal marker. The different positions of the negation marker and the possessive prefix (in relation to scope) also suggest that each verb retains its argument structure. Finally, there is at least one example of a causative construction, in (494) (with dative *giáxe*), where the caused verb and causative verb are not contiguous.

There is only one characteristic which shows a sort of coalescence between the caused verb and the causative verb; in (489), the caused event is: 'they forget their weapons', with a plural subject. However, the caused verb does not take any plural marker (the expected plural form would be: *gisítha=bazhi*). A survey of the clausal complements presented in §2.5.5 shows that the proximate/plural marker *=i~bi~b* is often, though not always, missing from the clausal complement.

Further investigation is needed to fully understand how the caused verb and *gáxe* articulate.

5.4.3 Derivations from *gáxe*

Like the bound root *-the*, *gáxe* can be derived with the dative prefix. The resulting verb, *giáxe*, usually means 'make $\{x\}$ for $\{y\}$'. While causative constructions with *-the* and *gáxe* share similar semantic features, dative *giáxe* does not cover the same range of meanings as dative *-k^{h}ithe*.

The verb *giáxe* is mostly used as a verb meaning 'make {x} for {y}' or 'to do {x} to {y}'. It is scarcely used as a causative marker. I have only found a few examples of *giáxe* unambiguously acting as a causative marker, illustrated in (490) earlier and in (493) and (494) below. In each case, the dative prefix serves to turn the causee into a beneficiary or a maleficiary, that is, to highlight the causee's affectedness. It does not add a beneficiary or maleficiary in addition to the causee, so it does not have a valency-increasing applicative function. We see that, in contrast to *-k^{h}ithe*, *giáxe* is not used here to refer to causation performed through an intermediary causer, or to allow volitional causees.

(493) *Shé-thi^n nídeagthe tho^n bíze giáxa=a!, zó^{n}sta.*
this-OBV.MOV diapers RND dry DAT.make=IMP.F smell.pee
This one (standing) smells like pee, change his diaper! (Saunsoci & Eschenberg 2016: 180 / Alice Saunsoci)

(494) *Mazhó^n tho^n píazhi hégа=zhi, tigó^n=ha, we-gáxa=i.*
land RND bad little=NEG grandfather=VOC D1PL-make=PL
Literally: they are making our land very bad (for us), O Grandfather. (Dorsey 1891a: 103.5 / Tenuga-zi)
Context: the speaker explains the damage done by white people on their reservation, e.g. by shoving carcasses of cattle out of the train cars onto their land.

When *giáxe* is used as 'to make {x} for {y}', it shows the same ambiguities as *gáxe* with regard to the causative vs. non-causative function. Examples (495) and (496) show ambiguities where *giáxe* could be interpreted as a causative marker. Example (495) instantiates an optative construction (expression of hope). Dorsey's translation suggests it is a causative construction expressing indirect causation. The causative verb *giáxe* and the caused event *nié thithí^{n}ge* 'you are without pain' are very clearly located in two different clauses. The dative has the same meaning here as in (493); it specifies that the causee/patient is a beneficiary[52].

(495) *shó^n éskana nié thi-thí^{n}ge-xti mo^{n}shní^n ko^{n}bthégo^n Wakó^{n}da thi^{n}k^{h}é thi-gáxe ki.*
now OPT pain P2-to.lack-INTENS A2.walk A1SG.hope God OBV.SIT D2-make when
I hope that God may cause you to be without any sickness whatever. (Dorsey 1890: 521.10 / Dúba-mo^{n}thi^n)

In (496), Dorsey's translation suggests that *i^{n}gáxe* means 'he does that to me', referring anaphorically to the preceding clause 'he steals things from me'. However, *i^{n}gáxe* can also be interpreted as a pure causative marker, if the preceding clause is interpreted as passive: 'he causes me to be stolen from'. Note that in both (495) and (496), a causative interpretation supposes that causative constructions with *gáxe* or *giáxe* are bi-clausal.

[52] As can be seen in the conjugation charts of Appendix B, with a second person object (P2 or D2) the verbs *gáxe* and *giáxe* take the same form: *thigáxe*. Here, I restore the causative prefix, relying on Dorsey's interlinear gloss: 'he makes for you'.

(496) *T^{h}í-tha-thá=zhi ki, wa-í^n-mo^{n}tho^n shó^{n}sho^n i^n-gáxe tá=ak^{h}á.*
arrive-A2-CAUS=NEG if ANTIP?-D1SG-steal always D1SG-make IRR=EVID
If you do not send [the agent(?)] here (to stop it) the young man will always work against me by stealing my horses, etc., from me. (Dorsey 1890, 694.4 / Sho^{n}to^n-zhi^{n}ga)

The reflexive derivation *kikáxe*, literally 'to make oneself', is also attested as an auto-benefactive causative construction whose transitive caused event has a passive reading, as in (497).

(497) *Wáthi^n-ó^n-tha-the a-kí-paxe tá mi^{n}k^{h}e.*
ANTIP.have-P1SG-A2-CAUS A1SG-REFL-A1SG.make IRR 1SG.AUX
I will consider that you are treating me, your kinsman, with the greatest kindness. (Dorsey 1890: 721.3 / Mo^{n}ch^{h}ú-No^{n}ba)
Literally: I will make myself be treated very kindly by you.
(Note: the causative verb *wathí^n githe*, literally 'to make {*one's relation*} to have things', is thus defined by Dorsey (n.d.b): 'to treat his consanguinity well, as by giving him food, etc., continually'. The same verb is used in this example, with the exception that the possessive prefix *gi-* is missing.)

5.5 Other causative or causative-like constructions

At least two other kinds of constructions are functionally or semantically equivalent to causative constructions, namely constructions with the verb *shí* 'to employ/ask {x} to do {y}', and some constructions with the instrumental applicative prefix *í-*. None of them create prototypical causative constructions, as explained below.

The verb *shí* does not only imply a pure causation; it also supplies additional information (the caused event is a job or a task; it may or may not be done). Some authors, such as Dixon (2000: 32), restrict their definition of causative constructions to "morphological process[es] or verb[s] which only ha[ve] an abstract, causative meaning". An example of a construction with *shí* is given in (498). Unfortunately, I have not found any example of a causative construction with *shí* where three arguments are encoded (causer, causee, and patient of the caused event). I assume that in such a case the repartitioning of person markers would be similar that in constructions with *-the* and *-k^{h}ithe*, as illustrated in §5.1.3.

(498) *Ithádithaí amá baxú o^n-wó^n-shi shtewó^n égithe wé-baxu=bázhi=nó^n=i;*
agent PX.PL write A1PL-O3PL-employ despite finally D1PL-write=PL.NEG=HAB=PL
Though we employ the agents to write (to the President about these things), behold, they do not write for us! (Dorsey 1891a: 27.6 / Kaxé-Tho^{n}ba)

Verbs semantically and syntactically similar to *shí* are *ágazhi* 'to command {x} (to {CL})' and *uthá* 'to tell {x} to {CL}', at least.

At the other extreme of the causative continuum, we find constructions with the instrumental applicative prefix *í-* 'with'. This prefix is described in Chapter 6 along with other applicative prefixes. It usually introduces instruments. When inserted into clauses with an agent, it has a purely applicative function, adding an applicative object corresponding to an instrument. However, it also sometimes derives intransitive stative verbs. In such constructions, *í-* introduces an 'instrument' which is not manipulated by any agent, and it can be interpreted as both an instrument and an inanimate causer. In English, both the causative construction and a peripheral construction using 'by means of' are possible ways to translate these Umóⁿhoⁿ sentences. The instrumental applicative / causative isomorphism is described and commented upon in §6.2.6.

5.6 Comparison of the different causative constructions

5.6.1 Semantic comparison

Table 5.12 summarizes the semantic features of the causative constructions presented throughout this chapter. Each line represents one causative marker or one category of causative markers with the same features. The instrumental prefix *í-* and the verb *shí* 'to employ $\{x\}$ to $\{CL\}$' are also presented in order to show their distinctive features in relation to the other markers.

It appears that, despite their varied morphological and syntactic features, most causative markers in Umóⁿhoⁿ are preferably applied to verbs denoting states and to causees with no control or volition. The only exception is *-kʰithe* (when it does not merely correspond to the benefactive applicative counterpart of *-the*, cf. §5.1.1), which is typically used with animate causees retaining some control over the action, and can productively be applied to transitive verbs.

Because they specify how a process is carried out, the instrumental prefixes seem to focus on the process, while *-the* and *gáxe* instead focus on the result. A couple of examples support this distinction. Examples (499) and (500) both present a contrast between a verb derived with the instrumental prefix *thi-* 'with the hands', and a verb causativized with *gáxe* 'to make'. While *thi-* suggests a direct physical manipulation with the hands, the construction with *gáxe* focuses on the result, that is, the state of the causee at the end of the process.

(499) *Thi-túba=i ki, bthípe gáxa.*
INS:hand-ground=PL when powdered make[PL]
When they ground it up, they made it powdery. (Saunsoci & Eschenberg 2016: 52 / Alice Saunsoci)

(500) *Góⁿki édi tʰithá=bi egóⁿ te-míⁿga thi-shpáshpa thiⁿgé-xti*
and there start.suddenly=PL as buffalo-female INS:hand-in.pieces be.gone-INTENS

Table 5.12: Summary of Umóⁿhoⁿ causative markers

Causative markers	**Attested bases**				**Causee with control/ volition**	**Inanimate causer**	**Only direct causation**
	states	non-agentive events	agentive events	transitive verbs			
Instrumental applicative *í-*	yes	?	no	no	no	always	-
Instrumentals (*ba*, *tha-*, *thi-*, etc.)	yes	yes		no	no	never	yes
-the, *-kithe*, *-githe* + *-kʰithe* only as a benefactive	yes	yes		(yes *)	no	rarely	yes
gáxe 'to make'	yes	yes	yes **	yes **	no **	never	no
-kʰithe	no	yes	yes	yes	yes/no	never	no
shí 'to ask, to employ'	no	no	yes	yes	yes	never	never

* Derivation of transitive bases allowed only with passive reading or accidental action.
** The effective causation of agentive events (including transitive verbs) is not possible. Causative constructions with such caused events are interpreted as 'to consider'.

> *gaxá* = *biamá.*
> make=PL.REPORT
> And having gone thither quickly, they tore the Female-buffalo into small pieces, leaving no trace of her. (Dorsey 1890: 136.1 / Mary La Flesche)

In (499), the bases of both verbs have similar meanings; *túbe* means '(to be) ground', 'broken up', 'fine (as flour)' (Dorsey n.d.b, Sanchez, Larson & Walker in progress), and *bthípe* means 'to be powdered' (Saunsoci & Eschenberg 2016). But the derived verb *thitúbe* refers to a process: 'to grind {x}', 'to plow {*land*}', 'to chop {x} fine'. The causative construction *bthípe gáxa* refers to the result only.

Some verbs are attested with different causative markers. They show equivalencies between *-the*, *gáxe* and neutral causative *thi-*. Table 5.13 shows minimal pairs between *-the*, *gáxe* and instrumental causative verbs. As can be seen, different causative markers sometimes create verbs with exactly the same meaning. The synonymous verbs are sometimes attested in different sources, such as *nié_the* vs. *nié gáxe*, or in the same source, such as *zhút'oⁿ_the* vs.

Table 5.13: Verbs causativized with several markers

Base	***-the***	***gáxe***	**Instrumentals**
bashó^n ‘to be bent’ (DD, DT)	*bashó^n_the* ‘to pour out {x} (by pushing over)’ (DT, TA, U)		*thibásho^n* ‘to bend a stick a little by pulling down (...)’ (DD)
nié ‘pain’	*nié_the* ‘{*inanimate*} to hurt {x}‘ (DT)	*nié gáxe* ‘to hurt {x}‘; ‘to cause pain to {x}‘ (DT, SE)	
áhigi ‘many’	*áhigi_the* ‘to multiply {x}‘ (ST)	*áhigi gáxe* ‘to make much, to multiply’ (DD)	
xúde ‘gray’			*baxúde* ‘to make {x} gray by rubbing’; *thixúde* ‘to make {*clothes*} gray against bushes’ (DD)
ná_xude ‘scorched’	*náxude_the* ‘to scorch {x}‘ (DT)	*ná_xude gáxe* ‘make/let {x} scorch’ (RE)	
túbe ‘ground’ (Sanchez, Larson & Walker)	*tubá_the* ‘to be crumbly’ (SE)		*thitúbe* ‘to plow {x}‘ (DT), ‘to grind {x}‘ (ST, SE) *bitúbe* ‘to rub {x} to powder’ (DT) *gatúbe* ‘to crush {x}‘ (ST)
píazhi ‘bad’	*piázhi_the* ‘to go rancid’ (U)	*píazhi gáxe* ‘to damage {x}‘ (ST)	
zhút’o^n {*vegetable*} to be mature (DD)	*zhút’o^n_the* to raise {*veg.*} (DT)		*thizhút’o^n* to raise {*veg.*} (DT)

thizhút'o^n. We also see that all causative constructions are attested in both 19th-century and contemporary Umó^{n}ho^n. The base *ná_xude* is included together with the base *xúde*, because *ná-* 'by fire' has no causative function.

The form *tubá_the* 'to be crumbly' is attested in Saunsoci & Eschenberg (2016) as a stative verb. I consider it to be the passive reading of an originally transitive verb. There are also a few instrumental verbs from the same base that are always attested with a passive reading, perhaps suggesting that they have lexicalized as intransitive stative verbs: *umúshte* 'to remain alive after being shot at'; *uthá́shte* 'to remain after being bitten'[53].

5.6.2 Recursivity

Since a causative verb, by definition, takes at least one object, and typically involves an agent as its subject, the causativization of an already causative verb is only possible with constructions that allow an agentive causee[54]. As shown in Table 5.12, only *-k^{h}ithe* allows causees with control and volition, and as a result it is the only marker liable to causativize a causative verb.

Some verbs can be derived with both *-the* and *-k^{h}ithe*, as exemplified in §5.1.4. The causative marker *-k^{h}ithe* also derives transitive instrumental verbs, such as *baxú_k^{h}ithe* 'to make {x} write {y}' (see App. C.2). However, *baxú* 'to write {x}' derives a bound root, not a verb, and thus far I have not found any example of *-k^{h}ithe* deriving a causative instrumental verb. There is at least one example of *gáxe* causativizing a verb with *-the*: *théthe gáxe* (to make send), in (488) p. 324, but the causer/subject of *thé_the* 'to send {x}' is inanimate.

The verb *shí* 'to employ/ask {x} to {CL}' can also "causativize" causative verbs, as in (501). As mentioned earlier, this falls outside the domain of typical causative constructions, as it refers to giving instructions rather than actually bringing an event about.

(501) *Gó^n té thi^n t'é-the o^n-shí, ádo^n t'é-a-the-gó^n o^n-páda=i.*
and buffalo OBV.MOV die-CAUS P1SG-ask therefore die-A1SG-CAUS-and A1PL-cut=PL
Then Joe (...) asked me to kill the buffalo. So I killed it and we cut it up. (Dorsey 1890: 428.19-20 / Ó^{n}p^{h}o^n-To^{n}ga)

5.6.3 Formal comparison

Because they have a lexical meaning, instrumental prefixes can be analyzed as forming compounds with the bases they attach to. Compounds are semantically analyzable as complex predicates, as specified in §1.4.4, and as illustrated with the semantic analysis of instrumental verbs in §5.3.2. If we stay on a purely formal level, however, the instrumental prefixes belong

[53] We also find *unáshte* 'to remain after a fire' and *ugáshte* 'to remain alive after a fall', but these do not correspond to the causative function of the instrumental prefixes.

[54] There is one counterexample, *t'é_the_the*, already mentioned in §5.1.4. In this case, the base *t'é_the* 'to kill {x}' is analyzed as an accidental action, and thus remains semantically compatible with the marker *-the*.

to the morphological domain, and the instrumental verbs are morphological constructions. They also express direct causation.

The other causative constructions are more difficult to analyze in formal terms. (Here I ignore the causative-like constructions described in §5.5.) I have shown in §5.1.5 that the bound stems *-the*[55] and *-k^{h}ithe* display features of both syntactic and morphological constructions. Although complex predicates (CP) are presented in Chapter 1 as an intermediate step between analytic (multiclausal) and morphological constructions, the fact that causative stems are recursive in Umó^{n}ho^n rules out the possibility of analyzing them as CPs. They must be analyzed either as morphological causative markers, or as mutli-clausal causative markers. On the other hand, causative constructions using the verb *gáxe* 'to make $\{x\}$' are clearly not morphological, but the question whether they form CPs or multiclausal constructions remains.

It is widely accepted that when languages possess several types of causative constructions, an analytic construction cannot express a more direct causation than a more synthetic formal construction, and vice versa (see Comrie 1981, Haiman 1983). Dixon (2000: 74) calls this the "scale of compactness", which follows the ordering presented in §1.4: synthetic > morphological > CP > analytic. The semantic analysis of the three causative markers in question reveals that *-the* expresses the more direct causation, closely followed by *gáxe*, and that *-k^{h}ithe* expresses indirect causation. In this regard, Umó^{n}ho^n displays very interesting features, whatever the hypothesis we adopt:

Hypothesis 1 The stems *-the* and *-k^{h}ithe* are morphological causative markers, and *gáxe* forms CPs or analytic constructions → Umó^{n}ho^n is a counterexample to the "scale of compactedness" correlation.

Hypothesis 2 All three causative markers enter into analytic constructions → this hypothesis implies that compact constructions written as one word, such as *t'ekíthe-wathe* in (436)[56], spread over two distinct clauses in a subordination relation. It ignores the grammaticalization evidence of the stem *-the* described in §5.1.5.

Hypothesis 3 The stem *-the* has grammaticalized into a morphological causative marker while *-k^{h}ithe* has not. Consequently, the latter still forms analytic causative constructions. *Gáxe* forms CPs or analytic constructions. → this implies that although the markers *-the* and *-k^{h}ithe* have the same historical origin, they should no longer be described together as variations of the same kind of causative constructions. However, as illustrated in §5.1.1, the dative causative *-k^{h}ithe* can also correspond to a regular benefactive applicative of the basic causative marker. In this case, it still expresses direct causation.

[55]The derived causative markers *-gíthe*, *-kíthe* basically function like the root *-the*, except for the special possessive, reflexive/reciprocal and benefactive-possessive meanings they add. The dative *-k^{h}ithe* and the benefactive-possessive *-ík^{h}ithe* can also correspond to regular applicative derivations of the basic causative marker *-the*.

[56]See p. 286. The morphemes division is *t'e-ki-the-wa-the*, and the unique hyphen written between *t'ekíthe* and *wathe* shows the clausal boundary.

5.7 Summary

This chapter provides a thorough study of causative constructions in Umóⁿhoⁿ, which lie along a continuum from morphological constructions to purely syntactic constructions. Diachronically, almost all of the markers illustrated in §5.1 to §5.4 can be traced back to verbs in Proto Siouan or Proto Mississippi Valley Siouan, but they show various degrees of grammaticalization. The instrumental prefixes (§5.2, §5.3) clearly belong to the morphological domain, since they form only one stem with the base to which they attach (see §3.4), but as they retain a lexical meaning, the resulting verbs can be analyzed as complex predicates. The causative bound stems (§5.1) display features of both morphological and syntactic causative constructions; they are the only markers dedicated to causation only. The verb *gáxe* 'to make' can be used in syntactic causative constructions (§5.4). Additionally, the instrumental applicative prefix *í-* and some verbs such as "to employ", "to order" share common points with the causative constructions, and are briefly presented in §5.5.

The instrumental prefixes have a lexical meaning specifying how the process is carried out, and they can be compounded with different kinds of bases to create verbs commonly called "instrumental verbs". They often derive causative verbs from intransitive bases, in which case they express direct causation (typically involving physical contact) by an animate causer on a causee devoid of control and volition. The prefix *thi-* "with the hands" has the most general meaning, and it has evolved towards a neutral causative marker in some verbs, as shown in §5.3.3.3. The verbs in question are synonymous with those created with the bound root, as shown in Table 5.13 (*zhút'oⁿ_the* and *thizhút'oⁿ*). The causative function is not compatible with all the meanings assigned to the instrumental prefixes, however. When they express the action of natural forces such as "wind", "water", or "extreme temperature", the prefixes cannot introduce a causer and they do not increase the verb's valency. The prefix *ga-*, described in §5.2, is very polysemous, and its causative function is clearly linked to the meanings implying an agent (typically, "by striking"). The prefix *ná-*, which only expresses the action of natural forces ("by extreme temperature", "by fire"), never has a causative function. Moreover, all instrumental prefixes frequently derive non-autonomous roots with more or less accessible meanings, and in a number of cases they combine with a noun or an adverb without having any causative function, as described in §5.3.2.2 to §5.3.2.4. In sum, the instrumental prefixes enter into several types of semantic configurations with their bases, and are far from being only causative markers.

The causative bound root described in §5.1 originally comes from a separate verb, as can be observed from its ability to take derivational prefixes and person markers, and from the repartition of person markers on/between the lexical verb and the causative stem. It has grammaticalized into a bound stem, however, and we have one example of the resulting causative verb being treated as a single stem when undergoing further derivation. The derived causative stem *-kʰithe*, which originally comes from a combination of the dative prefix *gí-* and the causative root *-the*, has special semantic features. It typically applies to verbs denoting

volitional actions, including transitive verbs, and the causer retains control over the action. The dative causative stem sometimes contrasts with the basic root *-the* in terms of the causee's animacy and the causer's volition. Table 5.3 summarizes the semantic distinctions between *-the* and *-k^{h}ithe*.

The verb *gáxe* basically means "to make" and can be used as a causative marker in periphrastic causative constructions. It has a purely causative function with states or non-agentive events (i.e., events where no agent is involved, like "to remember"), and there is no clear-cut distinction between *gáxe* functioning as a lexical verb ("to produce") and as a causative marker ("to cause"). This verb can also be combined with agentive events, in which case it means "to consider $\{x\}$ $\{y\}$" (where $\{y\}$ can be an NP or a clausal complement with $\{x\}$ as a subject).

Both *gáxe* 'to make' and the bound root *-the* combine with the reflexive/reciprocal *kí(g)-* and the dative applicative *gí-*, yielding the expected meanings "to cause oneself; to cause for oneself" and "to cause/make for someone else"[57], respectively. The bound root can also be derived with the possessive marker *gi(g)-* and the benefactive-possessive marker *ígi-*. All these derivations modify the causation when they apply to the causative verb or root, while they are restricted to the caused event when they derive the base verb, as shown in §5.1.3.

A comparison of the different causative markers is provided in §5.6. Despite their varied morphological and syntactic features, most causative markers in Umó^{n}ho^n are preferably or exclusively applied to verbs denoting states and to causees with no control or volition. The only exception is *-k^{h}ithe*, which is typically used with animate causees retaining some control over the action and can be productively applied to transitive verbs. The formal and semantic features of *-the*, *-k^{h}ithe*, and *gáxe* makes it impossible to produce an analysis which respects the universal form-meaning correlation without being at odds with the formal features observed. I propose in §5.6.3 three possible analyses, all implying some theoretical or descriptive problem.

[57] As mentioned above, the combination of the bound root *-the* with the dative prefix *gí-* yields the "dative" causative *-k^{h}ithe* with its proper semantic features. It is additionally attested as a regular combination of causative and benefactive applicative in a couple of examples, as shown at the end of §5.1.1.

Chapter 6

Oblique applicatives

The "oblique" applicatives in Umóⁿhoⁿ are a set of three applicative prefixes[1] that typically introduce inanimate arguments, such as locations (of different kinds), instruments, causes, and some others (see §6.1). They are also termed "oblique prefixes" in a more general way, because they are often lexicalized on verbs where they have no applicative function[2].

We find in (502) a basic example of an instrumental applicative construction. The first clause shows the basic transitive verb *kíde* 'to shoot at {x}' (the patient here is not expressed syntactically, but is recoverable in the context), and the second clause repeats this verb with the applicative *í-*, which introduces an instrument as an applicative object[3], a new core argument of the verb. The semantic role of instrument need not be expressed by an adposition; it is specified by the applicative itself (and partly by the context too, because the applicative *í-* is polysemous).

(502) *Kíde=hnoⁿ=i* *tʰe,* {*móⁿ*} *í-kide* *tʰe;*
shoot=HAB=PX EVID {arrow} AP:INS-shoot EVID
Literally: He shot at him repeatedly; he shot at him with arrows. (Dorsey 1890: 369.10 / Nudóⁿ-axa)

The prefixes *á-*, *u-* and *í-* are old in Siouan. They are attested in all subgroups of the family with stable forms and identifiable core meanings; Carter et al. (2006) reconstruct Proto-Siouan **á•-* 'on', **o-* 'in' and **í-* 'with', respectively (pp. 499, 399, 850), and specify that they were probably originally distinct roots or proclitics (p. 943). According to Helmbrecht's review of existing Siouan grammars (2006), the meanings associated with these prefixes are quite stable for *á-* and *u-*, and show more variation for *í-*. The instrumental meaning is the most widespread one, but others such as adessive, sociative, and causal, are also attested in

[1]The complex prefix *ithá-* may be a fourth one.

[2]The oblique prefixes always have the same very specific morphophonological features, whether they have an applicative function or not. This is why it is sometimes useful to refer to them as "oblique prefixes".

[3]The terminology "base object" and "applicative object" is taken from Peterson (2007). The base object refers to the unique object of the transitive verb when there is no applicative marker. The applicative object corresponds to the argument added to the verbal core by means of the applicative affix.

various languages, including Umóⁿhoⁿ.

In Umóⁿhoⁿ, as well as in at least two other Mississippi Valley Siouan languages (Lakhota and Hoocąk), morphologically complex prefixes arise from the combination of *í-* with the two other prefixes. In Umóⁿhoⁿ, these complex oblique prefixes take the surface forms of *ithá-* and *uthú-*. (An epenthetic *-th-* appears in each case, and the underlying *í-* undergoes assimilation by *u-* in *uthú-*[4].) These are found on a restricted number of verbs. Conflicting data sometimes suggest that *ithá-* and *uthú-* are new derivational prefixes, while at other times they are best described as a combination of two simple prefixes. Each complex prefix corresponds to a specific template of person markers, described in §3.4.4, and the resulting conjugated forms are often opaque (see Tables B.5 and B.6 in Appendix B).

Table 6.1 displays several minimal pairs of verbs derived with different oblique prefixes, illustrating their various derivational functions. We observe that they sometimes act as applicatives, and sometimes not, which is why they are sometimes referred to as "oblique prefixes" instead of "oblique applicative (markers)". The verbs *ithábet^{h}o^n* 'to wrap {x} around {y}' and *uthúdo^{n}be* 'to examine {x}, to consider {x}' are examples of verbs where *ithá-* and *uthú-* seem better described as distinct derivational prefixes, rather than as a combination of two oblique prefixes.

In this chapter, I first present the productive meanings of the oblique prefixes as applicative markers (**§6.1**). Next, I analyse more particularly the syntax of the applicative constructions in **§6.2**. **§6.3** examines syntactic alternatives to applicative constructions. Finally, **§6.3** 6.4 presents cases where the oblique prefixes have no applicative function: when they act as valency-preserving derivational prefixes (§6.4.1), and when they are demotivated (§6.4.2).

A spreadsheet database of verbs with oblique prefixes is presented in App. E.4. The verbs are categorized according to the function of the oblique prefix (applicative, valency-preserving derivational prefix, and various degrees of lexicalization).

6.1 Meanings of the applicative prefixes

This section presents the varied meanings of the oblique applicative prefixes. Section 6.1.1 presents the locative applicative constructions, with prefixes *á-*, *u-*, *í-*; section 6.1.2 the prefixes *á-* and *u-* as applicative prefixes introducing figurative locations; section 6.1.3 the meanings of *í-* other than locative. Finally, section 6.1.4 shows the meanings of *í-* as an applicative marker in the complex sequences *ithá-* and *uthú-*.

[4]The morphophonology of Umóⁿhoⁿ verb prefixes is described in §3.5.1.

Table 6.1: Derivational usage of oblique prefixes

Base	*í-*	*á-*	*u-*	*ithá-*	*uthú-*
no^{n}zhí^n to stand	*íno^{n}zhi^n* to stand {*while/during CL*}	*áno^{n}zhi^n* to stand on {x}; to mount {*horse*}	*unó^{n}zhi^n* to stand in {x}		*uthúno^{n}zhi^n* to depend on {x}
ú to wound {x}	*íu* to wound {x} with {y}				
**gaxáde*		*ágaxade* to cover {x}		*ithágaxade* to cover {x} with {y}	
bét^{h}o^n to fold up {x}	*íbet^{h}o^n* to pass around {x}		*ubét^{h}o^n* to wrap {x} in {y}	*ithábet^{h}o^n* to wrap {x} around {y}	
**k^{h}ie*			*uk^{h}íe* to talk to {x}		*uthúk^{h}ie* to talk to {x} about {y}
ó^{n}he to flee	*ío^{n}he* to flee because of {x}				
dó^{n}be to see {x}		*ádo^{n}be* to look after {x}			*uthúdo^{n}be* to examine {x}
no^n'ó^n to hear (about) {x}		*áno^n'o^n* to listen to {x}; to obey {x}	*unó^n'o^n* to hear about {x}		

6.1.1 Locative applicative constructions

All three applicative prefixes can add a locative argument, for three different kinds of location: inessive for *u-* ('in'); superessive for *á-* ('on'); adessive for *í-* ('against; by'). The terms "inessive", "superessive", and "adessive" are borrowed from Hungarian grammars (for example Rounds 2001: 93) and are used by Helmbrecht (2006, 2016). The examples provided in Chapter 4 are reproduced in (503) through (505).

(503) Inessive locative ('in')

a. *Xthíazhi no^{n}zhí^n-i-ga.*
quiet stand=PX-IMP.M
Stand ye still (Dorsey 1890: 23.19 / Frank La Flesche)

b. {*tizhébe etá* *t^{h}e*} *u-nó^{n}zhi^n* *égo^n, ...*
{door POSS:3 VERT} AP:INESS-stand as
A.OBJ VERB

As he stood in his door, ... (Dorsey 1890: 148.5 / Nudó^n-axa)

(504) Superessive locative ('on')

a. {*shó^{n}ge amá*} *nó^{n}ge* *agí=i.*
{horse PX.MOV} run come.back=PX
SBJ VERB

"His horse was coming back running to the camp." (Dorsey 1890: 464.9 / Ó^{n}p^{h}o^n-To^{n}ga)

b. *ki* {*zho^{n}thíno^{n}ge-'ó^{n}sagi*} {*mazhó^n tho^n*} *á-no^{n}ga=i.*
and {wagon-swift} {land RND} AP:SUPESS-run=PL
SBJ A.OBJ VERB

Literally: And the swift wagons run on the land. (Dorsey 1891a: 103.1 / Tenuga-zi)

(505) Adessive locative

a. {*wakó^{n}dagi* *pa-pétho^{n}ba ak^{h}á*} *shkó^n=hno^n=i thó^{n}di, ...*
{water.monster head-seven PX.SG} move=HAB=PX when
SBJ VERB

And whenever the Water-monster with seven heads moved, ... (Dorsey 1890: 111.10 / Frank La Flesche)

b. *Sni<thi>t'e!* {*Péde*} *í-shko^n=ga!*
<P2>cold {fire} AP:AD-move=IMP.M
A.OBJ VERB

You are cold! Draw near the fire! (DD)

Additionally, we see in Table 6.1 a particular example with the complex oblique prefix *ithá-:* the base verb *bét^{h}o^n* 'to fold up {x}' (DD) is derived into *ithábet^{h}o^n* 'to wrap {x} around {y}', as in (506), with reduplication. It suggests that *ithá-*, despite being underlyingly complex, behaves as one applicative prefix with the meaning 'around'. It is not possible to analyze it as a combination of the applicative prefixes *á-* 'on' and *í-* 'by'. This is the only such example found.

(506) Complex prefix *ithá-* meaning 'around'?

Hé uína-bi kízhi {*ásku*} {*no^{n}bé*} *ithá-bet^{h}o^n~t^{h}ó^n=biamá.*
lice DAT.seek when {scalp.lock} {hand} AP:AROUND-fold~REDUP=PP.REPORT
B.OBJ A.OBJ VERB

When he hunted lice, he wrapped his elder brother's scalp-lock round and round his hand. (Dorsey 1890: 210.6 / Páthi^n-no^{n}pázhi)

The choice between the inessive and superessive locative prefixes is not totally free. For instance, *áno^{n}ge* 'to run on {x}' is used in (504) to refer to "run on the land". Apparently,

the inessive applicative cannot be used with the base *nóⁿge* for "to run inside the land/across the land"[5]. By contrast, both *ugthíⁿ* 'to sit in {x}' and *ágthiⁿ* 'to sit on {x}' can be used in reference to sitting on something, except that *ugthíⁿ* refers to sitting in the middle of it. This contrast is exemplified in (507) and (508)[6].

(507) {*xáde búta u<ná>shte*} *oⁿg-ú-gthiⁿ=i.*
{grass round <INS:temp>remain} A1PL-AP:INESS-sit=PL
A.OBJ VERB

We sat on a round tract of grass which had not been burnt by the prairie fire. (Dorsey 1890: 456.6 / Kaxé-Thoⁿba)

(508) {*wí-shi'e*} {*umíⁿzhe thoⁿ hébe*} *á-gthiⁿ te*
{POSS:1SG-sister's.husband} {rug RND part} AP:SUPESS-sit IRR
SBJ A.OBJ VERB

Let my sister's husband sit on part of the rug. (Dorsey 1890: 594.4 / George Miller)

Note that the locations introduced are generally locations where the event takes place (stative locatives, as in the examples above). In at least one oblique applicative verb denoting movement, *ubáaze* 'to scare {x} into {y}', the location introduced refers to the goal (allative locative), as in (509). Note that here, the applicative object can take the allative postposition *-ta* 'to; towards'. See §6.2.4.

(509) {*Ní kʰé-ta*} *ú-baazá=biamá.*
{water HORIZ-ALL} AP:INESS.O3PL-scare=PX.REPORT

They scared them into the water. (Dorsey 1890: 412.5 / Óⁿpʰoⁿ-Toⁿga)

6.1.2 Figurative locations

The prefixes *u-* and *á-* sometimes introduce applicative objects in a figurative locative relationship with the subject. For instance, the transitive verb *óⁿ_tha* 'to leave {x}' becomes *áoⁿ_the* 'to contaminate {y} with {*disease*}', literally "to leave {*disease*} on {y}", as shown in (539) p. 352. The verb *áthaza'e* '{*bird*} to make a great noise on {x}', from *za'é* 'to make noise' and *tha-* 'with the mouth', is another example. (See Table E.3 about instrumental prefixes.) It seems that in such cases, *á-* introduces a maleficiary, as *gí-* does in some contexts.

Examples of figurative location with *u-* are provided in (510) and (511).

(510) *ugthóⁿ* 'to put {x} in {y}' used figuratively as 'to put {x} in {*a function*}'

[5]The form *unóⁿge* is attested in Dorsey's dictionary as a noun, defined as: "passenger cars on a train, as distinguished from an engine". This may be a Paⁿka word, since "(P.)" is mentioned. From this definition, we can deduce the meaning of the corresponding verb as "to travel inside {x}".

[6]In other contexts, *úgthiⁿ* 'to sit in {x}' really refers to sit inside or among something: inside a hollow in Dorsey (1890: 249.8), in the middle of the Eagle's thick feathers in example (565b) of this chapter.

{*É* *thitó^{n}de* *ama*} {*shét^{h}e*} {*éabaha*} {*é*}
{that POSS:2-son.in.law px.mov} {this} {anouncer} {that}
SBJ APP A.OBJ APP
o^{n}wó^n-gtho^n-i-t^{h}e *ékigo^n-xti=o^n*
P1SG.AP:INESS-*put=PX=EVID thus-INTENS=AUX
VERB

Your son-in-law is the one that got me started being the MC. (Rudin et al. 1989-92: T14, OTP / Clifford Wolfe)

(511) *unó^{n}zhi^n* 'to stand in {x}' (also: 'a coat') used figuratively as 'to fill in for {x}', 'to replace {x}'

Thi-hó^n *ó^{n}bathe aíatha t^{h}egó^n,* {*thi-tó^{n}ge*} *u-nó^{n}zhi^n* *tat^{h}e.*
POSS:2-mother today leave in.order.that {POSS:2-elder.sister} AP:INESS-stand IRR
SBJ VERB

Since your mother will be away today, your elder sister will fill in for her. (OLIT-UNL 2018: 567)

The meanings of *í-* that are presented in §6.1.3 can also be considered figurative extensions of the adessive applicative.

6.1.3 Instrumental and other meanings associated with *í-*

The prefix *í-* is the only polysemous applicative marker[7]. In fact, its function as an adessive locative is rather rare in the corpora. We can identify at least three other semantic roles for the objects it introduces: instrument, reason, and time. The commonest one is the instrument, as in (512).

(512) Instrument

a. *ki* {*wí^n*} *ú=i* *t^{h}e*
and {one} wound=PX EVID
B.OBJ VERB
"And he wounded one slightly" (Dorsey 1890: 189.9 / Sho^{n}ge-ska)

b. {*Mo^n* *nó^{n}ba*} *í-u=biamá* {*Mo^{n}ch^{h}ú.*}
{arrow two} AP:INS-wound=PX.REPORT {Grizzly.Bear}
A.OBJ VERB B.OBJ
He wounded the Grizzly Bear with two arrows. (Dorsey 1890: 46.8 / Nudó^n-axa)

A related meaning is the sociative meaning 'together with', when the verb has two objects between which we cannot identify a base object and an applicative object. This is attested in sentences referring to cooking, as in (513).

[7]The prefix *u-* sometimes means 'about', as observed in the pair *no^n'ó^n* 'to hear {x}' and *unó^n'o^n* 'to hear about {x}'. This meaning is reported in Helmbrecht (2006), probably from a personal communication from Koontz. However, I have not found any instance of *u-* with this meaning in an applicative function.

(513) Sociative ('together with')

{*Tanúkagaxthíxthi*} {*waníde*} *í-páxe* *tá* *mi^{n}k^{h}e.*
{hamburger} {gravy} AP:SOC-A1SG.make IRR 1SG.AUX
B/A.OBJ B/A.OBJ VERB

I will make gravy with hamburger. (Swetland 2006:2.1)

Finally, the applicative marker *í-* can introduce the cause of an event or reason/incentive of an action, as shown in (514). I label and gloss this meaning 'reason'. In §6.2.5 we see that this meaning allows clausal complements to be inserted as applicative objects, rather than NPs.

(514) Reason ('because of {x}'; 'on account of {x}')

a. {*"wí*} *kúahe* *hégа=mázhi",* *á=biamá* *áma* *ak^{h}á,* *"pí* *t^{h}édi".*
{1SG} A1SG.fear little=1SG.NEG say=PX.REPORT other(?) DEF.PX A1SG.come when
SBJ VERB

"Nevertheless, I was very much afraid when I was coming," said the other. (Dorsey 1890: 364.9 / Joseph La Flesche)[8]

b. *shó^n* {*Wégithe-shtó^n*} *í-kuhe=hnó^n=biamá*
yet {Beggar} AP:REASON-fear=HAB=PX.REPORT
A.OBJ VERB

They were always apprehensive on account of The Beggar. (Dorsey 1890: 335.3 / Ó^{n}p^{h}o^n-To^{n}ga)

We see that with the applicative marker *í-*, there is a semantic syncretism between adessive locative, instrumental, sociative and reason. Some pivot constructions show how these meanings are related, as typified in the following paragraphs.

Instrumental and locative adessive. First, some sentences illustrate the blurry boundary between instrumental and adessive meanings. In (515), we can either consider that *í-* is an instrumental applicative that introduces 'earth', or that it is an adessive applicative introducing 'the face' as the object against which the soil is rubbed.

(515) {*Mo^{n}thí^{n}k*} {*i^{n}dé* *tho^n*} *í-biká=biamá* {*ké-to^{n}ga* *ak^{h}á.*}
{soil} {face RND} AP:?-rub=PX.REPORT {turtle-big PX.SG}
B/A.OBJ B/A.OBJ VERB SBJ

[The Big Turtle] rubbed earth on his face. (Dorsey 1890: 257.01 / Te-úko^{n}ha)

A verb like *ík^{h}o^{n}to^n* 'to tie {x} to/with {y}' allows both the instrumental and the adessive interpretations. The non-applicative verb is *k^{h}ó^{n}to^n* 'to tie {x}', exemplified in (516), which

[8] Dorsey glossed *áma* 'the' and *ak^{h}á* 'other', although it could be read *áma ak^{h}á* 'the other'. It seems that both articles are used together to indicate who is speaking. Because Umó^{n}ho^n is a head-final language, I interpret the first article, *áma*, as identifying the speaker while he was coming (=moving), and the second one *ak^{h}á* acting as a determiner here.

does not express instrument nor "location". In contrast, the applicative verb can mean "to tie {x} with {*instrument*}" in (517a), or "to tie {x} to {y}" without specifying the instrument, in (517b). In (517c) the verb is translated as "to tie {x} to {y}", but as one of the objects, the colt's tail, is the same shape as a rope, it could be at the same time a location and an instrument (this is not specified, though).

(516) {*shó^{n}ge shé=ma*} *wá-k^{h}o^{n}tó^{n}i=ga, á=biamá, bthúga-xti.*
{horse that=OBV.PL} O3PL-tie=IMP. say=PL.REPORT all-INTENS
OBJ VERB

"Tie ye all those horses with lariats." (Dorsey 1890: 326.3-4 / Nudó^n-axa)

(517) Different interpretations for *í-* in *ík^{h}o^{n}to^n* 'to tie {x} to/with {y}'

a. {*Házhi^{n}ga*} *wé-k^{h}o^{n}tó^n=i égo^n, ík^{h}i wá-baxta=i.*
{cord O3PL.AP:INS-tie=PL} as chin O3pl-tie=PL
A.OBJ B.OBJ+VERB

They threw lariats over the horses' heads, and tied their lower jaws. (Dorsey 1890: 442.1 / Páthi^n-no^{n}pázhi)

b. {*í^n'e to^{n}gáxti tho^n*} *éde* {*síko^n*} *í-k^{h}o^{n}to^n gthí^n=biamá.*
{stone large-INTENS RND} but {ankle} AP:AD-tie sit=PL.REPORT
B/A.OBJ B/A.OBJ VERB

The stones were very large, but he was tying it to his ankles. (Dorsey 1890: 329.11 / Joseph La Flesche)

c. {*sí^{n}de k^{h}e*} {*no^{n}bé t^{h}e*} *í-wi-k^{h}o^{n}tó^n te há*
{tail HORIZ} {hand VERT} AP:?-A1SG/P2-tie IRR DECL.M
B/A.OBJ B/A.OBJ VERB

I will tie your hands to [the colt's] tail (Dorsey 1890: 96.4-5 / Frank La Flesche)

Instrumental, sociative and other "instrumental-like" meanings. The instrumental and sociative are often introduced by the same means cross-linguistically, for instance *with* in English and *avec* in French. We easily imagine how an instrumental meaning can be extended towards a sociative one. Other constructions attest to slightly different meanings, that can be easily considered extensions of instrumental use, although it is difficult to come up with a label for them. In (518), the prefix *í-* introduces an object to the intransitive verb *hó^n_bthe* 'to dream' ('to dream an ordinary dream', according to Dorsey n.d.b). This is similar to the Spanish alternation between *soñar* 'to dream' and *soñar con* 'to dream about {x}'.

(518) a. *wasábe tí=i tho^n ahí=bi t^{h}édi* {*wasábe wi^n*} *hó^{n}btha=biamá.*
Black.Bear dwell=PL RND arrive=PX when {Black.Bear one} dream=PX.REPORT
SBJ VERB

When he [the Rabbit] reached the Black bears' village, one Black bear had dreamed (or, had had a dream). (Dorsey 1890: 17.13 / Joseph La Flesche)

b. {*Níkashi^{n}ga nó^{n}ba*} *wé-ho^{n}bthai* *t^{h}e*
{person two} O3PL.AP:?-dream EVID
A.OBJ VERB

He dreamed about two people (Dorsey 1890: Two Ghosts Story / Mary Clay)

In (519), *í-* derives *ígaxe* 'to value {x} as {y}' from *gáxe* 'to make {x}'. (Note that (513) displays the same verb, *ígaxe*, with a sociative meaning: 'to do {x} with {y}'.)

(519) {*tanúka t^{h}e*} {*mó^{n}zeska nó^{n}ba*} *í-gaxe* *é=hno^n* *u<á>ho^n.*
{meat VERT} {money two} AP:?-make that=HAB <A1SG>cook
B/A.OBJ B/A.OBJ VERB

I cooked fresh venison, which I valued at two dollars. (Dorsey 1890: 438.18 / Páthi^n-no^{n}pázhi)

In (520), the argument added by *í-* on the root **k^{h}ú* creates the verb *ík^{h}u* 'to invite {x} to (partake/have some) {y}'. Note that **k^{h}ú* alone is not attested. The verb *gík^{h}ú* is 'to invite {x} (to a feast)'.

(520) {*tanúka*} *í-thi-k^{h}u* *hébe í^{n}thahni^n* *shkí* *te,* *á=biamá.*
{meat} AP:?-A2-invite part A2/D1SG.have A2.come.back IRR say=PX.REPORT
A.OBJ B.OBJ+VERB

"You will please bring back for me a piece of the fresh meat of which you are invited to partake." (Dorsey 1890: 294.7 / Sho^{n}ge-ska)

Simultaneity meaning. In several sentences, the prefix *í-* also seems to indicate simultaneity of events. At least two examples of such uses are attested, and are reproduced in examples (521) and (522). The precise syntactic structure of (521) requires further investigation. In the bracketing proposed here, *í-* is interpreted as introducing 'with tears'. However, *xagé* 'to cry' and *íno^{n}zhi^n* 'to stand with {x}' are reminiscent othe verb sequences described in §2.5.6. Example (521) suggests that one verb from a verb sequence can be independently modified[9].

(521) *"zhí^{n}the* *hau!"* *á=biamá,* *xagé* {*ishtábthi gó^n*} *í-no^{n}zhí^n=biamá.*
elder.brother O say=PX.REPORT cry {tears so} AP:?-stand=PX.REPORT
A.OBJ VERB

"O! Elder brother", said he, standing crying, with tears in his eyes. (Dorsey 1890: 213.10 / Páthi^n-no^{n}pázhi)

Example (522) is also peculiar, because the applicative object is incorporated into the verb: the verb *zhó^n* 'to sleep, to lie' is derived with the applicative prefix *í-* and at the same time incorporates the time information introduced by *ó^{n}ba* 'day'. The non-incorporating equivalent is not attested. The same is true of *ho^n_ímo^{n}thi^n* 'to walk by night', from the base verb *mo^n_thí^n* 'to walk', and incorporating *hó^n* 'night' (see (690) p. 448).

[9]Another possible interpretation is that the prefix *í-* is an optional addition to reinforce the simultaneity meaning already conveyed by verb sequences in Umó^{n}ho^n.

(522) *théthu níashi^{n}ga wí^n ó^{n}b-ith-á-zho^n ki níashi^{n}ga wí^n ó^{n}thi^n tó^{n}de no^n-p'ó^{n}de;*
here person one day-AP:?-A1SG-lie when person one almost ground INS:foot-shake
SBJ+VERB

when I lay by day, a person was here; a person came very near shaking the ground by walking; (Dorsey 1890: 280.17 / Nudó^n-axa)

Additionally, *í-* has a causative meaning when it introduces an inanimate instrument in clauses which have no agent. This is discussed in §6.2.6. It is also attested in a couple of examples with meanings usually assigned to *u-*, in complex prefixal sequences (see §6.1.4).

Despite the fact that the prefix *í-* displays many semantically related functions, the comitative is not one of them, although the instrumental-comitative syncretism is widely attested cross-linguistically (Heine & Kuteva 2002). This may be due to a distinction in animacy features: the objects introduced by the applicative oblique prefixes are typically inanimate. In Umó^{n}ho^n, the comitative is expressed by means of the verb *zhú_gthe* 'to be with {x}'. See, among other examples, (328) p. 227 and (368) p. 245.

6.1.4 Applicative *í-* yielding complex prefixes

As specified in the introduction of this chapter, two morphologically complex applicative prefixes exist in Umó^{n}ho^n: *ithá-* and *uthú-*. They are very infrequent in the corpora compared to the three simple oblique prefixes. These complex forms can correspond to a combination of two productive applicative prefixes, as in (523). In this case, the simple prefixes are recognizable by their functions.

(523)	*badó^n*	*ubádo^n*	*uthúbado^n*
	badó^n	u-bádo^n	*í-u-badó^n
	to push {x}	to push {x} into {y}	to push {x} into {y} with {z}

This kind of example is not easily found, however, and this one arises from dictionaries rather than texts[10]. More frequently, the complex prefixes *ithá-* and *uthú-* correspond to a productive use of *í-* applicative on a verb having a lexicalized *u-* or *á-* prefix. Example (524) illustrates this with the base verb *ágaxade* 'to cover {x}', which is a lexicalized form (**gaxáde* does not exist). Example (525) illustrates this with the verb *uhó^n* 'to cook {x}'.

(524) a. *Tha-héchi ki, {í t^{h}e} ágaxada=ga!*
A2-sneeze when {mouth VERT} cover=IMP.M
OBJ VERB

Cover your mouth when you sneeze! (Saunsoci & Eschenberg 2016: 180 / Alice Saunsoci)

[10]The definitions available in dictionaries for *uthúbado^n* are the following: "use {it} to push {her/him} into {him/it}" (ULCC 2015); "to push in {a ball or bullet} with {a ramrod – the name of the instrument preceding the verb}" (Dorsey's manuscript dictionary)

b. {*Wahí ge*} {*waiíⁿ*} *ith-ágaxade ihétha=biamá.*
{bone SCT} {robe} AP:INS-cover lay.down=PX.REPORT
B.OBJ A.OBJ VERB

He laid her bones down, and covered them with a robe. (Dorsey 1890: 279.6 / Nudóⁿ-axa)

(525) a. {*Núgthe*} *úhoⁿ=biamá,*
{turnip} cook=PX.REPORT
OBJ VERB

b. *shi* {*te-níxa*} *égoⁿ uth-úhoⁿ=biamá.*
and {buffalo-paunch} like AP:INS-cook=PX.REPORT
A.OBJ VERB

He cooked turnips, and he cooked a buffalo-paunch with them (Dorsey 1890: 256.14 / Te-úkoⁿha)

In at least two instances, the prefix *í-* is attested in the complex sequence *uthú-* with a meaning usually assigned to *u-*. One example is attested in (526): the base verb *ukʰíe* 'to talk to {x}' has a demotivated *u-* prefix. The applicative derivation *uthúkʰie* 'to talk to {x} about/of {y}' adds a subject of conversation. The meaning 'about' is attested once for the oblique prefix *u-* (in a non-applicative construction, see §6.4.1), and never for the applicative prefix *í-*.

(526) a. *ki* {*wa'ú thiⁿ*} *ukʰía-biamá* {*shínudoⁿ akʰá.*}
and {woman OBV.MOV} talk.to {dog PX.SG}
OBJ VERB SBJ

The dog talked with the woman. (Dorsey 1890: 169.14 / Joseph La Flesche)

b. {*Sasú akʰá*} {*é tʰe*} *wi-ú-a-kʰié ha.*
{Frank PX.SG} {that VERT} AP:?.O3PL-(1)-A1SG-talk.to(2) DECL.M
B.OBJ A.OBJ SBJ+VERB

I spoke to Frank La Flèche about your father's business, (...) (Dorsey 1891a: 120.13)

In (527), we see how the base verb *uthóⁿ* 'to hold {x}' becomes *uthúthoⁿ* 'to hold {x} in {y}' with the applicative *í-* derivation, which is an unexpected meaning. Example (527b) has a passive interpretation.

(527) a. {*Nú*} {*zizíka*} *uthóⁿ a-tóⁿbe.*
{man} {turkey} hold A1SG-A1SG.see
SBJ OBJ VERB

I see a man holding a turkey. (ULCC 2018: 133)

b. {*Éta*} *uth-úthoⁿ gthíⁿ tʰe.*
{up.there?} AP:?-hold=PX=EVID sit EVID
A.OBJ VERB

It seems he stayed caught there.[11] (Rudin et al. 1989-92: T.16 / Clifford Wolfe)

The extension of meanings attested for *í-* in (526) and (527) could be explained by morphological restrictions: *í-* is morphologically the only applicative prefix allowed to combine with the other ones. In these precise contexts, it can act as a general applicative marker. Another strategy is to encode the location as a peripheral argument; see §6.4.2.

6.2 Syntactic properties of the applicative constructions

6.2.1 Verb classes undergoing applicative derivation

Cross-linguistically, applicative constructions can be restricted according to the valency class of the base verb. There can be limits in terms of minimum transitivity or maximum transitivity needed or allowed for the base verb (Peterson 2007). Dixon & Aikhenvald (2000b: 15) claim that the great majority of applicative derivations apply to intransitive base verbs. On the other hand, many applicative constructions are restricted to transitive bases (Peterson 2007, Polinsky 2013b). Common valency restrictions vary according to the semantics of the applicative marker.

Table 6.2 shows which types of verb classes are attested as base verbs for three semantically distinct applicative constructions: locative applicatives (*á-*, *u-*, *í-*), instrumental (*í-*) and expression of the reason (*í-*). As can be seen, none of them is restricted to either transitive or intransitive verb bases.

Most locative applicative verbs are attested on intransitive active and transitive verb bases. The locative *á-* is attested on the impersonal verb *no^{n}zhí^n* 'to rain', which constitutes a unique example thus far[12]. The corresponding applicative verb is intransitive stative, as exemplified in (528) below. I have found no example of a locative applicative on a ditransitive base verb.

(528) *Ó^n-no^{n}zhi^n ki, o^n-núka.*
AP:SUPESS.P1SG-rain when P1SG-wet
When it rained on me, I got wet. (Saunsoci & Eschenberg 2016: 63 / Alice Saunsoci)

The instrumental applicative *í-* is attested on a wide range of verb classes, but most of the time it derives ditransitive verbs out of monotransitive ones. *Uthúbado^n* is the only example of an applicative derivation from a ditransitive verb, and as previously mentioned, it is only attested in lexicographic sources (Dorsey n.d.b and ULCC 2015). When the instrumental

[11] This sentence comes from Rudin's fieldwork tapes, and a first transcription and translation was done by Catherine Rudin, Mary Clay, and Clifford and Bertha Wolfe. However, this particular story has been reviewed by the Umó^{n}ho^n Language and Culture Center (ULCC) at Umó^{n}ho^n Nation Public School, in Macy. I use here the reviewed transcription and translation.

[12] A similar example shows an applicative derivation from a noun: *áho^n*, AP:SUPESS-night 'to become night on {x}' (DD). The noun *hó^n*, when used predicatively, corresponds to an impersonal verb 'to be night'.

Table 6.2: Valency classes of base verbs

Verb classes	Locative		Instrumental		Reason	
imp	*no^{n}zhí^n*	to rain				
intr-s	*áno^{n}zhi^n*	to rain on {x} (DD, SE)				
intr-s;	*bíze*	to be dry	*shí^n*	to be fat	*nó^{n}de* *gípiazhi*	to be sad at heart
bi-s	*ábize*	to dry on {x} (DD)	*íshi^n*	to be fat by means of {x}	**nó^{n}de* *ígipiazhi*	to be sad because of {x}
intr-a	*gthí^n*	to sit	*hithá*	to bathe	*nó^{n}shto^n*	to stop
tr	*ugthí^n*	to sit in {x}	*íhitha*	to bathe by means of {x}	*íno^{n}shto^n*	to stop because of {x}
tr	*báaze*	to scare off {x}	*ú*	to wound {x}	*nó^n_pe*	to fear {x}
dtr	*ubáaze*	to scare {x} into {y} (DT)	*íu*	to wound {x} with {y}	*íno^{n}pe*	to fear {x} on account of {x}
dtr			*ubádo^n*	to push {x} into {y}		
ttr			*uthúbado^n*	to push {x} into {y} with {z}		

applicative prefix derives intransitive stative verbs, it has effects reminiscent of the causative construction (see §6.2.6).

Finally, the applicative construction introducing a reason is only attested on a few verbs. Although these verbs range over three verb classes (bivalent stative, intransitive active and transitive), all of them concern events with limited agentivity. The verb *no^{n}shtó^n* 'to stop' is the only one where the subject has control over the action. Other non-agentive verbs derived with *í-* for 'reason' include *t'é* 'to die' (intr-a) and *kú_he* 'to be apprehensive'.

6.2.2 Object properties of monotransitive applicative verbs

Peterson (2007) distinguishes the base object, that is, the object of non-applicative verbs, from the applicative object, which is the object added by the applicative marker. This terminology enables us to compare the object properties acquired, or not acquired, by the applicative object. In this section I analyze applicative objects of monotransitive applicative verbs, which derive from intransitive active verbs. They have one A argument (the subject), and one P argument (the applicative object). Ditransitive applicative verbs (derived from monotransitive base verbs) are presented in §6.2.3.

Everything indicates that the applicative object has the same properties as a non-applicative

object. The following examples show that applicative objects can be indexed on the verb with the patientive person marker (529), they can be relativized (530), nominalized (531) and incorporated into the verb (532).

As mentioned in §4.3, the arguments introduced by the oblique prefixes are most of the time inanimate, and as a consequence they are generally expressed by NPs, and not encoded on the verb. In a few examples, however, the applicative object is animate or personified, and indexed on the verb as a P argument.

(529) Applicative object indexed on the verb

ní^{n}kashi^{n}ga wí^n bthúga-xti í-thi-hítha t^{h}égo^n
person one all-INTENS AP:INS-P2-bathe for
a-wí-pi-a-t^{h}í ha, á=biamá.
(1)-A1SG/D2-come.back(2)-A1SG-arrive DECL.M say=PP.REPORT

Ho! venerable man, I have come for you, so that by means of you one person may bathe all over. (Dorsey 1890: 234.4 / Páthi^n-no^{n}pázhi)
Context: Haxige is addressing stones that he is collecting in order to make a sweat-lodge for his brother. The stones are personified.

Example (530) shows the relativization of a locative object, "the stream by which we camped".

(530) Applicative object as head of a RC

Gó^n { {wach^{h}íshka zhí^{n}ga} o^{n}g-ú-ti=i k^{h}e} hídeata shó^{n}ge
and { {stream small} A1PL-AP:INESS-camp=PL REL:HORIZ}$_{RC}$ down.stream horse
A.OBJ SBJ+VERB
ma thé-o^n-wo^n-tha=í.
OBV.PL go-A1PL-O3PL-CAUS=PL

We sent the horses towards the mouth of the small stream by which we camped. (Dorsey 1890: 438.3 / Páthi^n-no^{n}pázhi)

Applicative objects are often nominalized. The locative marker *u-* 'in' is a basic way to create nouns of places (although it also creates abstract nouns). Locative applicative objects introduced by *á-* and instrument-like objects introduced by *í-* are also found nominalized sometimes, although less frequently[13]. Example (531) shows nouns corresponding to intransitive base verbs and applicative prefixes.

(531) Nominalization of applicative objects

[13]The nominalization of nouns for instruments with *í-* is very frequent, deriving from ditransitive verbs (doing something with something). See example (545) below.

u-gthí^n	*á-gthi^n*	*í-wak^{h}ega*
INESS-sit	SUPESS-sit	INS-sick
to sit in {x} → a seat	to sit on {x} → a seat	to be sick with {x} → germs

Finally, in (532) the intransitive stative verb ***p'á*** 'to be bitter' is derived with the inessive applicative ***u-*** 'in' and incorporates the applicative object ***í*** 'mouth'. This verb only exists as a verb with nominal incorporation: ***íup'a*** 'to be bitter in the mouth' is attested, while ****up'á*** 'to be bitter in {x}' is not.

(532) Incorporation of the applicative object into the verb

that^{h}á=bi ki *i-ú-p'a=biamá,* *chú=biamá.*
eat=PX when mouth-AP:INESS-bitter=PP.REPORT spit=PX.REPORT

When he ate them they were bitter in the mouth, and he spit them out. (Dorsey 1890: 71.5 / Hupetha)

6.2.3 Object properties of ditransitive applicative verbs

An applicative construction applied to a monotransitive verb results in a ditransitive construction with a base object and an applicative object. Ditransitive constructions can be termed "double object constructions" in Umó^{n}ho^n, because there is no overt distinction between direct and indirect object, or between primary and secondary object. As shown in the examples below, both the base object and the applicative object can be expressed as NPs (533-535), can be realized post-verbally (536-537), can be indexed on the verb with a P argument marker (538-539), can be relativized (540-541), and can receive a passive interpretation (542-543). However, a few operations seem to be restricted to the applicative object, as shown below.

When both objects are realized as NPs pre-verbally, the preferred order seems to be B.OBJ-A.OBJ-VERB, as in (533) and (534). In one instance at least, Dorsey specifies that the instrument is placed immediately before the verb; he defines ***ík^{h}o^{n}to^n*** as follows: "to tie an ob. with (the name of the cord, etc., precedes the v.)". I have found a very few counterexamples to this order, such as (535).

(533) {*Umó^{n}ho^n ak^{h}á*} {*niníba athí^n gi t^{h}ó^n*} {*mó^{n}dehi*} *í-zhahá=bi egó^n*
{Umó^{n}ho^n PX.SG} {pipe have come.back OBV.STD} {spear} AP:INS-gore=PX as
SBJ B.OBJ A.OBJ VERB

The Omaha thrust a spear at the one who brought the pipe (Dorsey 1890: 400.4 / Ó^{n}p^{h}o^n-To^{n}ga)

Literally: The Omaha having gored the one who brought the pipe with a spear, ...

(534) {*Wamóske thó^n*} {*no^{n}bé t^{h}é*} *í-pi-bthaska tá mi^{n}k^{h}e.*
{dough RND} {hand VERT} AP:INS-INS:press.A1SG-flat IRR 1SG.AUX
B.OBJ A.OBJ SBJ+VERB

I will press the dough with my hand until it is flat. (ULCDP 2002: 1.25)

(535) {*Waiíⁿ thoⁿ*} {*iⁿgthé*} *u-gí-noⁿ-skábe* *thóⁿ amá.*
{robe RND} {faeces} AP:INESS-POSS-INS:foot-sticky RND EVID
A.OBJ B.OBJ VERB

He soiled the robe with the feces on his feet. (Dorsey 1890: 39.11-2 / Nudóⁿ-axa)

Both the base object and the applicative object can be realized post-verbally, as exemplified in (536) and (537), respectively. See §2.5.1.1 for comments on post-verbal arguments.

(536) *zhoⁿwétʰiⁿ athíⁿ akʰáma éde-goⁿ* *í-tʰiⁿ=biamá* {*tóⁿde kʰe.*}
striking.stick have EVID but-thus AP:INS-*strike=PP.REPORT {ground HORIZ}
VERB B.OBJ

He hit the ground with a club that he had been carrying. (Dorsey 1890: 81.14-5 / Frank La Flesche)

(537) *Góⁿki nú akʰá thizá=bi egóⁿ,* *í-soⁿ-ki-thá=biamá* *ha*
and man PX.SG take=PX as AP:INS-white--REFL-CAUS=PX.REPORT DECL.M

{*wasésoⁿ tho*ⁿ} *, ...*
{white.clay RND}

The husband took [the white clay], and with it he whitened his whole body... (Dorsey 1890: 619.7-8 / Frank La Flesche)
Literally: And the man having taken it, he made himself white with it, the white clay.

Both the base object and the applicative object can be encoded by the patientive person markers, as shown in (538) and (539), respectively.

(538) *Xthíazhi nazhíⁿi=ga. égithe* {*máxe*} *u-wí-pizhoⁿ* *te há.*
quiet stand=IMP.M beware {sky} AP:INESS-A1SG/P2-A1SG.blow IRR DECL.M
A.OBJ B.OBJ+VERB

"Stand ye still, lest I blow you up into the sky" (said the giant). (Dorsey 1890: 23.19 / Frank La Flesche)

(539) {*Díxe*} *wá-tha-óⁿhne* *ta=í.*
{smallpox} P1PL.AP:SUPESS-A2-A2.abandon IRR=PL
B.OBJ A.OBJ+VERB

You will give us the small-pox. (Dorsey 1890: 399.5 / Óⁿpʰoⁿ-Toⁿga)

Both the base object and the applicative object can be relativized, as shown in (540) and (541), respectively.

(540) { {*Wagthábaze*} *á-paxu* *thé-kʰe*} *íⁿ-doⁿba=ga!*
{ {letter} AP:SUPESS-write this-REL:HORIZ}$_{RC}$ D1SG-look=IMP.M
B.OBJ VERB

Look over what I've written down on this paper for me! (OLIT-UNL 2018: 579)

Example (541) shows the relativization of an applicative object introduced by *í-*, and whose semantic role is somewhat difficult to describe: it refers to "the meat of which you are invited to partake". Note that this is not an example created by "strong derivation" (cf. §4.9.1), since the bound root **kʰú* 'to invite' is not attested alone. The verb *gíkʰu* 'to invite {x} (to a feast)' is attested.

(541) { {*tanúka*} *í-thi-kʰu*} *hébe íⁿthahniⁿ shkí te, á=biamá.*
{ {meat} AP:?-A2-*invite}$_{RC}$ part A2/D1SG.have come.back IRR say=PX.REPORT
A.OBJ B.OBJ+VERB

You will please bring back for me a piece of the fresh meat of which you are invited to partake. (Dorsey 1890: 294.7 / Shoⁿge-ska)

Finally, both the base object and the applicative object can be considered the subject of a passive reading, as shown in (542) and (543), respectively.

(542) *thíxthe égih ithá=biamá, ú-baaze.*
cane headlong have.gone=PL.REPORT O3PL.AP:INESS-scare.off
B.OBJ+VERB

They were scared into the canes. (Dorsey 1890: 403.9 / Óⁿpʰoⁿ-Toⁿga)
Literally: They went into the canes, they were scared into them.

(543) *íⁿchʰoⁿ óⁿba-waxúbe tʰédi gthéba-xti ní thatʰóⁿ=i, {nashkí} á-gaxtóⁿ=i.*
now day-mysterious when ten-INTENS water drink=PL {head} AP:SUPESS-pour=PL
A.OBJ VERB

During this present week just ten have been baptized, and they have partaken of the Lord's supper (?). (Dorsey 1891a: 66.4-5 / Óⁿpʰoⁿ-Toⁿga)
Literally: During this week ten have drunk water, (and) have been poured (water) on the head.

Despite the preceding examples, a few syntactic operations seem to be reserved to the applicative object. I have not been able to find examples of incorporated base objects, nor nominalized base objects. In contrast, incorporated and nominalized applicative objects are attested, as shown in examples (544) and (545).

Example (544) shows an incorporated applicative object. Note that the non-applicative counterpart, *ugthóⁿ* 'to put {x} in {y}', is a "weak derivation" (§4.9.1), since it is based on the bound positional root **gthóⁿ* (for round objects).

(544) *Góⁿki tá hébe thizá-bi egóⁿ, i-ú-gthoⁿ-wá-kʰithá=biamá*
and dried.meat piece take=PX as mouth-AP:INESS-put-O3PL-CAUS=PX.REPORT

Taking pieces of dried buffalo meat, the woman made them put them in their mouths (Dorsey 1890: 393.12 / Joseph La Flesche)

Ditransitive applicative verbs are often nominalized with the prefix *wa-*, and the resulting noun invariably corresponds to the applicative object. In (545) we see the three transitive

verbs *that^{h}é* 'to eat {x}', *baxú* 'to write {x}', and *xé* 'to bury {x}' derived with the nominalizer *wa-* in addition to oblique prefixes introducing instruments and locations; recall that *wa-* combines with *a-*, *i-*, *u-* to produce the surface forms *wá-*, *wé-*, and *ú-* respectively. *Wa-* could also be analyzed as an antipassive marker deleting the reference to a specific base object, leaving the applicative object alone. See Chapter 7 for a presentation of the different possible interpretations of *wa-* inside a function that I label "underspecified argument marker"[14].

(545) *wá-that^{h}e* — NMLZ.AP:SUPESS-eat — table
wé-baxu — NMLZ.AP:INS-write — pencil
ú-xe — NMLZ.AP:INESS-bury — cache, cellar, grave

In summary, all the examples shown thus far (533-545) show that the base object and applicative object are both core objects of the verb, since they are able to be indexed with the P person marker. They can both be expressed as NP with no particular encoding, and they can both be realized post-verbally. However, when both objects are expressed pre-verbally, the applicative object tends to be immediately before the verb, and the base object is never attested incorporated or nominalized. This could suggest, maybe, that the applicative object has acquired more "object-like" properties than the base object.

In a peculiar example of a ditransitive applicative construction, reproduced in (546), the possessive prefix *gi-* expresses a relation of possession between the base object and the applicative object, rather than between the subject and the object. A very similar example involving the same verb (*ugípaaze* 'to scare {x} into {*her/his own* y}') can be found in Dorsey (1890: 412.2).

(546) {*tíi* *tho^n-tá*} *shi* *ú-gi-paazá=biamá.*
{village RND-ALL} again O3PL.AP:INESS-POSS-scare=PL.REPORT
The Omahas scared them again into their village. (Dorsey 1890: 403.10 / Ó^{n}p^{h}o^n-To^{n}ga)
Context: In the continuation of (542) above. The Umó^{n}ho^n attack the Pawnees, and after making them flee into the canes, they scare them back into their (the Pawnee's) village.

6.2.4 Applicative objects: NPs vs. PPs

Almost all the applicative constructions exemplified thus far showed applicative objects expressed as noun phrases, except when they are omitted and when they are indexed on the verb with P person markers. However, the locative applicative object sometimes takes a postposition *-ta* or *-di*, although infrequently. Out of 157 applicative constructions in the database

[14]The identification of a nominalizing function for *wa-* is tricky. In §7.3.3, I argue that *wa-* in such examples as *wáthat^{h}e*, *wébaxu* and *úxe* from (545) is a nominalizer, because the equivalent applicative verbs are generally not attested, although their meaning and valency is transparent: **áthat^{h}e* would be 'to eat {x} on {y}', **íbaxu* would be 'to write {x} with {y}', and **uxé* would be 'to bury {x} in {y}'.

used for this chapter, 7 have an applicative object that takes a postposition[15].

The postposition *-ta* expresses the allative, and it is attested with the applicative verb *ubáaze* 'to scare {x} into {y}' and its possessive equivalent *ugípaaze*. Note that the allative marker is not obligatory: examples (547) and (548) below show that the applicative object can be an NP or a PP, respectively. Both examples come from the same story by the same speaker.

(547) *Wákʰitha = biamá.* {*tí* *kʰe*} *ú-gi-páazá = biamá.*
O3PL.attack=PL.REPORT {house HORIZ} O3PL.AP:INESS-POSS-scare=PL.REPORT
A.OBJ B.OBJ+VERB

They fought them, scaring them back into their lodges. (Dorsey 1890: 412.2 / Óⁿpʰoⁿ-Toⁿga)

(548) {*Ní* *kʰé-ta*} *ú-baazá = biamá.*
{water HORIZ-ALL} AP:INESS.O3PL-scare=PL.REPORT
A.OBJ B.OBJ+VERB

They scared them into the water. (Dorsey 1890: 412.5 / Óⁿpʰoⁿ-Toⁿga)

From this contrast, it seems that the use of a postposition on the applicative object is not lexically determined, and that the speaker can add it to enhance the allative movement. The allative marker *-ta* could be used to denote that there is a noticeable change from one place to another, a certain distance crossed. However, this hypothesis can neither be confirmed nor contradicted from the attested examples of *ubáaze*.

The inessive locative postposition *-di* 'in' is also found on some applicative objects. Similarly to the allative locations above, *-di* is not obligatory. The same applicative verb, *utí* 'to camp in {x}', is attested with NP and PP applicative objects, as shown in (549) and (550), respectively.

(549) {*tí* *amá*} {*xthab*} *ú-ti = biamá.*
{lodge PX.PL} {tree} AP:INESS.O3PL-camp=PX.REPORT
SBJ A.OBJ VERB

The lodges camped among the trees.[16] (Dorsey 1890: 263.8 / Te-úkoⁿha)

[15]The database of examples of applicative constructions is not reproduced here, but most examples displayed in the present chapter come from that database. The 157 applicative constructions gathered include 105 with applicative objects overtly expressed as NPs; 7 as PPs; 8 as clausal complements; 8 have applicative objects indexed on the verb; 2 have applicative objects incorporated into the verb; and 27 have no overt applicative object (zero anaphora). These examples include "strong derivation" applicative constructions (APPL in the database in App.E.4), and lexicalized verbs with applicative objects (APPL SEM. in the database in App.E.4), which correspond to "weak derivation" (terminology adapted from Mel'čuk 1993; see §4.9.1).

[16]There is an unexpected O3PL person marker on the verb (underlyingly *wa-ú-, in surface accented *ú-*), which corresponds to the applicative object "the trees". This is unexpected because, as mentioned in §3.1.3, *wa-* is normally restricted to animate objects.

(550) {*wach^{h}íshka k^{h}é-di*} *shi* *o^{n}g-ú-ti=i.*
{stream HORIZ-LOC} again A1PL-AP:INESS-camp=PL
A.OBJ SBJ+VERB
We pitched the tents by a stream. (Dorsey 1890: 437.11 / Páthi^n-no^{n}pázhi)

Example (551) shows another applicative object expressed as a PP. It is of particular interest since it shows an apparent mismatch of the superessive applicative prefix *á-* 'on' with the inessive locative postposition *-di* 'in'. It may be noted that in (550), too, the postposition *-di* is used whereas the meaning of the locative PP is "by a stream" and not "in the stream".

(551) {*í^{n}behi^n k^{h}é-di*} *á-gthi^n-k^{h}ithá=biamá.*
{pillow HORIZ-LOC} AP:SUPESS-sit-CAUS=PX.REPORT
And they seated Ishtinik^{h}e on a pillow. (Dorsey 1890: 552.4 / Frank La Flesche)

The examples in (547) through (551) show that: (1) although the locative applicative verbs generally introduce NPs as applicative objects, PPs are also possible; (2) the realization of the applicative object as an NP or a PP is not lexically determined, because the same verbs are attested with both types of constituents.

Considering these facts, I conclude that the PPs introduced by applicative prefixes are core arguments of the verb, despite the presence of the postposition. Note that the only applicative PPs attested are introduced with the suffixes or clitics *-ta* and *-di*, and not independent postpositions such as *mó^{n}t^{h}e* 'inside'. All of them are considered postpositions following OLIT-UNL (2018), and they can introduce peripheral locations on non-applicative verbs (see §6.3.1). However, the ability of *-ta* and *-di* to appear on applicative objects suggests that they may have a special status among other postpositions. See §6.3 for a presentation of PPs as peripheral arguments in non-applicative verbs. See also §6.4.2 for a presentation of PPs in lexicalized oblique verbs.

6.2.5 Applicative *í-* introducing clausal complements

When the prefix *í-* introduces a reason, the applicative object can take the form of a clausal complement rather than an NP. The form *íkuhe*, from the intransitive verb *kú_he* 'to feel insecure'; 'to be apprehensive', provides good examples of different possible expressions of the applicative object. In (552), the cause of apprehension is a person, thus the applicative object is an NP. In this context, *íkuhe* is translated "to be fearful on account of {x}". In (553), the cause of apprehension is the fact that the speaker has difficulties in performing an action, and apparently the applicative object is the whole clausal complement.

(552) *shó^n* {*Wégithe-shtó^n*} *í-kuhe=hnó^n=biamá.*
yet {Beggar} AP:REASON-fear=HAB=PX.REPORT
A.OBJ=NP VERB
They were always apprehensive on account of The Beggar. (Dorsey 1890: 335.3 / Ó^{n}p^{h}o^n-To^{n}ga)

(553) {*pási* *í^{n}-texi*} *ith-á-kuhé* *ha.*
{A1SG.drive D1SG-difficult} AP:REASON-A1SG-fear DECL.M
A.OBJ=CL VERB

It is difficult for me to drive it along, and I am apprehensive on this account. (Dorsey 1890: 755.4 / Waxpesha)

In (554) we have an interesting case where the reason introduced by *í-* is expressed first by a relative clause, then by the demonstrative pronoun *é* 'that'. I consider the latter to be an apposition (see §2.5.1.3) used for emphasis. Note that the relative clause not only identifies the person who is the reason the agent stop fighting, but also specifies what this person does which motivates stopping the fight. This is visible in Dorsey's translation.

(554) {*Niníba háshi t^{h}i t^{h}ó^{n}*} {*é*} *í-no^{n}shtó^{n}=biamá.*
{pipe later arrive OBV.STD} {that} AP:REASON-stop=PX.REPORT
A.OBJ =RC APP=NP VERB

They stopped, owing to the act of him who came afterwards with the pipe. (Dorsey 1890: 400.6 / Ó^{n}p^{h}o^{n}-To^{n}ga)

In (555) and (556), clauses introduced by *égo^{n}* 'as; having' precede applicative verbs with no overt objects. The applicative objects can be analyzed as a zero-anaphora to the preceding clause (not embedded), which, if overt, would take the form of an NP such as *é* 'that'.

(555) *o^{n}wó^{n}xpani égo^{n},* {Ø} *tháthuha ith-á-t'e.*
P1SG.poor as almost AP:REASON-A1SG-die
A.OBJ VERB

As I am poor, I have almost died from that cause. (Dorsey 1890: 504.11 / Wazhí^{n}a-gahíga)

(556) *shó^{n}ge amá ázhi o^{n}wó^{n}thibthó^{n}i égo^{n},* {Ø} *í-o^{n}ha=í.*
horse PX.PL different P1SG.smell as AP:REASON-flee=PL
A.OBJ VERB

As the horses perceived that I had a different odor, they fled. (Dorsey 1890: 442.10 / Páthi^{n}-no^{n}pázhi)

Examples such as (554)-(556) cast doubt on the possibility of the applicative prefix *í-* introducing clausal complements. From them, we could assume that the applicative objects can only be NPs (and PPs, as seen in §6.2.4), and that any clause denoting the reason is outside of this argument structure, in a separate clause, and can be the antecedent of a zero-anaphora.

The introduction of a clausal complement as an applicative object is definitely possible, however. This is clear in at least a few examples of *íkuhe*, such as (557): the subject of the clausal complement rises to object of the matrix verb (and at the same time remains encoded as the subject of the clausal complement). Clausal complements, as described in §2.5.5, sometimes exhibit subject raising. The construction shown in (557) with the verb

íkuhe 'to fear for {x} to {CL}' is identical to clausal complements of the verb *gígo^{n}tha* 'to wish for {x} to {CL}'.

(557) *ki* {*Pó^{n}ka-ta* *né*} *í-wi-kuhé.*
and {Pa^{n}ka-ALL A2.go} AP:REASON-A1SG/P2-fear
A.OBJ=CL SBJ+B.OBJ+VERB

I am apprehensive about your going to the Ponkas. (Dorsey 1890: 651.6 / Mashti^n-'o^{n}sa)

Examples in (558) through (561) show examples of *í-* applicative constructions where I analyze the applicative object as a clausal complement. While (558) constitutes another instance of argument rising[17], and as such constitutes an unambiguous example of clause embedding, examples (559) through (561) can also be interpreted as applicative constructions with no overt applicative object, where the clause expressing the reason is not embedded.

(558) *Waxchá* *zhí^{n}ga* *hégazhi* *éta* *bthé,* *ki* {*mo^{n}thó^n*} *we-á-kuhe.*
vegetable small a.lot towards? A1SG.go and {steal} O3PL.AP:REASON-A1SG-fear
A.OBJ=CL SBJ+A.OBJ+VERB

I am progressing with the raising of many small vegetables, and I fear lest they should be stolen [from me] (Dorsey 1890: 645.10 / Maxpíya-xága)

(559) {*ó^n-gi-nó^{n}ge*} *ith-á-kuhé* *go^n a-ó^{n}he* *ha*
{AP:SUPESS.P1SG-POSS-run} AP:REASON-A1SG-fear as A1SG-flee DECL.M
A.OBJ=CL SBJ+VERB

I fled as I feared that he would run over me. (Dorsey 1890: 64.2 / Páthi^n-no^{n}pázhi)

(560) *Gthéba-nó^{n}ba* *shu-gthé-a-the* *ko^{n}bthé-dego^n* {*uxpáthe*} *ith-á-kuhé*
ten-two DIR-go.back-A1SG-CAUS A1SG.hope-but {be.lost} AP:REASON-A1SG-fear
A.OBJ=CL SBJ+VERB

ha.
DECL.M

I wished to send you twenty, but I feared that it might get lost. (Dorsey 1891a: 120.3-4 / George Miller)

(561) {*Ní^{n}kashí^{n}ga* *ut^{h}ó^{n}nahá-xti* *mo^{n}ní^n*} {*nó^{n}de*} *i^{n}thí^n-pi=mázhi, ...*
{person solitary-INTENS A2.walk} {heart} AP:REASON.D1SG-*good=1SG.NEG
A.OBJ=CL SBJ B.OBJ+VERB

My heart is made sad by your leading such a solitary life. (Dorsey 1890: 651.3 / Mashti^n-'o^{n}sa)

In summary, the introduction by the applicative prefix of a whole clausal complement as the applicative object is possible, as unambiguously shown in (557) and (558). However, most

[17]Contrary to (557), example (558) shows object raising.

of the attested examples of the applicative prefix *í-* where the reason is expressed in a clause are ambiguous between two readings: (1) the clause is embedded, and fills the position of the applicative object in the verb's argument structure; (2) the clause is a dependant "margin" introduced by a conjunction but is not embedded (see §2.5.5), and the applicative object is not overtly expressed.

The introduction of clausal complements by applicative prefixes seems to be infrequent, and is not reported in Peterson (2007), nor in any typological or descriptive investigation that I have read (Dixon & Aikhenvald 2000a, Mithun 2001, Creissels 2006b, Polinsky 2013b). Helmbrecht (2006) does not mention it either, in his review of applicative prefixes in Siouan languages, but he finds the meaning 'because of' associated with cognates of *í-* in the descriptions of various Siouan languages: Hidatsa (Boyle 2007: 117), Lakhota (Ingham 2003: 27), Osage (Quintero 2004: 227). He considers it a metaphorical extension of the instrumental meaning (p. 19). Quintero (2004) provides an example with *íhpiiži* 'to be sick with {x}' which is very similar to (557)–(561) above. She explicitly states that "the cause of illness can be expressed by an overt constituent, such as [a] subordinate clause". By contrast, Boyle (2007) and Ingham (2003) provide no textual example, making it impossible to determine if clausal complements are allowed in Hidatsa and Lakhota.

6.2.6 Instrumental/causative syncretism: instrumental prefix *í-* introducing inanimate causers

Numerous languages have an instrumental applicative/causative syncretism (Peterson 2007: 64). As Peterson writes, "It is easy to see how polysemy of this sort could occur since the meaning of causing an inanimate object to do something is very similar to what instrumental applicative constructions convey" (p. 66). This is exactly what happens in some constructions with the instrumental applicative *í-*, as in (562). The applicative object "the crackers" (lit. "bread hardened by heat") can be analyzed both as the cause and as the instrument of the fattening.

(562) {*Wamúske na-ságе*} {*é*} *o^{n}thó^n-shi^n* *ha.*
{bread INS:TEMP-hard} {DEM} P1SG.AP:INS-fat DECL.M
A.OBJ APP VERB
It is the crackers which have made me fat. (Dorsey 1890: 570.5 / One Horn)
Literally: I am fat by means of the crackers.

Such polysemy arises each time that *í-* introduces an "instrument" to an intransitive stative verb. The resulting verb *íwak^{h}ega* is bivalent stative. Further examples are provided in (563) and (564).

(563) *shé bthát^{h}e=hnó^n-di* *o^{n}thó^n-wo^{n}k^{h}éga=hno^n=mó^n*
that A1SG.eat=HAB-when AP:INS.P1SG-sick=HAB=1SG.AUX

whenever I eat them, they make me sick[18] (Dorsey 1890: 310.5 / Frank La Flesche)

The example of *ínie_the(†)* in (564b) is slightly different. The base verb already is a causative derivation; the bivalent stative verb *nié_the* '{*body part*} to hurt {*x*}', from *nié* 'pain', can only take a body-part as a subject. Thus, the causative marker *-the* introduces the body part as the causer, as can be seen in (564a). In the following clause, in (564b), the prefix *í-* introduces an "instrument" as the origin of the pain, and this instrumental is not a body part.

(564) a. {*sí*} *ni<ó^n>the* *t^{h}e-thó^n*
{foot} <P1SG>hurt VERT-RND
SBJ OBJ+VERB
my foot was hurt,

b. {*zhó^{n}zhi^{n}ga*} *o^{n}thó^n-niéthe* *k^{h}é* *bthíze* *éde-go^n*
{splinter} P1SG.AP:INS-hurt HORIZ A1SG.take but-as
SBJ? A.OBJ? B.OBJ+VERB
and I took the splinter which hurt me; but ... (Dorsey 1890: 219.09-10 / Joseph La Flesche)

Applicative constructions with *í-* introducing a reason could also be reanalyzed as causative constructions, especially when the base verb is intransitive stative (see Table 6.2). A difference is that, as seen in §6.1.3 and §6.2.5, the reason is often an event expressed in a clause.

There is an important difference between Peterson's description of the causative/instrumental syncretism and Umó^{n}ho^n data: Peterson describes how a causative marker evolves towards an applicative marker, while in Umó^{n}ho^n we have an applicative marker interpreted as a causative marker. Umó^{n}ho^n has many causative markers, all described in Chapter 5, and the instrumental/causative isomorphism shown here is not at all the most frequent means of producing causative constructions. The instrumental applicative does not describe the event from the same perspective as other causative constructions: it focuses on the resulting state, the endpoint, and gives information about the cause. See §5.6 for a comparison of *í-* with other causative markers.

6.3 Optionality/obligatoriness of the oblique applicative constructions

As mentioned in §1.2.2, cross-linguistically applicative constructions frequently introduce as a core argument a referential expression which has an alternative instantiation as a peripheral argument (see the example of Hakha Lai in (17), p. 61). By contrast, some applicative constructions are "obligatory" because the use of the applicative marker is the only means to

[18]The suffix *-di* is generally analyzed as a postposition 'in'. However, it sometimes extends to time meaning, as here. I glossed it 'when' for better comprehension of the sentence structure.

introduce a particular argument as a core object. In fact, the optionality/obligatoriness of the applicative construction is partially determined by the semantic role of the applicative object. For instance, Peterson (2007: 46) specifies that the beneficiary/recipient type of applicative is by far the most frequent obligatory applicative construction, and in fact optional applicative constructions seem to be rare relative to the obligatory ones.

In Umó^{n}ho^{n}, the three distinct semantic types of oblique applicatives presented in Table 6.2 have different statuses relative to obligatoriness; these are discussed below.

6.3.1 Locative applicatives

The locative applicative constructions are not absolutely obligatory, although they are very frequent and seem to be the default construction. The expression of location in a peripheral argument is also possible: locative peripheral arguments can be introduced as postpositional phrases, with various postpositions such as *-(a)di* 'in', *-(a)ta* 'to, towards', *mó^{n}t^{h}e* 'inside', and *(á)gaha* 'on top'. The contrast between locative applicative and peripheral locative is illustrated in (565) with the verb *gthí^{n}* 'to sit'.

(565) a. *gthí^{n}=biamá,* {*Wahó^{n}thishíge ak^{h}á*} {*uthó^{n}da thó^{n}-di.*}
sit=PX.REPORT {Orphan PX.SG} {middle RND-LOC}
VERB SBJ PERIPH

the Orphan sat in the very middle (surrounded by the people). (Dorsey 1890: 601.16 / George Miller)

b. *ki* {*Kíxaxájo^{n} ak^{h}á*} {*Xithá áhi^{n} k^{h}igthé hi^{n} shkúbe tho^{n}*}
and {Wren PX.SG} {Eagle wing beneath feather deep RND}
SBJ A.OBJ

u-gthí^{n}=biamá.
AP:INESS-sit=PX.REPORT
VERB

But the Wren got under the thick feathers of the Eagle and sat there as the Eagle flew. (Dorsey 1890: 581.1 / Frank La Flesche)

Two other locative peripheral arguments are exemplified in (566) and (567).

(566) {*Wa'ú dúba*} {*wat^{h}ó^{n}zi*} {*tó^{n}de mó^{n}t^{h}e*} *xa=í,* {*tó^{n}wo^{n} thó^{n}-di.*}
{woman some} {corn} {ground inside} bury=PL {village RND-LOC}
SBJ OBJ PERIPH VERB ADJUNCT?

Some of the women had buried corn in the ground at the village. (Dorsey 1890: 452.4 / Kaxé-Tho^{n}ba)

(567) *Sadégthe t^{h}e ána=bi egó^{n},* {*gahá*} *zhó^{n}=biamá*
scaffold VERT climb=PX as {on.top} lie=PX.REPORT
PERIPH VERB

He climbed the scaffold and lay on it. (Dorsey 1890: 619.10 / Frank La Flesche)

Why a speaker would choose to express location with a peripheral argument rather than an applicative construction is not clear. All verbs in (565) through (567) are attested with oblique applicative prefixes as well, and there is no obvious semantic difference between the applicative construction and the peripheral construction.

There appear to be some lexical and maybe morphological restrictions on the applicative construction. Movement verbs such as *thé* 'to go there', *gí* 'to come back here', *tʰí* 'to arrive here' etc. are never attested with locative applicatives. Conversely, they frequently take an unaccented *a-* prefix with a proximate/plural function (see §2.6.1). Thus, there may be a sort of morphological restriction to the application of oblique prefixes to movement verbs. Other morphological restrictions probably exist, as partly discussed in §6.4.2. For instance, *ugáha* 'to float' and *uhóⁿ* 'to cook {x}' are verbs with a lexicalized prefix *u-*. It seems that the sequence of **u-u-* is not possible, and as a result an inessive location can only be expressed as a peripheral argument with these verbs. (However, see §6.1.4 for a different way to solve this problem: *í-* used instead of *u-*.)

6.3.2 Instrumental applicative

The instrumental applicative construction is obligatory, since it is the only means to express an instrument. There is no postposition meaning "with" in Umóⁿhoⁿ, and there is no biclausal construction regularly used to introduce an instrument. By contrast, Helmbrecht (in progress) shows that the verb *hi'ụ́* 'to use {x}' is regularly used in Hoocąk to introduce an instrument in a subordinate clause. I have never found the Umóⁿhoⁿ equivalent (*'óⁿ* 'to use {x}') with such a function. However, I have found one curious instance of *tóⁿ* 'to possess {x}' apparently used to introduce an "instrument", in (568). This is the unique example found thus far of a syntactic alternative to the instrumental applicative construction, but the instrument is a body-part, and body parts are not frequently attested as applicative instrumental objects[19]. The clause *noⁿbé tóⁿ* glossed 'hand possessing' by Dorsey, seems to have an adverbial function.

(568) {*noⁿbé*} *tóⁿ* {*mazhóⁿ*} *wa-thítoⁿ* *wagázhi* *agtha-í.*
{hand} have {land} ASP(?)-work O3PL.command go.back=PX
OBJ VERB OBJ VERB
He went home after telling us to work the land with our hands. (Dorsey 1890: 507.7 / Te-úkoⁿha)

In (568), the instrument is not expressed as a peripheral argument of the verb *thitóⁿ* 'to work {x}', but is expressed in a separate clause, as the core object of a separate verb. Thus, it is not an "alternative construction" in the way generally thought of in the literature.

6.3.3 "Reason" applicative

The applicative construction introducing a reason is rare, since causes or reasons are usually expressed in separate clauses if they are events, or as adjuncts if they are entities. Rea-

[19] There are a few examples: see (534).

sons/causes expressed in a separate clause are illustrated in (569) and (570). An additional space is added between the clauses. These examples contrast with (556) and (561), respectively, where the same verbs are derived with the applicative prefix *í-*.

(569) *Níⁿkashiⁿga amá za'a=í égoⁿ,* {*shóⁿge amá*} *oⁿhá=biamá.*
people PX.PL make.uproar=PL as {horse PX.PL} flee=PX.REPORT
SBJ VERB

As the people made an uproar the horses fled. (Dorsey 1890: 379.10 / Nudóⁿ-axa)

(570) *hégazhi t'a=í,* *ádoⁿ* {*nóⁿde*} *íⁿ-pi=mázhi=hnoⁿ* *shóⁿshoⁿ.*
a.lot die=PL therefore {heart} D1SG-good=1SG.NEG=HAB continually
SBJ OBJ+VERB

Many have died; therefore my heart is always sorrowful. (Dorsey 1890: 501.10 / Maxpíya-xága)

Reason/cause expressed in a monoclausal construction other than the applicative construction is possible, too. Example (571) typifies a verb sequence similar to a reason/cause applicative construction (see §2.5.6, and in particular (165) p. 141).

(571) *shóⁿ shóⁿge wáthiⁿ=nóⁿ=bi thóⁿzha, noⁿpéhiⁿ t'a=í égoⁿ*
and horse O3PL-have=HAB=PL although hungry die=PL as
wégthiⁿwiⁿ=nóⁿ=biamá.
O3PL.sell=HAB=PL.REPORT

And although they usually have horses, it is said that as they are dying from hunger they are selling them. (Dorsey 1890: 676.3-4 / Duba-moⁿthiⁿ)

Example (572) typifies the expression of a reason as a verb adjunct (see §2.5.3). This is the only way to account for *é* 'that' in the clause while the intransitive stative verb *wazhíⁿshte* 'to be in a bad humor' is not derived with an applicative prefix.

(572) *Níⁿkagahi tʰe wa-'í=azhi egóⁿ, i-tóⁿde gi-'í tʰe*
chief VERT ASP(?)-give=NEG as POSS:3-son.in.law POSS-give EVID

{*é*} *wazhíⁿshte, uthúgit'áthe akʰáma.*
{that} bad.humor envious EVID
ADJUNCT VERB

He was in a bad humor because he did not receive the chieftainship which his father gave to his sister's husband, whom he envied. (Dorsey 1890: 350.14 / Óⁿpʰoⁿ-Toⁿga)

In conclusion, the applicative construction introducing a reason/cause is not very frequent compared to other constructions such as the subordination, verb sequence or addition of an adjunct. However, we find no opposition between an applicative object and a peripheral object as is traditionally described for optional applicative constructions.

6.4 Other functions and demotivation of the oblique prefixes

Sections 6.1 to 6.3 investigate the meanings and functions of the applicatives, as well as the alternatives to the applicative constructions. We turn now to the description of the oblique prefixes when an applicative function is lacking or unclear. In §6.4.1, I present examples of oblique prefixes acting as valency-preserving derivational prefixes. In §6.4.2, I present the different degrees of demotivation of the oblique prefixes.

6.4.1 Valency-preserving derivational prefixes

Prefix *u-* meaning 'about'. The prefix *u-* is attested once with the meaning 'about', where it derives a transitive verb out of another transitive verb: *noⁿ'óⁿ* 'to hear {x}; to hear about {x}' becomes *unóⁿ'oⁿ* 'to hear about {x}', as typified in (573) and (574), respectively.

(573) *ki shóⁿ {íe tʰe} a-nóⁿ'oⁿ thóⁿzha, ...*
and so {word vert} A1SG-hear though
OBJ SBJ+VERB
As soon as I heard the news, ... (Dorsey 1890: 114.6 / George Miller)

(574) *ki mazhóⁿ bthúga-xti {ídatha=í tʰe} u-nóⁿ'oⁿ=biamá*
and land all-INTENS {give.birth=PX REL} ABOUT-hear=PX.REPORT
OBJ=CL VERB
And all over the land they heard of his birth (Dorsey 1890: 163.16 / Joseph La Flesche)

Note that *noⁿ'óⁿ* is regularly translated as 'to hear about {x}' in Dorsey's texts. A rapid survey of *noⁿ'óⁿ* and *unóⁿ'oⁿ* as 'to hear about {x}' shows that *noⁿ'óⁿ* is often used with animate objects (to hear news about someone), while *unóⁿ'oⁿ* is often used with inanimate objects (to hear about something that happened), as in (574) above. Further investigation is needed to better understand what meaning *u-* contributes.

Prefix *á-* introducing a figurative locative relation. In at least two instances, the prefix *á-* changes the meaning of a transitive verb without adding any object. The verb *dóⁿbe* 'to see {x}; to look at {x}' becomes *ádoⁿbe* 'to look after {x}'. The patient, which is the person looked after, is figuratively beneath the agent.

Another example is found in OLIT-UNL (2018): the verb *ábaxu*, derived from the verb *baxú* 'to write {x}', is attested at least twice for 'to write down {x}', as illustrated in (575). We can analyze it as a locative prefix, suggesting/highlighting the fact that the object - what is written - is set down on paper. In (575b), the meaning assigned to the oblique prefix is not reported in the translation, but *ábaxu* is translated "write down, write on" in the lexicon (OLIT-UNL 2018: 584).

(575) a. *shi {íe tʰe shéna} páxu ha.*
again {word VERT enough} A1SG.write DECL.M

Now I have written enough on this subject. (Dorsey 1890: 488.7 / Joseph La Flesche)

b. {*Wa-báxu* *k^{h}e*} *á-shpaxu* *shkó^{n}zhi^{n}ga=bazhi.*
{NMLZ-write HORIZ} AP:SUPESS-A2.write A2.ignore=PL.NEG
You (plural) don't not know how to write the letters/word. (OLIT-UNL 2018: 531)

However, the same verb is attested once as "to write {x} on {y}", as seen in (540). This brings to light the problem of distinguishing a non-applicative derivation with a locative interpretation from an applicative derivation with one object left implicit.

Prefix *á-* intensifying the subject's agentivity. The verb *no^n'ó^n* 'to hear (about) {x}' becomes *áno^n'o^n* 'to listen to {x}; to pay attention to {x}; to obey {x}'. In this case, it is difficult to assign a locative meaning to *á-*. The oblique prefix only seems to bring more agentivity to the subject. For examples of *áno^n'o^n*, see (219) p. 170, (490) p. 325, and (611) p. 388.

Prefix *í-* introducing an instrument at the cost of another object. The verb *shí* 'to ask {x} to do {y}' is ditransitive. When the instrumental *í-* is added, the meaning changes: *íshi* could be defined as "to pay {x} with {y} for the work done". This verb is only attested in Dorsey's dictionary, defined as follows: "to offer [pay] for work done or for what has been bought". He provides one example without translation, reproduced in (576).

(576) *zho^{n}ní-thibébthi^n* *í-wi-shi* *tá* *mi^{n}k^{h}e*
sugar-twisted AP:INS-A1SG/P2-employ IRR 1SG.AUX
I will pay you with stick candy [= twisted sugar] (my translation; Dorsey n.d.b)

Another example is the *ubáxo^n* vs. *uthúbaxo^n* pair, illustrated in (577). The base verb *ubáxo^n* is ditransitive, and means "to push {x} in/through {y}". The derived verb *uthúbaxo^n* is attested once in Dorsey's texts, and is also ditransitive, as can be seen in (577b); the first object, the theme {x}, serves at the same time as theme and instrument. *Uthúbaxo^n* can be translated as "to push {*instrument*} in {y}".

(577) a. {*tethéze* *pasí tho^n*} {*mó^{n}de k^{h}e*} *u-báxo^n* *ki, ...*
{buffalo.tongue tip RND} {bow HORIZ} AP:INESS-*push when
B.OBJ A.OBJ VERB
The young men used to thrust one end of their bows through the tips of the buffalo tongues. (Dorsey 1890: 469.5 / Ó^{n}p^{h}o^n-To^{n}ga)

b. {*Mó^{n}ze ná-zhide-xti*} {*ú* *t^{h}e*} *uth-ú-wipáxo^n*
{iron INS:temp-red-INTENS} {wound VERT} AP:INS-AP:INESS-A1SG/P2-A1SG.*push
B.OBJ = INSTRUMENT A.OBJ VERB
ki, ...
when

When I thrust a very red-hot iron into your wounds, ... (Dorsey 1890: 232.4 / Páthi^n-no^{n}pázhi)

Note that in both (576) and (577b), *í-* can be analyzed as an applicative prefix introducing an instrument at the cost of one of the base objects. In each case, this occurs with ditransitive base verbs. Applicative constructions introducing a new object instead of the base object are well-attested cross-linguistically (see §1.2.2), but in such cases the base object is generally demoted to a peripheral position. By contrast, *í-* implies a change in the verb meaning in (576) while the base object is left implicit, and in (577) it implies a recharacterization of the base object as an instrument.

Prefix *í-*: other. Two examples from Table 6.1 show the prefix *í-* deriving verbs with the same number of arguments as the base verb. The first example is *íbet^{h}o^n* 'to pass around {x}', in (578), derived from the transitive verb *bét^{h}o^n* 'to fold up {x}' (only attested in DD). In this case, the prefix *í-* can be linked to an adessive locative meaning, but it does not have an applicative function.

(578) *The-k^{h}e wathízha k^{h}e í-bet^{h}o^n athá=i t^{h}e í-bet^{h}o^n athá=i.*
this-HORIZ washing HORIZ OBL-fold go=PX EVID OBL-fold go=PX
He went around the washing. He went around it. (Rudin et al. 1989-92: T6, TGS / Mary Clay)

The second example is *ithápe* 'to wait for {x}', derived from *ápe* 'to ask {x} to accompany one'. The root **pé* is not attested, and it is not possible to assign any meaning to it. Although we can sense a semantic link between both verbs, it is difficult to specify what it is, and what the meaning of *í-* is in such a context.

Complex prefixes *ithá-* and *uthú-* as independent derivational prefixes? Two verbs with *uthú-* constitute minimal pairs with other verbs, where *uthú-* cannot be analyzed as a combination of two oblique prefixes. Both are presented in Table 6.1: *uthúdo^{n}be* 'to consider {x}' is derived from *dó^{n}be* 'to see {x}', and *uthúno^{n}zhi^n* 'to depend on {x}' is derived from *no^{n}zhí^n* 'to stand'. *Uthúdo^{n}be* is illustrated in (579).

(579) *mazhó^n tho^n to^{n}gá níbthi ki, uthú-to^{n}be et^{h}égo^n ha.*
land RND big A2.plow when OBL-A1SG.see HYP-thus DECL.M
(When I go to see you,) I will be apt to examine it to see whether you cultivate it extensively. (Dorsey 1890: 645.13-4 / Maxpíya-xága)

In these cases, it appears that *uthú-* is better analyzed as a derivational prefix on its own, rather than a combination of two oblique prefixes[20].

[20] *Uthúno^{n}zhi^n* 'to depend on {x}' could admittedly be a derivation from *unó^{n}zhi^n* 'to stand in {x}': it could correspond to a semantic specification of, literally, 'to stand in thanks to {x}'. In this case, *u-* loses its applicative function in this example.

Finally, we might consider *íthápe* 'to wait for {x}' a derivation with the prefix *íthá-* of a bound root **pe*, rather than a semantically opaque derivation of *í-* from the base verb *ápe* 'to ask {x} to accompany one', as suggested above.

6.4.2 Demotivation of the applicative prefixes

As specified in Chapter 4, §4.9, the oblique prefixes are regularly found in frozen complex words. Following Bauer (2001: 45), I define the term "lexicalization' as "the whole process whereby an established word comes to diverge from the synchronically productive methods of word-formation". The oblique prefixes are frequently demotivated, but the very specific morphophonological changes caused by them always make them recognizable. We can say that the prefixes are lexicalized in these verbs.

The oblique prefixes often create verbs from bound roots or unattested bases, like instrumental prefixes do (§5.3). Oblique verbs from unattested bases can have a meaning and take an object more or less linked to the meanings of the applicative prefixes described in §6.1. We can organize lexicalized oblique verbs on a cline from the most applicative-like to the most semantically opaque. Different categories are identified in the database and presented below. Table 6.3 summarizes this continuum.

Note that some oblique verbs seem to be regular applicative derivations, but from a base verb which unfortunately is not attested in the corpora. In such cases, the oblique prefix is still considered an applicative marker. One example is *ugíno^{n}skábe* 'to make {*one's own y*} adhere to {y} with the feet', illustrated in (535). It can be considered the applicative (and possessive) derivation of the unattested verb **no^{n}skábe* 'to make {x} sticky with the feet'. The base *skaskábe* 'sticky' (Sanchez, Larson & Walker in progress) and several instrumental verbs with this base are attested. Similarly, *ubízho^n* 'to blow {x} up into {y}', in (538), is derived from the unattested base **bizhó^n*, which can be reconstructed as 'to blow {x}'.

Applicative semantics (APPL SEM.). Many verbs exist only with their oblique prefix, but take objects which semantically correspond to the expected applicative object. So, the oblique prefix retains its usual semantics, but it does not have a productive applicative function. This corresponds to the "weak derivation" of Mel'čuk (1993) (see §4.9).

- *ít^{h}í^n* 'to strike/beat {x} with {y}' (applicative semantics: instrument), from the unattested base **t^{h}í^n*: see (536)

- *ágaxade* 'to cover {x}' (applicative semantics: superessive locative 'on'), from the unattested base **gaxade*: see (524a)

- *upé* 'to enter into {x}' (applicative semantics: inessive locative 'in'), from the unattested base **pé*.

- *umá'ude* 'to cut a hole in {x}' (applicative semantics: inessive locative 'in'), from the noun *u'úde* 'hole' and the instrumental prefix *má-* 'with a blade'.

The last example of this list, *umá'ude*, corresponds to a small class of verbs which are related to nouns also beginning with the oblique prefix *u-*. A constructionist analysis of *umá'ude* could assign the applicative object "in {x}" by the presence of the prefix *u-*, and the action of cutting and causative semantics to the prefix *má-*. However, such an analysis does not take into account the fact that the base noun already contains the prefix *u-*. As mentioned in Chapter 5, these verbs are difficult to analyze. As a result, they are also considered lexicalized verbs with applicative semantics.

Lexicalized with optional applicative object (LEX (OBJ)). Some oblique prefixes are lexicalized, and optionally take an object which corresponds to an applicative object. I have found only five verbs of this type: *uóⁿsi* 'to jump (in {x})'; *ágazhade* 'to stride (over {x})'; *íkinoⁿxthe* 'to hide oneself (by/among {x})'; *ugáshoⁿ* 'to travel (in {x})'; and *ugás'iⁿ* 'to peep at {x} (in/through {y})'. The first three are exemplified in (580) through (585).

(580) {*Mashchíⁿge*} *uóⁿsi áiátha=biama.*
{Rabbit} leap leave=PX.REPORT
SBJ VERB

The Rabbit had gone with a leap. (Dorsey 1890: 36.8 / Nudóⁿ-axa)

(581) {*Ní kʰe*} *u-á-oⁿsi.*
{water HORIZ} (1)-A1SG-leap
OBJ VERB

I jumped into the water. (Dorsey 1890: 422.6 / Kaxé-Thoⁿba)

(582) *ishtá thip'íⁿze-doⁿ ágazhade athá=biamá.*
eye close-while stride go=PX.REPORT
VERB

Having closed his eyes, h made a stride and departed. (Dorsey 1890: 144.12 / Páthiⁿ-noⁿpázhi)[21]

(583) *"Kʰé, óⁿ-gazháda=ga! (...) á=biamá Wés'a akʰá.*
INTERJ P1SG.(1)-stride(2)=IMP.M say=PX.REPORT snake PX.SG
OBJ+VERB

"Come! Step over me! (...)", said the Snake. (Dorsey 1890: 567.2 / Frank La Flesche)

(584) *edíxti ahí ki, égithe thiⁿga=í tʰe. {Níashiⁿga} íkinóⁿxtha=i tʰe.*
there-INTENS arrive when finally lack=PL EVID {person} hide=PL EVID
SBJ VERB

[21] In the case of *ágazhade*, in the context of the story, it is possible that an implicit applicative objet is present, as the stride makes people cross the boundary between the upper world and the lower world. However, no boundary is overtly expressed, nor any kind of location or object that could be interpreted as a boundary.

And when they (...) arrived just there, behold, the Pawnees were missing. They had hid themselves. (Dorsey 1890: 379.12-13 / Nudó^{n}-axa)

(585) *Wó^{n}githe ó^{n}ha u'étha=i t^{h}e, {uch^{h}ízhe k^{h}e} íkinó^{n}xthe gó^{n} u'étha=i t^{h}e.*
all flee scatter=PL EVID {thicket HORIZ} hide as scatter=PL EVID
OBJ VERB

All fled, and scattered in the thickets; they scattered and hid themselves. (Dorsey 1890: 370.4 / Nudó^{n}-axa)

Lexicalized with no object (LEX). Many verbs with *á-* and *u-* oblique prefixes take no object at all, but have a meaning which can be somehow related to the locative meaning of the oblique. Some examples are listed below.

- *ábixe* 'to boil' (Binah Gordon p.c. reports that she has heard its meaning described as follows: *á-* specifies the vertical movement of bubbles, or the fact that a liquid boils when it is placed on top of a heating source)
- *ágasta* 'to pile up; to be piled up' (OLIT-UNL 2018: 528)
- *ugáha* 'to float'
- *unásude* 'to be burnt bare'

It is very difficult and subjective to estimate how much the oblique prefix contributes to the meaning of the lexicalized verb. One the one hand, the distinction between this category and the category of completely opaque verbs (next category) is very difficult to make, and few verbs of each category are integrated into the database.

The verb *ugáha* 'to float' used with a location in (586). As this verb only appears with the lexicalized oblique prefix *u-* and is intransitive, the location can only be expressed as a peripheral argument.

(586) *égithe tébia tú-xti amá wí^{n} {ní xébe kó^{n}ha k^{h}é-di} ugáha gó^{n} gthí^{n}*
finally frog green-INTENS PX.PL one {water shallow side HORIZ-LOC} float thus sit
PERIPH VERB

ak^{h}áma.
EVID

At length a very green Frog was sitting, floating by the edge of the shallow water. (Dorsey 1890: 282.03-4 / Nudó^{n}-axa)

Completely opaque (OPQ). Many verbs with lexicalized oblique prefixes have completely opaque meanings (absolutely not decomposable). A few examples are listed below, including some with the complex prefix *uthú-*:

- *í-* *íbaku* 'to be bothersome; to bother {x}'; *ída* 'to be born'; *íkithe* 'to wake up'
- *á-* *ábae* 'to hunt {x}'; *ákipa* 'to meet {x}'
- *u-* *unábthi*^{n} 'to sweat'; *uné* 'to seek {x}; to hunt {x}'
- *uthú-* *uthúk*^{h}*o*^{n}*pi* 'be beautiful; {x} be becoming to {y}'; *uthúk*^{h}*i* 'to side with {x}; to be an ally of {x}'

Table 6.3: Lexicalization continuum of oblique applicative verbs

Label	Meaning & example
	productive applicative function, attested base
APPL	attested base, productive applicative function, e.g., *ugthí*^{n} 'to sit in {x}'
APPL	unattested base corresponding to a well-formed verb, productive applicative function e.g., *ubáxo*^{n} 'to push {x} in {y}', from **baxó*^{n} 'to push {x}'
APPL SEM	unattested base, with an object corresponding to the usual applicative object e.g., *upé* 'to enter into {x}'
LEX (OBJ)	unattested base, sometimes attested with an object corresponding to the usual applicative object e.g., *uó*^{n}*si* 'to jump into {x}'
LEX	unattested base, the meaning of the verb is reminiscent of the meaning of the prefix e.g., *uxpáthe* 'to fall' (one falls somewhere)
OPQ	completely opaque form e.g., *unábthi*^{n} 'to sweat'
	completely opaque form, unattested base

6.5 Summary

This chapter provides a thorough study of the set of "oblique" applicative constructions, which contrast with the dative and benefactive-possessive applicative constructions (see §4.3–§4.5). The meanings of the oblique applicative prefixes vary, but the three most common and productive meanings are the instrumental for *í-*, the superessive 'on' for *á-*, and the inessive 'in' for *u-*, which are attested in all branches of the Siouan family. The locative relations expressed by *á-* and *u-* can be figuratively extended at least to malefaction and social/professional position, respectively. The prefix *í-* has various other meanings, each attested on a restricted number or verbs. Beside their applicative function, the oblique prefixes sometimes act as valency-preserving derivational prefixes. In such cases they have similar meanings but modify the

semantic features of the event or object, rather than introducing an applicative object. Additionally, the oblique prefixes very frequently occur on non-autonomous verb bases where they are lexicalized. Lexicalized oblique verbs range along a continuum from the most applicative-like to the most semantically opaque, as illustrated in §6.4.2. I identify four categories on this continuum, according to the verb's semantics and the presence or absence of an overt object.

The oblique applicative prefixes can apply to all verb classes from impersonal verbs to ditransitive verbs, but the possible bases vary according to the applicative semantics. As expected, the instrumental applicative is almost always applied to transitive verbs, and only once to a ditransitive verb. When it is applied to intransitive stative verbs, it introduces an instrument as the starting point of the event, and such constructions are functionally close to causative constructions. (This can be considered a case of instrumental/causative isomorphism, and interestingly it exhibits an opposite path to what is described by Peterson 2007.) The locative applicative constructions frequently occurs with intransitive active and transitive verbs, but the prefix *á-* is also attested on impersonal and intransitive stative verbs. The applicative objects have the same morphological and syntactic properties as the base objects; they can be indexed on the verb, relativized, nominalized, and incorporated into the verb. When applied to transitive verbs, the applicative derivation results in a double object construction, as demonstrated in §6.2.3.

The instrumental and locative applicative constructions are the default means of adding a location or an instrument to an event. The instrumental applicative construction is obligatory, which means that there is no other means to express an instrument. (The unique counterexample attested so far is discussed in §6.3.3.) The locative applicative constructions seem to be the most common way to express a location, but locations can also be expressed with non-applicative verbs by means of postpositional phrases (peripheral arguments). By contrast, the reason or cause of an event is most often expressed by subordinate clauses, by verb parataxis, or by adjuncts, and the equivalent applicative constructions are rather scarce.

In the semantic, morphological, and syntactic analyses of the oblique applicative markers, the prefix *í-* clearly stands out with its unique features. First, it is the most polysemous prefix, as it introduces instruments, adessive locations ("by"), reasons or causes of the action, and what I term "sociative" ("together with"), at least. Secondly, this prefix can combine with the other two, being added to their left edge, and this results in the surface forms *íthá-* and *uthú-* (when no person markers are added). There seems to be a morphological restriction in the possible combinations of the oblique prefixes, which leaves *í-* as the only available prefix for the introduction of an inanimate applicative object to a base verb that already contains an oblique prefix (whether a lexicalized form or an applicative verb). Thirdly, when the applicative prefix *í-* introduces a cause or reason for the action, the applicative object can take the form of a clausal complement rather than an NP, as described in §6.2.5. This kind of syntactic construction is not commented on in the typological descriptions of applicative

constructions available to me (Peterson 2007, Dixon & Aikhenvald 2000b, Creissels 2006b, Mithun 2001). The introduction of a reason or cause by means of the prefix *í-* is attested in a few other Siouan languages, but more investigation is needed to determine whether they can take the form of clausal complements.

Another unexpected feature of applicative constructions concerns the possibility for locative applicative objects to be introduced by the postpositions *-ta* 'towards' and *-di* 'in, inside'. The presence of these postpositions is not lexically restricted to a subset of verbs, since the same applicative verbs are attested with both NPs and PPs as applicative objects. The contexts where the applicative PPs arise, and the translations provided with these constructions, do not enable us to draw any positive conclusions about their function. Although such examples are very infrequent (less than 5% of the applicative constructions gathered for the study), they are problematic, since PPs are generally recognized as peripheral arguments and are regularly used to introduce locations with non-applicative verbs. Since the only postpositions attested on applicative objects are *-ta* and *-di*, they may have a special status in relation to the other postpositions in Umóⁿhoⁿ.

Chapter 7

Prefix *wa-*: antipassive and other functions

The sequence *wa-* prefixed to verbs and nouns is very frequently found in Umóⁿhoⁿ, with many different functions and interpretations. There are in fact three distinct morphemes, at least, which are realized with *wa-*:

1. third person plural object marker (O3PL)
2. first person plural patientive indexation marker (P1PL)
3. underspecified argument (with several functions)

These three categories are identified in a number of Siouan languages. The third person plural object marker and first person plural patientive indexation marker are traced back to Proto-Mississippi Valley Siouan, and are attested in many Mississippi Valley Siouan languages.

What I call "underspecified argument" corresponds to functions of *wa-* which have been called "valency-decreasing", "detransitivizing", "absolutive", "indefinite object marker" or "unspecified argument" in different Siouan languages (see §7.7.2). Moreover, *wa-* is often attested on nouns, and such cases are either treated as examples of "valency-decreasing", "detransitivizing", "absolutive" etc., or as examples of a distinct nominalizing function.

Umóⁿhoⁿ data show that various semantic values and syntactic effects associated with *wa-* are closely intermingled and can be gathered under the label of "underspecified argument". One of these is the antipassive function with absolutive/generic interpretation. The aim of this chapter is to present the various subtypes of this "underspecified argument" *wa-*, the ambiguities between them and with the O3PL *wa-*, the comparative data found in a series of SL, and the possible paths of grammaticalization. For convenience, and because many ambiguous cases exist between the distinct functions of *wa-*, I refer to "the prefix *wa-*" in singular, despite the fact that the three categories numbered above correspond to different morphemes.

In **§7.1** I present each of the distinct morphemes listed above, as well as cases where *wa-* forms opaque morphological constructions with a stem. I then describe, in **§7.2**, the formal resemblances and distinctions between these morphemes. In **§7.3** I introduce the subfunctions of *wa-* as an "underspecified argument marker": antipassive marker (when there is a generic interpretation), indefinite object marker, nominalizer, and possible aspectual marker. These subfunctions are not always easy to distinguish from one another, and the ambiguities between them are described in **§7.5**. I then focus on the antipassive function of *wa-* in **§7.4**, and describe its morphosyntactic features and typological features. In **§7.6** I present a network of functions for *wa-*, and from this I propose two possible historical sources for the use of *wa-* as an antipassive marker. Finally, in **§7.7** I propose a comparative survey of the functions of the cognates of *wa-* in 12 Siouan languages. A summary of the chapter is provided in **§7.8**.

7.1 The homonymous morphemes *wa-* in Umó^{n}ho^{n}

7.1.1 Third person plural object marker – O3pl

When a transitive verb has a third person plural object, the latter is always indexed on the verb by the prefix *wa-*, whether or not it is also overtly realized by an NP. Example (587) presents a transitive verb with a 3rd person plural object realized syntactically (the object is in curly brackets in the Umó^{n}ho^{n} version and in the gloss):

(587) *ó^{n}ba théthu {shaó^{n} amá} wa-tó^{n}be ha, Umáha tíi thó^{n}di.*
day here {Dakotas the.PL} O3PL-A1SG.see DECL.M Umó^{n}ho^{n} village the.RND-LOC
On this day I have seen the Yanktons at the Umó^{n}ho^{n} village. (Dorsey 1890:707.1 / Unázhi^{n}-ska)

When an argument is easily identified, it is often omitted, and is interpreted anaphorically. This is the case of the object in (588b). The object of the verb *'ú* 'to wound' is *níashi^{n}ga áhigi* 'a lot of people'. It is introduced in the preceding sentence (588a) as an indefinite subject. It is referred back as an object in (588b).

(588) a. *ki égithe {níashi^{n}ga áhigi} tí t^{h}e tháthuhá-xchi iénaxítha amáma ki, édi*
and then {person many} tent VERT nearly-INTENS attack EVID when there
ánazá-di ak^{h}í=biamá.
back-LOC arrive.back=PX.REPORT
And behold, when many persons were nearly attacking the tent, he reached home in their rear.

b. *íthae=bazhi–xti=ó^{n} shtewó^{n} wa-'ú=biamá*
talk=PX.NEG-INTENS=AUX whatever O3PL-wound=PX.REPORT
Without speaking at all, he wounded them.
(Dorsey 1890: 361.6-9 / Joseph La Flesche)

7.1.2 First person plural patientive marker – P1pl

First person plural patientive (P1PL) is often encoded by the prefix *wa-* on the verb. Unlike O3PL, the marker of P1PL is present on both transitive and intransitive verbs, as can be seen respectively in (589) and (590).

(589) *zhó^n-zhi^{n}ga k^{h}e* *wa-'í* *ta=i* *égo^n at^{h}í=i* *ha*
wood-small HORIZ P1PL-give IRR=PL as arrive.here=PL DECL.M
They have come to give us the stick (Dorsey 1890: 471.9 / Ó^{n}p^{h}o^n-To^{n}ga)

(590) *(...) shét^{h}o^n wa-gíni=bázhi.*
though P1PL-recover=PX.NEG
(...) and we have not yet recovered. (Dorsey 1890: 669.2 / Mo^{n}ch^{h}ú-No^{n}ba)

However, P1PL can also be marked by an additional *a-* along with *wa-*. This is the case in (591), where P1PL is marked by *awa-*. According to Carter et al. (2006: 6), the P1PL marker takes the form *a-wá-* each time a pre-verbal form occurs before it (see verbal template in Chapter 3)[1]. This is the case of the causative verb in (591).

(591) P1PL realized as *a-wa-* in a causative verb

égithe uthéwi^n-awá-tha=i.
finally assembled-P1PL-CAUS=PP

At length they assembled us. (Dorsey 1890: 435.3 / Páthi^n-no^{n}pázhi)

Thus, the marker of P1PL proves to be, underlyingly, a discontinuous prefix *wa-...a-*, which is sometimes realized as *wa-*[2], sometimes *a-wá-*, and sometimes **wa-...a-*, as in (592). Carter et al. (2006: 6) reconstruct the form **wa-wa-* in proto Mississippi Valley Siouan. The conditions of variation of the marker P1PL have not yet been thoroughly described, but the forms *wa-* and *a-wa-* are in complementary distribution, and *a-wa-* seems closer to the historic source. See (290), in Chapter 3, for a decomposition of the successive steps of morphophonological changes leading from the underlying form to the surface form of this verb.

(592) P1PL marked as **wa-...-a-*, with a lexicalized *í-* oblique prefix

é *weábahó^{n}i* *égo^n íe* *t^{h}e* *théshnize* *et^{h}a=í.*
**wa-í-a-baho^n=i* **tha-gí-shníze*
DEM P1PL-(1)-P1PL-know(2)=PP as word VERT A2-DAT-A2.take HYP=PP

[1]There is at least one frequently used counterexample to this rule: the final sequence *wa-the* (P1PL-CAUS) which conveys the meaning "let's...". It is placed after the verbal stem, and yet the person marker is realized as *wa-*. One common example is *thé-wa-the*, go.there-P1PL-CAUS, 'let's go'. This demonstrates that more research is needed in this field. I thank Kathy Shea for first pointing out this example to me.

[2]OLIT-UNL (2018), which attempts to capture vowel length in its spelling system, writes *wā-* with a long vowel for P1PL, and *wa-* with short vowel for the other functions.

(...) as he knows about us, you will please accept his words. (Dorsey 1891a: 21.9 / Si^{n}de-xo^{n}xo^{n})

Thus, the surface form *wa-* marking P1PL clearly corresponds to a distinct morpheme with its own historic source, a fact highlighted by the lack of semantic relation between this function and the other ones[3]. The morpheme *(a-)wa-* P1PL is not included in the study of this chapter.

7.1.3 Marker of an underspecified argument

In numerous occurrences, the prefix *wa-* seems to fill an argument position with a nonspecific, generic, or indefinite referentiality. For convenience, at this point it can be described broadly as the marker of an "underspecified argument". The same can be said of all its cognates in the Siouan languages surveyed in §7.7, although according to the languages or the grammars, different descriptions and interpretations are proposed.

The prefix *wa-* on transitive verbs fills their object position. Sometimes, it removes any reference to an object, as in (593), where the verb derived with *wa-* refers to an activity. In this case, *wa-* has an antipassive function with generic interpretation.

(593) *Wa-bthát^{h}e* *í^{n}-udo^{n}.*
ANTIP-A1SG.eat D1SG-good
I like to eat. (Saunsoci & Eschenberg 2016: 15 / Alice Saunsoci)

In other cases, *wa-* fills the object position with an indefinite but specific interpretation, as can be seen in (594). The verb *wawípaxu* is glossed by Dorsey 'I write something to you'. The indefinite entity represented by *wa-* serves as an object of the second verb of the verb series: *shu-thé-a-the* 'I send (it) to you'.

(594) *ó^{n}bathé* *wa-wí-paxu* *shu-thé-a-the.*
today INDEF-A1SG/D2-A1SG.write DIR-go.thereA1SG-CAUS
I write something to you and send it to you today. (Dorsey 1890:775.7 / Te-úko^{n}ha)

Many deverbal nouns also begin with *wa-* and correspond to one of the arguments of the verb. The deverbal noun *wazhí^{n}ga* 'bird' is illustrated in a sentence in (595). It can be translated, literally, as "something which is small", and *wa-* fills the subject argument of an intransitive stative verb.

(595) *shó^{n}* *wa-zhí^{n}ga* *bthúga hú-to^{n}* *za'é-xti=ó^{n}=biamá.*
in.fact NMLZ-small all voice-*loud make.noise=AUX=PX.REPORT
And, in fact, all the birds cried and made a great uproar. (Dorsey 1890: 47.5 / Nudó^{n}-axa)

[3]In fact, the diachronic pathway from third person to first person plural is documented cross-linguistically (French *homme* → *on*). It is not completely discarded that *wa-* O3PL and **a-wa-* P1PL could be remotely related, but it needs further comparative investigation.

We find deverbal nouns beginning with *wa-* which correspond to the patientive argument of intransitive verbs (as above) and transitive verbs (*wathát^{h}e* 'food', from *that^{h}é* 'to eat {x}'), and to the agentive argument of transitive verbs (*wamó^{n}tho^n* 'thief', from *mo^{n}thó^n* 'to steal {x}').

Given the porosity of the delimitation line between nouns and verbs (see §2.4.8), nouns with *wa-* are included in this research. Many nouns with *wa-* are attested in Siouan languages, and they are frequently used by scholars to illustrate the functions of *wa-* together with verbs.

The different functions of *wa-* identified within the category of "underspecified argument" are presented in §7.3. The prefix *wa-* seems to have exactly the same morphophonological characteristics whatever these values and functions are, and the distinction between them is often a matter of interpretation, with many ambiguities. For all these reasons, the broad category of "underspecified argument" is a useful one. In §7.2, the formal description of *wa-* opposes the O3PL morpheme to the "underspecified argument" marker.

7.1.4 Opaque formations and unknown function

It should be noted that a certain number of verbs and nouns starting with *wa-* are opaque formations. We can describe them using Mel'čuk's (1993:310) distinction between "strong derivation" and "weak derivation" (my translation; see §4.9.1). The latter comprises forms where an affix is identifiable, but its relationship with a base is difficult to make out, either because (1) the base is not attested on its own, or because (2) the derived form is not semantically compositional.

Lexicalized units composed of *wa-* and a bound root not attested elsewhere (or with such different meaning that no conclusion can be drawn about its content) are very numerous. One instance is the verb *wak^{h}éga* 'to be sick', from the root **k^{h}ega* which is not attested alone and to which we cannot assign any meaning. Such cases are classified as "opaque" (OPQ)[4]. In §7.2.1 we see that they share common morphological features with other constructions involving the antipassive and O3PL *wa-*.

In other forms, the prefix *wa-* clearly serves as a derivational prefix on an identified stem, but with a meaning or function which cannot be identified. In such forms, the prefix *wa-* is classified by default as a "derivational" prefix (DERIV). Sometimes, the specific function of *wa-* cannot be retrieved because it applies to the stem at the same time as another derivational prefix. As an example, the noun *úthito^n* 'work' is derived from the verb *thitó^n* 'to work {x}', and we cannot be sure if *wa-* has a nominalizing function, or if the nominalizing function is

[4]Other verbs of this kind include: *wahéhazhi* 'to be brave, stout-hearted'; *wakó^{n}dithe* 'to be excited, fired up, anxious for something'; *waséko^n* 'to be quick, active, swift'; *wasníde* 'to be late'; *washkó^{n}to^{n}ga* 'to be strong'; *wathíshna* 'to be visible'; *waxpáni* 'to be poor'; *waxthí* 'to be scared'; *waxúbe* 'to be mysterious'; *wazhétho^n* 'to be tired'; *wazhí^{n}shte* 'to be in bad humor'. None of them is indexed in the Comparative Siouan Dictionary (Carter et al. 2006). Nouns are very numerous too, they include, among others, *wagthábaze* 'letter, book'; *wa'ú* 'woman' (see §7.2.1); *waxága* 'thorn'.

Table 7.1: *Wa-* words classified as "OPQ" and "DERIV"

Class	Word with *wa-*	prefixes	root
OPQ	*wak^{h}éga* 'to be sick'	*wa-*	**k^{h}ega* (unknown meaning)
OPQ	*wéshno^n* 'to be pleased'	**wa-gí-á-*	**shno^n* (unknown meaning)
OPQ	*wach^{h}ígaxe* 'to dance'	*wa-*	**ch^{h}ígaxe* (unknown meaning, with *gáxe* 'to make')
OPQ	*wabásno^n* 'shoulder'	*wa-*	**basno^n* (unknown meaning)
DERIV	*washkó^n* 'to persevere; to be active'	*wa-*	*shkó^n* 'to move, to act'
DERIV	*úthito^n* 'work' (n.)	**wa-u-*	*thitó^n* 'to work {x}'
DERIV	*wawéno^{n}xitha* 'to attack {*them*}'	**wa-wa-*	*iéno^{n}xitha* 'to attack {x}'
DERIV	*wáthuto^n* 'correctly; with frankness'	**wa-á-*	*thúto^n* 'correctly, straight'
DERIV	*wathí^{n}ge* ≈ 'to part with {x}'	*wa-*	*thi^{n}ge* 'to be without {x}; to lack {x}'

borne by the prefix *u-* (cf. §2.3.2). In a few cases too, *wa-* appears with an unknown meaning in non-compositional derivations. For example, the bivalent stative verb *thi^{n}ge* 'to be without {x}; to lack {x}' is found once in the corpora with the prefix *wa-*. The verb *wathí^{n}ge* is defined by Dorsey (n.d.b) as "to part with an object on account of the dead". The context in which it is used in the corpus matches Dorsey's definition (example (596)), although the causality link between mourning and sleeping without a pillow is not explicitly stated.

(596) *í^{n}behí^n shte wa-thí^{n}ge-xti zhó^n=biamá.*
pillow even ?-lack-INTENS sleep=PX.REPORT
He lay out of doors, without any pillow at all. (Dorsey 1890:355.4 / John Springer)
Context: A man is mourning his child; he is sleeping outside the lodge and without any pillow.

Table 7.1 shows a few examples of words where *wa-* is in a complely opaque formation, and where it acts as a derivational prefix with unknown meaning/function.

7.2 Formal resemblances and distinctions

From now on I set aside *wa-* as a P1PL marker, and focus only on *wa-* O3PL and *wa-* as a marker of an underspecified argument. The latter two share much of their formal behavior, as does the demotivated *wa-* classified as OPQ (§7.2.1). In very specific contexts, distinctions between the two morphemes appear, although they do not seem to be systematic (§7.2.2).

7.2.1 Common formal behavior

The prefix *wa-* has the particularity of often changing its prefixal slot depending on which oblique prefix is realized at the same time on the verb (see §3.4.4), and of undergoing several morphophonological changes when it is followed by a vowel in the prefixal sequence (see §3.5). Table 7.2 shows some combinations of *wa-* with several indexation markers and oblique

prefixes. We see that (1) when combined with the prefix *a-* for A1SG, *wa-* appears in second position (i.e., after *a-*). But (3) if it co-occurs with A1SG and the oblique prefix *í-*, it then fills the first position, and is followed by the oblique prefix and the A1SG marker. Thus, the ordering of *wa-* and *a-* A1SG changes according to the presence or absence of the oblique prefix *í-*. Note also that (2) *wa-* is always realized before *tha-* A2, so it does not always stay in the same place relative to the other indexation markers, even when no other derivational prefix is involved.

Table 7.2: The position of *wa-* in the prefixal slot

	Other prefix(es)	Template				Result
(1)	A1SG	*a-*	*wa-*			*awá-*
(2)	A2		*wa-*	*tha-*		*wathá-*
(3)	Oblique *í-* + A1SG		*wa-*	*í-*	*a-*	*weá-*

The forms shown in Table 7.2 are always the same regardless of the function associated with *wa-* (except for P1PL which we have already ruled out). Example (597) shows the combination of *wa-* with the A1SG marker, which consistently yields the sequence *awá-*, whether *wa-* is an antipassive marker (in (597a)); an O3PL marker (in (597b)) or part of an opaque derived verb (in (597c)).

(597) The prefixes *wa-* and *a-* A1SG always form the sequence *a-wá-*

a. *shó^n a-wá-'e t^{h}e-dí hi ki, ...*
and A1SG-ANTIP-plow DEF-LOC arrive.there when
When plowing times arrives, ... (*Literally:* "I plow - when the time arrives". Dorsey 1890, 717.6 / To^{n}wo^n-gaxe-zhi^{n}ga)

b. *Pó^{n}ka ní^{n}kagáhi zaní-xti a-wá-sithe*
Pa^{n}ka chief all-INTENS A1SG-O3PL-remember
I remember all the Pa^{n}ka chiefs. (Dorsey 1890, 512.9 / Waníta-wáxe)

c. *a-wáchigaxe xtá-a-the.*
A1SG-dance loved-A1SG-CAUS
I like to dance (Saunsoci & Eschenberg 2016, 88 / Alice Saunsoci)

On verbs with the oblique prefix *í-*, the slot assignment of *wa-* and A1SG changes: they form the sequence *wé-a-* (from **wa-í-a*), with the person marking *a-* for A1SG coming after *wa-*, as exemplified in (598). *Wa-* has an antipassive function in (598a); an O3PL marker function in (598b); and it appears completely lexicalized in (598c).

(598) The prefixes *wa-*, *í-* oblique and *a-* A1SG always form the sequence *we-á-*

a. *í^{n}thap^{h}a pezhí-xchi we-á-gi-gthát^{h}o^n té-na.*
corn-crusher bad-INTENS ANTIP.INS-A1SG-POSS-*pound IRR-(?)

I will pound my corn with an excellent corn-crusher! (Dorsey 1890, 261.6 / Teúkoⁿha)

b. *Miká dúba we-á-ki-the, á=biamá.*
Raccoon some O3PL(1)-A1SG-REFL-find(2) say=PX.REPORT
I have found some raccoons for myself. (Dorsey 1890, 75.11 / Moⁿchʰú-Noⁿba)

c. *wé<a>shnoⁿ*
<A1SG>pleased
I am pleased (Dorsey n.d.b: my translation)

We have seen that *wa-* frequently appears on verbs that cannot be broken down, but where *wa-* has the same morphophonological behavior singling it out from the root (category OPQ, §7.1.4). Examples (597c) and (598c) show that the first syllable *wa-* shares the morphophonological features of antipassive and O3PL *wa-*, which is the reason that motivates the introduction of any verb beginning with *wa-* in the database.

There is even a noun that displays verbal features with *wa-* standing out as a prefix. This is *wa'ú* 'woman', which is presented in §2.4.7 about predication.

7.2.2 Formal distinctions

In her Osage grammar, Quintero (2004: 150-2) shows that the marker of O3PL is formally distinct from the antipassive marker in a few contexts: in causative verbs they take different slots, and in some verbal paradigms like the athematic *ð*-stem paradigm (*th-*) they are distinguished by accentuation. We find very similar data in Umóⁿhoⁿ: *wa-* O3PL and *wa-* ANTIP are also attested in different slots and with different accentuation. Additionally, a morphophonological difference between the two functions sometimes appears when the prefix combines with the benefactive applicative *gí-*. However, it is worth mentioning that, first, such distinctions arise in very specific contexts that are poorly attested, and second, that each formal distinction that I have identified includes dubious cases and/or counterexamples.

Table 7.3 shows some examples of verbs where the distinction between the O3PL function and the underspecified argument marker (generic antipassive or indefinite object) is visible formally, in the three ways mentioned above. The clearest evidence appears when *wa-* ANTIP and *wa-* O3PL take different slots. This happens with causative verbs, examples of which are provided in Table 7.3 and in (599). In Umóⁿhoⁿ, causative verbs are categorized as "discontinuous stems" (Koontz 1989a), in which the causative suffix *-the* takes the slot of the root (see Chapter 3, §3.4. The indexation markers are inserted between the preverb (here, the stem with lexical information) and the root (here, the causative marker). This is why in Table 7.3 the prefix *wa-* is inserted immediately before the causative marker when it takes the function of O3PL. On the contrary, it is prefixed to the whole verb when it acts as an antipassive marker[5]. The example from *zé_the* 'to doctor {x}' is exactly the same as the one provided by

[5]Theoretically, other kinds of discontinuous stems (*ie*, not formed with the causative marker) should show

Quintero for Osage. Note that *wathá'ethe* is the only example found to date as a verb; the other examples show nouns of agents, where I assume that the noun was created by converting an antipassive verb.

(599) a. *égithe shi wa-t'é-the ú-gi-ne atha=í.*
at.length again ANTIP-die-CAUS O3PL(1)-POSS-seek(2) go=PX
At length the father went again to seek the slayers, his sons. (Dorsey 1890: 306.1 / Páthi^{n}-no^{n}pázhi)

b. *Ní^{n}kashí^{n}ga-ma bthúga-xti gó^{n} t'é-wa-thá=biamá,...*
people-PL.PX all-INTENS thus die-O3PL-CAUS=PX.REPORT
He thus killed all the people by concussion, ... (Dorsey 1890, 602.9 / George Miller)

The difference in accentuation seems to be the same in Umó^{n}ho^{n} and Osage; it appears only on verbs from the athematic *th-* paradigm, where *wa-* is accented when it refers to O3PL, and unaccented when it refers to ANTIP. One example of *that^{h}é* 'to eat $\{x\}$' with a third plural patient is provided in (600): *wáthat^{h}e* 'he eats them'. It contrasts with the antipassive form of example (605): *wathát^{h}e gthí^{n}* 'they sat eating'. This has already been noticed by Koontz (2001b: 30-31), and it seems to be the only paradigm where such a distinction occurs[6]. More particularly, the verb *that^{h}é* 'to eat $\{x\}$' is the only one provided by Koontz (2001b) as an example of this distinction, and the only one found in my own research.

(600) *Uxthúxa u-gthí^{n}-de waníta ga-t'é-ma gó^{n} wá-that^{h}e gthí^{n} tá ak^{h}á, á=biamá.*
hollow AP:INESS-sit-when animal INS:fall-die-PL.PX as O3PL-eat sit IRR EVID say=PX.REPORT
As he sits in the hollow, he will be eating the animals which die from falling into it. (Dorsey 1890, 249.8 / Frank La Flesche)

Finally, a difference in morphophonology sometimes arise when *wa-* is combined with the benefactive prefix *gí-*. Dorsey's corpora and dictionary provide several forms where *wa-* and *gí-* do not merge when *wa-* has an antipassive value (sequence *wagí-*, attested in Dorsey's dictionary and once in Dorsey's texts), while they do when *wa-* indexes O3PL (yielding *wé-*). There is variation in the forms attested, however. While the form *wagíbaxu* is provided by Dorsey to mean "to write to another about several or many things", ULCC (2015) provides the form *wébaxu*. At this point of research, and given the scarcity of examples, it is not possible to explain this variation satisfactorily; it could reflect a free variation not recorded by Dorsey, or it could show a diachronic change, or it could be a variation between speakers. (See §2.1 and §2.7 about documentation issues.) Additionally, the fusion of O3PL *wa-* and dative *gí-* seems to be blocked when they do not cross-reference the same argument, as exemplified in §3.6. As a consequence, the sequence *wa-gí-* with O3PL *wa-* is sometimes attested.

the same distinction between O3PL and ANTIP, but no example has been found thus far.

[6]In any case, this is the only conjugational paradigm where Koontz proposes a section named "with wa- not plural".

Table 7.3: Attested formal differences between ANTIP/INDEF and O3PL

Base verb	*wa-* O3PL	*wa-* ANTIP/INDEF
	Difference in slots	
t'é-the die-CAUS to kill {x}	*t'é-wa-the* die-O3PL-CAUS he killed them	*wa-t'é-the* ANTIP-die-CAUS "one who has killed a person accidentally"
zé-the heal?-CAUS to doctor {x}	*zé-wa-the* heal?-O3PL-CAUS he doctored them	*wa-zé-the* ANTIP-heal?-CAUS a doctor
ní-the alive-CAUS to save {x}	*ní-wa-the* alive-O3PL-CAUS he saved them	*wa-ní-the* ANTIP-alive-CAUS a healer
tha'é-the pity-CAUS to pity {x}	*tha'é-wa-the* pity-O3PL-CAUS he pities them	*wa-thá'e-the* ANTIP-pity-CAUS he is kind; he shows pity
	Difference in accentuation	
that^{h}é eat to eat {x}	*wá-that^{h}a=i* O3PL-eat=PX s/he eats them	*wa-thát^{h}e* ANTIP-eat s/he eats, is eating
	Difference in morphophonology	
gí-thito^n BEN-work to work {x} for {y}	*wé-thito^n* O3PL.BEN-work he works it for them	*wa-gí-thito^n* ANTIP-BEN-work he works (at various things) for him
gí-baxu BEN-write to write {x} for {y}	*wé-baxu* O3PL.BEN-write he writes it for them	*wa-gí-baxu/wé-baxu* ANTIP-BEN-write he writes for him

The three distinctions displayed in Table 7.3 are not as straightforward as they seem. First, as I have already said, they arise in very specific contexts, that is, when the form *wa-* occurs with the causative suffix *-the*, or with the instrumental prefix *tha-* (which makes the verb follow the athematic *th-* conjugational paradigm), or with the benefactive prefix *gí-*. This specificity results in few examples available for each case. The distinctions are tendencies, but we also find counterexamples.

Concerning the difference in slots, Quitero herself provides at least one exception in Osage, in another section of her grammar, copied here in (601). In Umóⁿhoⁿ, out of a small database of 27 forms containing both *wa-* and *-the*, 25 forms are consistent with the distinctions described in Table 7.3. The two counterexamples are reproduced below. In (602), *wa-* refers to a definite singular referent, and thus it cannot be interpreted as O3PL, yet it is inserted before the causative marker instead of before the verb stem. In (603), Dorsey assigns both the O3PL interpretation and the ANTIP interpretation to the same verbal form. According to the description above, only the antipassive interpretation (or, rather, an underspecified argument interpretation) should be associated with this form. These counterexamples will be discussed again in §7.6.2[7].

(601) *oðó-ðe* 'to supervise; to boss {x} (e.g. an event)'
oðó-wa-ðe 'to be boss; to be in charge; to oversee things'
Expected antipassive form: *ṫwóðo-ðe*. (Adapted from Quintero 2004: 163)

(602) *shé t'é-the údoⁿ akʰá=shnoⁿ thóⁿ t'é-wa-thá-the tʰe, á=biamá.*
this die-CAUS good PX.SG=only PST die-?-A2-CAUS EVID say=PX.REPORT
Have you killed him who only should have been killed in the past? (Dorsey, 1890:33.15 / Joseph La Flesche)

(603) *wa-thá'e-the*
ANTIP-pity-CAUS 'he is kind, he shows pity' (expected meaning)
O3PL-pity-CAUS 'he is kind and merciful to them' (unexpected meaning/slot)
(Adapted from Dorsey's dictionary; same entry)

Finally, there are also at least two counterexamples concerning the distinction in accentuation. One of them is reproduced in (604) from Saunsoci & Eschenberg (2016).

(604) *Zhiⁿgá-akʰa wá-thaxta gi-údoⁿ.*
small-PX.SG ANTIP-bite BEN-good
The kid likes to bite (people). (Saunsoci & Eschenberg 2016, 65 / Alice Saunsoci)

In conclusion, we see that in specific contexts, the prefix *wa-* behaves in two different ways. The distinction between these formal characteristics generally parallels the distinction

[7] One possible explanation for the form in (602) is that the position of *wa-* is constrained by the presence of the indexation marker *tha-* A2. This would not be the first example of slot change constrained by the presence of other morphemes in the prefixal sequence. The causative verbs with *wa-* as an underspecified argument are very rarely attested with indexation markers.

Table 7.4: Some antipassive verbs (and corresponding nouns) in Umó^{n}ho^{n}

Base verb		Antipassive verb		Converted noun
'é	to farm {x}, to hoe {x}	*wa'é*	to farm	farmer
'í	to give {x} to {y}	*wa'í*	to give {x}; to make a gift to {y}	
ábagtha	to draw back from {x}	*wábagtha*	to draw back from shame	
baxú	to write {x}	*wabáxu*	to write (something)	writer
do^{n}be	to look at {x}	*wadó^{n}be*	to go as a scout	scout
mo^{n}thó^{n}	to steal {x}	*wamó^{n}tho^{n}*	to steal	thief
no^{n}zhú	to thresh {x}	*wanó^{n}zhu*	to do threshing	thresher
that^{h}é	to eat {x}	*wathát^{h}e*	to eat	
thaxté	to bite {x}	*watháxte*	to bite	
thipí	to be good at {x}	*wathípi*	to do things skillfully	
thitó^{n}	to work on {x}	*wathíto^{n}*	to work	
thixé	to pursue {x}	*wathíxe thé*	to go in pursuit	pursuer
uhó^{n}	to cook {x}	*úho^{n}*	to cook	cook
zé_the	to doctor {x}	*wazé_the*	to doctor people	doctor

between *wa-* as O3PL and *wa-* as an underspecified argument marker. They are frequent enough to ascertain that there are two homonymous morphemes, and not one polysemous morpheme.

7.3 The subfunctions of *wa-* as an underspecified argument marker

In §7.1.3, several examples of *wa-* were presented where they showed rather different functions and values, despite the fact that they all can be described as corresponding to an underspecified verb argument. In fact, up to four distinct subcategories can be identified in the data, which are presented in the next subsections:

- Antipassive function when *wa-* fills the object position with a non-referential or generic interpretation;
- "Indefinite" function when *wa-* fills the object position with an indefinite interpretation and functions as a syntactic unit;
- Nominalizing function when *wa-* appears on patient nouns
- (?)Aspectual marker with partitive and/or imperfective semantics

7.3.1 Generic interpretation: Antipassive marker – antip

Sometimes, *wa-* saturates the object position of a transitive verb and makes it syntactically intransitive. The verb *wathát^{h}e* 'to eat' in (593) illustrates this. The same verb is shown in (605) with a wider context: it appears in the sixth sentence of a tale, and all six sentences are reproduced. This shows that there is no available antecedent that could be referred to anaphorically. Thus, the prefix *wa-* in this example cannot be interpreted as an O3PL marker.

(605) The prefix *wa-* as an antipassive marker: *wathát^{h}e* 'to eat'

a. *Nudó^n athá=biamá níashi^{n}ga áhigi. pó^{n}ka=biamá.*
war go=PP.REPORT people a.lot Panka=PP.REPORT
A great many persons went on the war-path. They were Ponkas.

b. *ki athá-b egó^n aí-ti=biamá.*
and go=PP as come-camp=PP.REPORT
As they approached the foe, they camped for the night.

c. *Nétha=biamá. Hó^{n}do^n amá.*
kindle.fire=PP.REPORT night REPORT
They kindled a fire. It was during the night.

d. *ki néthe-xti gthí^n=biamá;*
and kindle.fire-INTENS sit=PP.REPORT
And kindling a bright fire, they sat down;

e. *péde t^{h}e ná-hegazhí-xti gáxa=biamá.*
fire VERT INS:temp-a.lot-INTENS make=PP.REPORT
they made the fire burn very brightly.

f. *Gíthe-xti wa-thát^{h}e gthí^n=biamá.*
rejoice-INTENS ANTIP-eat sit=PP.REPORT
Rejoicing greatly, they sat eating. (Dorsey 1890: 359 / Frank La Flesche)

With respect to the referentiality of the patient, Heaton (2017: 219) notes that in some antipassive constructions, "the patient is not particularly recoverable from context, and it is typically only as specific as the set of possible patients of a given verb". This is the case of *wathát^{h}e* 'to eat'. This is the kind of construction where one can argue that there is no patient at all in the lexical-semantic structure of the verb (see §7.4.3).

Table 7.4 presents a series of antipassive verbs with their transitive counterparts, and with their converted nouns when they are attested. In some instances the antipassive form of a verb has undergone a semantic shift and corresponds to a restricted, culturally relevant meaning. One of them is *wadó^{n}be* 'to act as a scout' (example (606b)), derived from *dó^{n}be* 'to see {x}; to look at {x}' (example (606a), with object in curly brackets). This provides further evidence that the prefix *wa-* has an antipassive function which truly derives a new intransitive verb.

(606) a. {*Wahóⁿthishíge*} *dóⁿba=i ki* *uthá agtha=í* *ha.*
{Orphan} look=PP when tell go.back.there=PP DECL.M
When they saw the Orphan, they went back to tell it. (Dorsey 1890: 337.17 / Óⁿpʰoⁿ-Toⁿga)

b. *shi dúba édi* *wa-dóⁿbe* *athá=biamá.*
and four there ANTIP-look go=PX.REPORT
And four went as scouts. (Dorsey 1890: 180.8 / Joseph La Flesche)

Finally, some verbs with *wa-* lexically imply a particular type of patient, which has generic reference, is not expressable, and has no syntactic status. This implied patient is present in the verb meaning, but not in its argument structure. This is the case, for example, of *wánoⁿnoⁿse*[8] 'to surround the herd from time to time' (the meaning "from time to time" certainly comes from the reduplication), in (607). The verb is inside a relative clause, and this sentence is also glossed and commented in §2.5.4. Other verbs of this kind include *wénaxitha* 'to attack the herd', *wanóⁿse* 'to surround the herd' (not attested in texts), and *wéthe* 'to detect the presence of enemies'; 'to find wood (for fire)'. The latter is illustrated and commented in §7.5.1.

(607) *thé tʰe* *wá-noⁿ~nóⁿse* *thoⁿ* *pamú* *ámusta wi-tóⁿbe* *a-zhóⁿ*
go when ANTIP-REDUP~surround REL:RND downhill top A1SG/P2-A1SG.see A1SG-lie
tá miⁿkʰe, *á=biamá.*
IRR 1SG.AUX say=PX.REPORT
When he goes, I will lie looking at you, right above the descent of the hill where they have surrounded the herd from time to time. (Dorsey 1890:45.10 / Nudóⁿ-axa)

As will be seen later (§7.5.1, §7.6.2, §7.6.3), such verb forms could actually come from instances of O3PL verbs with a generic conventional object. Synchronically, however, the prefix *wa-* is considered to have an antipassive function when it stands for a nonspecific object, a conventional generic object, or when, maybe, it removes any idea of a verb object, as in (606b). In all these cases, the object in question cannot be expressed as an NP, and has no syntactic existence. This corresponds to a well-known type of antipassive, already noticed by Heath (1976) as a function "INDEF".

In Table 7.4, I present nouns referring to the agents of the antipassive verbs. I consider that these nouns are conversions from the antipassive verbs. As seen in §2.4.8, conversions from nouns to verbs are very frequent in Umóⁿhoⁿ; this frequency is probably correlated with the high formal resemblance between NP and RC, and subjects are more often relativized than objects. The conversion is obvious in the case of *wadóⁿbe* 'scout', since the noun shows the same semantic narrowing as the antipassive verb. The antipassive verb *wamóⁿthoⁿ* 'to steal' and the equivalent noun *wamóⁿthoⁿ* 'thief' are shown in (608). The prefix *wa-* is glossed ANTIP even when it appears on the converted noun (although it clearly has a nominal status,

[8]This verb is spelled *wánanase* by Dorsey, but it has been modified here in order to keep consistent with the non-reduplicated form spelled *wanóⁿse* in OLIT-UNL (2018). The variation between */a/* in Dorsey and /oⁿ/ in modern sources is regularly attested. See §2.7 for more detail.

otherwise we would have the plural marker *=i* on it). See the end of §7.3.3 for a summary of my analysis of nouns beginning with *wa-*. ULCC (2015)

(608) Antipassive verb and the equivalent converted noun

a. *Iⁿchóⁿga akʰa wa-móⁿthoⁿ-shtóⁿ.*
mouse PX.SG ANTIP-steal-always
The mouse is always stealing. (ULCC 2018: 10)

b. *Húotoⁿga wa-móⁿthoⁿ thoⁿkʰá wébahoⁿ ée há.*
Hoocąk ANTIP-steal OBV.SIT.PL O3PL(1)-know(2) DEM DECL.M
It is he who knows the Winnebago Indians that are the thieves. (Dorsey 1890: 647.4 / Kaxé-Thoⁿba)

7.3.2 Indefinite object – indef

In some cases, the prefix *wa-* appears in contexts where it stands for a specific object. This was exemplified in (594) from §7.1.3 with a verb sequence involving *wabáxu* 'to write something' and a verb meaning "to send"[9]. This sequence is very frequent in the letters recorded in (Dorsey 1890, 1891a). Many occurrences can be found in App. C.2.

A similar example is shown in (609), with the verb series glossed by Dorsey "you wrote something / you sent it here". *Wa-* is prefixed to the transitive verb *baxú* 'to write {x}'. The indefinite object it refers to corresponds to the object of the second verb *tʰí_the* 'to send {x}'. Interestingly, here the verb series is inside a relative clause (RC) with definite reference, as can be seen with the relativizer *thoⁿ*, and *wa-* stands for the head of the RC. Thus, *wa-* is indefinite at the verb-level, as suggested by the gloss, but the entity it refers to becomes definite at the clause level[10]

(609) *Wa-shpáxu tʰí-tha-the thoⁿ a-nóⁿ'oⁿ éde u'óⁿthiⁿgé.*
INDEF-A2.write arrive.here-A2-CAUS REL:RND A1SG-hear but in.vain
I have heard what you wrote and sent hither, but it is in vain. (Dorsey 1891:64.1 / Gahige)

Example (610) shows another clear instance of *wa-* standing for an indefinite object. Again, the verb is inserted into a RC and *wa-*, or the object referred to by *wa-*, stands for the head of this RC. There is no doubt that the form *wathátʰai* is a verb, because of the final proximate marker *=i*[11]. The relative clause is *wathátʰai tʰe*, 'what they ate'. (See Chapter 2, §2.4.8 for the noun/verb distinction issue.)

[9]The verb "to send" is formed in Umóⁿhoⁿ by adjoining a causative suffix to a movement verb. There are as many causative verbs as there are movement verbs: "to make it go there", "to make it arrive there", "to make it come back here", etc.

[10]Internally-headed relative clauses always have a morphologically indefinite head, as is well-known (see Williamson 1987, Basilico 1996).

[11]Note that some nouns converted from verbs keep the plural/proximate marker, but this is rare, and it is not the case for *wathátʰe* 'food'. See §2.4.8.

(610) *Wa-thát^{h}a=i t^{h}e hébe éthi^n ahí=hno^n=biamá mo^{n}thó^n=hno^n.*
INDEF-eat=PL REL piece BEN.have arrive.there=HAB=PX.REPORT steal=HAB
He used to bring him by stealth a part of what they ate. (Dorsey 1890, 43.7 / Nudó^n-axa)

In (611a), *wa-* stands for an indefinite object. The translation provided by Dorsey, as well as his original interlinear gloss ("he was listening regularly to something") induce us to interpret it as an indefinite but specific object. The interpretation of *wa-* as a specific object is further suggested by the two sentences that follow, since in (611c) the character is explaining what he is listening to.

(611) a. *égithe tó^{n}de k^{h}é-ta wá-no^n'o^n=hnó^n ak^{h}áma.*
finally ground HOR-ALL INDEF.OBL-listen=HAB REPORT
Behold, he was listening regularly to something on the ground.

b. *"K^{h}agé-ha, eát^{h}o^n tha-zhó^n a", á=biamá.*
friend-VOC why A2-lie Q say=PX.REPORT
"My friend, why do you recline?"

c. *"ó^{n}ho^n, k^{h}agé-ha, pézhe dádo^n gé shtewó^n í=i t^{h}e {nyú t^{h}e} á-a-nó^n'o^n ha", á=biamá.*
yes friend-VOC grass what SCT whatever(?) come=PP REL:VERT {breathing VERT} OBL-A1SG-hear DECL.M say=PX.REPORT
"Yes, my friend, the different kinds of vegetation are coming forth, and I am listening to their breathing," said the man.
(Dorsey 1890: 330.10-12 / Joseph La Flesche)

The clearest evidence of *wa-* standing for a specific (but indefinite) object is found in examples such as (594), (609), and (610), where *wa-* either serves as the object of another verb or is the head of a relative clause. Thus, it is a syntactic object. The sentence in (609) combines both characteristics. The indefinite object status of *wa-* in (611) is strongly suggested by Dorsey's gloss and by the context, but an antipassive interpretation is not excluded. See §7.5.2 for a discussion of the ambiguities between the antipassive interpretation and the indefinite interpretation of *wa-*.

7.3.3 Nominalizer – nmlz

Given the porosity of the categories of verb and noun in Umó^{n}ho^n, and the high frequency of conversion from verbs to nouns, the existence of nouns beginning with *wa-* in itself does not bring evidence that a nominalizing function exists. In this section I show that the prefix *wa-*, in some cases at least, is the means by which the verb is derived into a noun, and not merely a verbal prefix which remains when the verb is converted into a noun.

Nouns beginning with *wa-* can refer to the Patientive argument of the corresponding verb (including those introduced by applicative prefixes), the Agentive argument of transitive

Table 7.5: Deverbal nouns from intransitive verbs in Umóⁿhoⁿ

verb		noun	
níta	to be alive	*waníta*	animal
sábe	to be black	*Wasábe*	Black Bear
shíⁿ	to be fat	*washíⁿ*	fat; bacon
xubé	to be sacred	*waxúbe*	sacred thing (?)
zhíⁿga	to be small	*wazhíⁿga*	bird, chicken
zhíde	to be red	*wazhíde*	tomato, ketchup

verbs[12], and sometimes the activity denoted by the verb. I consider that the prefix *wa-* has a nominalizing function when the noun stands for a P argument; this contrasts with its an antipassive function when the noun stands for the A argument of a transitive verb. Activity verbs can be dubious cases. Antipassive verbs converted into agent nouns are presented in §7.3.1. The present section shows the examples of *wa-* as a nominalizer, with justification of why I identify it as a distinct function from INDEF.

The nouns derived with *wa-* NMLZ correspond to the patientive arguments of the corresponding verb. These can be the only argument of an intransitive stative verb, the patient of a transitive verb, or the applicative object.

Nouns corresponding to P of intransitive verbs. Table 7.5 shows examples of deverbal nouns corresponding to P arguments of intransitive verbs[13]. The nouns created from stative verbs often have a non-predictable meaning through semantic narrowing, as "animal"; "bird, chicken" (illustrated in (595)); and "tomato, ketchup". They could be translated, literally, as "something that lives"; "something small"; "something red" (the meaning is compositional).

The case of *waníta* 'animal' is singular, because the verb *níta* 'to be alive' is sometimes attested with A person markers, and other times with P person markers. Despite its meaning, this verb is conjugated with agentive indexation markers in Dorsey's materials and in several contemporary materials. It is also attested twice with patientive indexation markers,

[12]One intransitive verb is attested witn both A and P argument, and is derived into a noun: *níta* 'to be alive'. See discussion below.

[13]In this table, (1) *xubé* 'to be sacred' can also be translated as 'to be mysterious'. I assume that *waxúbe* is a noun because Dorsey glosses it as "sacred thing" in his texts. However, it is attested in a construction with *gáxe* 'make', in a position where both verbs and nouns are regularly found. See examples in §5.4, especially (484).

(2) The translation 'bacon' for *washíⁿ* is from Saunsoci & Eschenberg (2016: 43).

(3) The example of *Wasábe* 'Black Bear', from the verb *sábe* 'to be black', may be an exception. Dorsey (n.d.a: 96) links the prefix *wa-* to "the bear species", as if it had a lexical meaning. However, he gives only *wasábe* as an example, and for now I have not been able to find any other word where *wa-* would refer to bears.

Table 7.6: Deverbal nouns from P arguments of transitive verbs

verb		noun	
áthaha	to put on {*clothes*}	*wáthaha*	clothes
baxté	to tie {x}	*wabáxte*	bundle
baxú	to write {x}	*wabáxu*	letter
that^{h}é	to eat {x}	*wathát^{h}e*	food
thizhá	to wash {x}	*wathízha*	laundry
tó^n	to have (a lot of) {x}	*wató^n*	goods

in Saunsoci & Eschenberg (2016) and OLIT-UNL (2018). Example (612) summarizes the different forms in which it is attested, as well as its deverbal noun form: *waníta* 'animal'.

(612) a. *a-níta* — A1SG-alive — (Dorsey; Saunsoci & Eschenberg; UNPS)
o^n-níta — P1SG-alive — (OLIT-UNL 2018)
I am alive; I'm living

b. *tha-níta* — A2-alive — (Dorsey n.d.b)
thi-níta — P2-alive — (Saunsoci & Eschenberg 2016)
You are alive

c. *o^n-níta*
A1PL-alive
(Dorsey 1890, Saunsoci & Eschenberg 2016)
We are alive

d. *wa-níta*
NMLZ-alive
animal (n.)

Nouns corresponding to P of transitive verbs. Numerous nouns beginning with *wa-* refer to the P argument of a transitive verb. Some of them are presented in Table 7.6. The noun *wáthaha* 'clothes', derived from *áthaha* 'to put on {*clothes*}', is illustrated in (613), repeated from Chapter 2 (§2.4.8). In this sentence, the same verb stem appears as the predicate of the clause, and as one of its arguments (with the nominalizing prefix *wa-*). In such cases (others are provided in §2.4.8), *wá-thaha* clearly has a nominal status. Otherwise, the nouns in Table 7.6 can easily be analyzed as conversions from verbs with *wa-* as an indefinite marker.

(613) *Ishtínik^{h}e ak^{h}á* *wá-thaha* *t^{h}e* *á-thaha* *ak^{h}í=bi*
I. ANIM.PX.SG NMLZ.AP:SUPESS-dress VERT AP:SUPESS-dress arrive.back=PX
egó^n, ...
as

Table 7.7: Deverbal nouns for applicative objects

base verb		applicative verb		noun		
'é	to dig/hoe {x}	**í'e*	to dig/hoe {x} with {y}	*wé'e*	hoe	Ins
that^{h}é	to eat {x}	**áthat^{h}e*	to eat {x} on {y}	*wáthat^{h}e*	table	Loc
baxú	to write {x}	**íbaxu*	to write {x} with {y}	*wébaxu*	pencil	Ins
xé	to bury {x}	**uxé*	to bury {x} in {y}	*úxe*	grave/cellar	Loc
no^{n}zhú	to thresh {x}	**íno^{n}zhu*	to thresh {x} with {y}	*wéno^{n}zhu*	threshing machine	Ins
thihíde	to lower/turn down {x}	*íthihide*	to work by means of {x}	*wéthihide*	tool	Ins

[W]hen Ishtinik e returned home wearing the magic garments ... (Dorsey 1890, 600.1 / George Miller)

Nouns corresponding to applicative objects. The prefix *wa-* can combine with applicative markers, and then forms nouns referring to the applicative objects. This is a very productive way to form nouns of instruments (cf. Stabler & Swetland 1991, OLIT-UNL 2018). Such forms are also linked to the function of an underspecified argument, and in particular to the function of indefinite object. Table 7.7 proposes several nouns corresponding to applicative objects; the corresponding transitive verbs are displayed in the left column and the applicative verbs (attested or assumed) are displayed in the middle column. One example, based on the transitive verb *'é* 'to dig/hoe {x}', is provided in (614).

(614) a. {*tó^{n}de k^{h}e*} *'é 'ítha=biamá.*
{ground HORIZ} dig speak.of=PX.REPORT
He spoke of digging into the ground. (Dorsey 1890:355.6 / John Springer)

b. **í-'e*
AP:INS-dig
expected meaning: "to dig {x} with {y}"

c. *Wé-'e* *tho^n ithó^{n}thai=ga.*
NMLZ.INS-dig RND RND.let.down=IMP.M
Leave the hoes. (Dorsey 1890:615.9 / Yellow Buffalo)

Justification. My reasons for associating a nominalizing function to *wa-* are the following:

1. The corresponding INDEF verbs[14] are generally not attested. This is true for nouns corresponding to P arguments of intransitive verbs (no verbs attested); to the applicative objects (only one verb attested), and to P arguments of transitive verbs (a few INDEF verbs attested).

[14] I use the label "INDEF verb" as a shortcut for "verb with the prefix *wa-* acting as an indefinite object marker (INDEF)". In like manner, I use the label "ANTIP verb" or "antipassive verb" for "verb with the prefix *wa-* acting as an antipassive marker (ANTIP)".

2. Some nouns have a non-predictable meaning relative to their verbal counterpart.

In both cases, nouns derived from intransitive stative verbs form the strongest evidence that *wa-* does have a nominalizing function. As said above, most of them have a non-predictable meaning because of semantic narrowing. Second, and more importantly, *wa-* is not attested as the indefinite subject of an intransitive predicate. If *wa-* were considered an indefinite argument marker in these cases, together with the examples provided in §7.3.2, then it should be argued that *wa-* is not restricted to object arguments and could saturate any argument of a verb, including the unique argument of intransitive verbs. Thus, *waxúbe* 'something mysterious' would be a conversion from the predicate "something is sacred". However, such forms are not attested as predicates in Umóⁿhoⁿ, to the best of my knowledge. (It is attested in Mandan; see §7.7.)

Nouns corresponding to applicative objects generally do not have their verbal counterpart attested, either, as can be seen in Table 7.7. In the lexicographic database, 18 nouns are derived with *wa-* and with an applicative marker, among which 14 are nouns of instruments. Although it is easy to guess what the corresponding applicative verbs and their antipassive counterparts are, only one of them is actually attested in the corpora: *íthihide* 'to work by means of $\{x\}$'[15].

Finally, nouns corresponding to the patient of transitive verbs are the ones where the nominalizing function of *wa-* is the least evident, with no absolute evidence for the nominalizing function. Here again, however, the verbs attested with *wa-* as an indefinite marker are not as numerous as the nouns. In the lexicographic database, 17 nouns for the P of transitive verbs are reported, out of which only 5 are also attested as verbs with *wa-* as an indefinite object.

To summarize, I consider that *wa-* has a nominalizing function when it appears on nouns of patients and applicative objects, and it has an antipassive function when it appears on nouns of agents. That is, I consider that in the first case *wa-* is the means by which a verb is derived into a noun, while in the second case an antipassive verb which already has the *wa-* prefix is converted into a noun by zero derivation. This distinction is captured in (615), representing the nominalizing function of *wa-*, and (616) representing the antipassive function of *wa-* in a converted noun[16].

(615) Nominalizing function of *wa-*

[15] Additionally, a verb with the applicative *í-* and the antipassive *wa-* is attested, while its nominal counterpart is not: *wéthizha* 'to do washing with $\{x\}$' (attested in Rudin et al. 1989-92: TA14, "Old Times Powwows 111" / Mary Clay). We imagine easily how such a verb can be converted into a noun for "detergent", "washing powder", etc.

[16] Note that Kasak (2019: 232-7) makes a similar distinction between *waa-* as a nominalizer and *wa-* as an unspecified argument prefix in Mandan. However, the nominalizing function of *waa-* is restricted to the subjects of intransitive verbs. There is a distinct vowel length difference between the two prefixes.

a. *shí*^{n} 'to be fat' (v.) → *wa-shí*^{n} 'fat, bacon' (n.)
fat NMLZ-fat

b. *'í*^{n} 'to carry {x}' (v.) → *wa-'í*^{n} 'bundle' (n.)
carry NMLZ-carry

c. *'é* 'to dig {x}' (v.) → *wé-'e* 'hoe' (n.)
dig NMLZ.INS-dig

(616) Antipassive function of *wa-* in verbs converted into nouns

a. *wa-mó*^{n}*thó*^{n} 'to steal (things)' (v.) → *wa-mó*^{n}*tho*^{n} 'thief' (n.)
ANTIP-steal ANTIP-steal

b. *wa-báxu* 'to write (sth)' (v.) → *wa-báxu* 'writer' (n.)
ANTIP-write ANTIP-write

c. *wa-wé-'i* 'they gave various things to people' → *wa-wé-'i* 'a giving' (n.)
ANTIP(?)-ANTIP.DAT(?)-give ANTIP(?)-ANTIP.DAT(?)-give

In its nominalizing function, the prefix *wa-* competes with the prefix *u-*. The prefix *u-* functions productively as an inessive applicative prefix introducing locations (see Chapter 6), and as a nominalizer creating nouns of place and abstract nouns. Several nouns combine the prefixes *wa-* and *u-*, yielding surface *ú-*. (See § 3.5 for a presentation of morphophonology.) In these cases, it is difficult to distinguish the respective function of each prefix. This is the case, for example, of the nouns *úthito*^{n} 'work' (from *thitó*^{n} 'to work {x}') or *úkuhe* 'cause of fear' (from *kú_he* 'to be apprehensive'). Such forms were classified as DERIV in the database (§7.1.4).

7.3.4 Evolution towards an aspectual marker?

A link between antipassive and aspectuality is often mentioned in literature. Polinsky (2013a) notes that the lack of individuation or referentiality of the Patient accounts for the link between antipassive and several aspects associated with low transitivity, such as habitual, imperfective, durative and iterative (see also Heaton 2017: 31). In Umó^{n}ho^n, antipassive verbs are often followed by movement verbs or position verbs expressing a durative aspect or imperfective aspect. Consider the examples from section 7.3.1, repeated in (617).

(617) Imperfective aspect of antipassive verbs

a. *Gíthe-xti wa-thát*^{h}*e gthí*^{n}*=biamá.*
rejoice-INTENS ANTIP-eat sit=PP.REPORT
Rejoicing greatly, they sat eating. (Dorsey 1890:359.3 / Frank La Flesche)

b. *shi dúba édi wa-dó*^{n}*be athá=biamá.*
and four there ANTIP-look go=px.report
And four went as scouts. (Dorsey 1890: 180.8 / Joseph La Flesche)

The prefix *wa-* sometimes appears on transitive verbs with a singular object realized as an NP. Gordon (personal communication) suggests that in these examples *wa-* has a kind of

partitive value[17] and implies a continuative aspect. This interpretation is possible in (618): *mazhó^n wathíto^n* could be interpreted as "to work some of the land" or "to do some work on the land". It could also be interpreted as an imperfective. The partitive and/or imperfective value of *wa-* is not visible in Dorsey's translation, however.

(618) *no^{n}bé tó^n mazhó^n wa-thíto^n wagázhi agtha=í.*
hand have land ASP(?)-work O3PL.command go.back=PX
He went home after telling us to work the land with our hands. (Dorsey 1890: 507.7 / Te-úko^{n}ha)

To the best of my knowledge, such a meaning has never been made explicit in corpora and grammars, but it provides a coherent interpretation of some constructions where the function of *wa-* is unexplainable otherwise. Other examples can be seen in (619) through (621). In each of these examples, the object is singular or inanimate, so *wa-* cannot be interpreted as an O3PL marker.

(619) *Gó^{n}ki t'e-k^{h}é wa-dó^{n}ba=bi ki, ...*
and die-HORIZ ASP(?)-see=PX when
And when she saw him lying insensible, (...) (Dorsey 1890: 362.11 / Joseph La Flesche)

(620) *shó^{n}ge wá-a-gthi^n ak^{h}á dúbo^n uó^{n}si-xti áiátha=i, ...*
horse ASP(?).AP:SUPESS-A1SG-sit PX.SG four.times jump-INTENS go.away=PX
The horse on which I was seated leaped very far four times, and had gone off, (...). (Dorsey 1890, 467.5 / Frank La Flesche)

(621) *ó^{n}bathé-go^n waxí^{n}ha wa-wí-paxú.*
today-as paper ASP(?)-A1SG/D2-A1SG.write
As it is to day, I write you a letter. (Dorsey 1890: 478.7 / Kishké)

This meaning could be seen as an evolution from the indefinite marker function (see §7.6). However, it should be emphasized that no evidence of such a function has been built thus far. The question mark in the gloss accounts for this lack of evidence.

7.4 Antipassive constructions and verbs in Umó^{n}ho^n

As Umó^{n}ho^n is not an ergative language, the antipassive constructions do not have syntactic uses such as making an argument available for relativization or making S/A pivots. The antipassive mainly has a functional and semantic value, like the functional antipassives described by Cooreman (1994).

[17] Kasak (2019: 237) also identifies a partitive function of *waa-* in Mandan, but with different properties: the object is not realized as an NP, and it is retrieved from the context. Kasak (2019) suggests that the partitive *wa-* came from an enclitic quantifier. See §7.7 for more details about Mandan.

7.4.1 Difficulties in interpreting *wa-* as an antipassive marker

There has been much debate among Siouanists about the exact nature of the prefix *wa-* (particularly in the Siouan mailing list: see Koontz 2002, Helmbrecht 2002b, Rankin 2002, Eschenberg 2002). Given my claim that *wa-* can sometimes be interpreted as antipassive, it is worth considering in more detail how to define antipassive. Armed with this definition, we can then see why some constructions with *wa-* match this definition.

Antipassive constructions have been described in very different ways among scholars, some restricting it to ergative languages, others to constructions where the object is only demoted to an oblique argument, etc. Here, I follow Heaton's (2017) "working definition" of antipassive construction, in her typological study of antipassive constructions (which encompasses a sample of 445 languages), where she compares the different definitions provided by scholars. She proposes the following four criteria which must be satisfied in order to consider a construction as antipassive:

> 1) There is an overt marker for the antipassive construction;
> 2) The antipassive clearly corresponds to an unmarked or less marked bivalent transitive construction;
> 3) The agent of the transitive construction is preserved, while the patient is either inexpressible or optionally expressed in an oblique phrase;
> 4) The antipassive construction is intransitive.
>
> (Heaton 2017: 64)

Following these criteria, Heaton analyzes 126 languages as having antipassive constructions (28% of her sample, Heaton 2017: 83), and among them the three Siouan languages included in the sample (Hoocąk; Osage; Hidatsa). According to her criteria, and following her analysis of the other Siouan languages, the Umóⁿhoⁿ constructions presented in section 7.3.1 correspond to antipassive constructions, as can be seen below. Example (606b) is repeated below for a better comparison.

> Heaton's (2017: 64) defining criteria applied to Umóⁿhoⁿ:
> 1) Overt marker *wa-*;
> 2) The equivalent transitive construction is less marked (as there is no affix specific to transitive constructions);
> 3) The agent of the transitive construction is preserved; the patient is completely removed;
> 4) The resulting construction is (apparently) intransitive

(622) *shi dúba édi wa-dóⁿbe athá=biamá.*
and four there ANTIP-look go=px.report
And four went as scouts. (Dorsey 1890: 180.8 / Joseph La Flesche)

The fourth criterion is the most difficult to ascertain, and it is the reason why the antipassive function is not recognized by all Siouanists, although the prefix *wa-* is attested as an apparently nonspecific object marker in all the siouan languages surveyed (cf. §7.7).

Heaton (2017: 186-7) considers that Siouan languages possess antipassive constructions because of the formal distinction from O3PL that Quintero (2004) demonstrates in Osage (cf. §7.2.2). By contrast, she considers that Nahuatl has an "indefinite object construction" with the prefix *tla-* which does not qualify as antipassive, because the prefix fills the same slot as the indexation marker. Thus, she considers that *tla-* in Nahuatl does not create an intransitive construction. Other authors like Chamoreau (2015) consider the construction with the prefix *tla-* to be antipassive[18]

In Siouan, or at least in Umóⁿhoⁿ, the situation is in fact more complicated than what is depicted by Quintero (2004). The slot differences are marginal, and counterexamples are attested. The few formal differences presented in §7.2.2 distinguish the underspecified argument marker from the O3PL marker, but they do not distinguish the indefinite object function from the antipassive function. The issue is that Siouan languages do not overtly encode transitivity value, nor do they index 3rd person arguments on the verb (except for O3PL in some of them). This is why, while all scholars agree that the prefix *wa-* stands for indefinite, nonspecific, or impersonal objects, they do not all recognize the resulting construction as intransitive. As a result, they do not all recognize an antipassive construction in Siouan.

7.4.2 Basics of morpho-syntax

The following describes the morpho-syntactic characteristics of *wa-* as an antipassive marker. It includes cases where *wa-* can be interpreted either with an antipassive reading or with an indefinite reading. Thus, dubious cases such as those that will be described in §7.5.2 are used as examples here.

7.4.2.1 Antipassive on inherent ditransitive verbs

Wa- can apply not only to monotransitive verbs but also to ditransitive verbs, in which case it removes any of the verb's objects. The verb *'í* 'to give {x} to {y}' is attested with the antipassive *wa-* removing its recipient in (623). The theme is *shóⁿge* 'horse', which is singular here (thus *wa-* cannot be referring to it).

(623) *Duakʰá nikashiⁿga gí-kʰu akʰá wóⁿgithe shoⁿge wa-'í=noⁿ=i=tʰe*
those person DAT-invite PX.SG all horse ANTIP-give=HAB=PL=EVID
The people he invited each gave a horse. (Rudin et al. 1989-92: Handgame discussion / Mary Clay)

[18]Chamoreau (2015) also provides constructions where the patient is introduced as an instrument, which favors the interpretation of *tla-* as an antipassive.

Example (624) shows an antipassive verb derived from the ditransitive verb *shí* 'to ask {x} to do {y}' or 'to employ {x} to do {y}'. In this case, the antipassive *wa-* deletes the theme (the thing being asked) and not the person being asked. Thus, we have a monotransitive verb *washí* 'to ask {x} to do something'.

(624) *tahó^{n}ha,* *wa-wí-shi* *tá* *mi^{n}k^{h}e* *há.*
brother.in.law ANTIP-A1SG/P2-employ IRR 1SG.AUX DECL.M
Brother-in-law, I wish you to do something. (Dorsey 1891a: 118.9 / Joseph La Flesche)

Another example is found in ULCC (2015) which provides the verb *gí'i* 'to give it to her to help her out' (see §4.4.1). From this verb, the derived form *wé'i* means either "to give her stuff to help her out" (removing the theme) or "to give it to folks to help them out" (removing the recipient/beneficiaries).

The fact that any of the objects of a ditransitive verb can be saturated by *wa-* is consistent with other caracteristics of ditransitive verbs; these enable double object constructions, where any of the objects (but not both) can be referred to by the patient indexation markers, can be nominalized, and can be relativized (see section 2.5.1.2). The verbs *'í*, *shí* and their derived forms are presented in Table 7.8 among other transitive antipassive verbs.

7.4.2.2 Combination of *wa-* with valency-increasing morphemes

Most ditransitive verbs in Umó^{n}ho^n are created with applicative markers. Applicative markers applied to transitive verbs give rise to double object constructions, as shown in §6.2.3. The combination of these applicative markers with the antipassive is possible, in which case the antipassive removes one of the objects (most of the time, the base object[19]). The applicative markers attested with the antipassive *wa-* are the dative *gí-*, the instrumental *í-*, the inessive locative *u-* 'inside' and the superessive locative *á-* 'above'[20]. The causative suffixes also combine with the antipassive. (The latter combination is found in *wabáxu_k^{h}ithe* 'to make {x} write' for instance, as illustrated in (795) p. 538.)

Table 7.8 shows several combinations of the prefix *wa-* with derivational affixes increasing the verbal valency: benefactive *gí-*, instrumental *í-*, and causative *-the*. (See §7.2.2 for more examples with the causative marker.) In blocks 1 and 5, we see that it is recursive (it can apply twice) and it is compatible with *wa-* as O3PL. In block 3, it appears with the possessive prefix *gi(g)-* on the verbs *wégat^{h}o^n* and *wégigthat^{h}o^n*[21]. In block 5, it appears on the verb *úho^n*

[19] I use the terms "base object" and "applicative object", like Peterson (2007). The "base object" is the object already present in the base verb (before the applicative derivation). The "applicative object" is the object introduced by the applicative derivation.

[20] Other Umó^{n}ho^n applicatives include a subtype of benefactive *ígi-* (called "benefactive-possessive"), and various meanings associated with the prefix *í-* beside its instrumental use: locative adessive ("by, against"), sociative, propertive, etc.

[21] The possessive prefix *gi-* combined with the instrumental prefix *ga-* becomes *gigtha-*. From its meaning and form, the verb *wégat^{h}o^n* can be easily analyzed as being composed of an indefinite object marker *wa-* merged

Table 7.8: Combination of the antipassive with other derivational affixes

	derivational affixes	verb	translation	argument filled by *wa-*
1	Ø	*'í*	to give {x} to {y}	
	ANTIP	*wa'í* /wa-Σ/	to give {x} away	beneficiary
	BEN	*gí'i* /*gí-Σ/	to give {x} to {y} to help out	
	ANTIP + BEN	*wé'i* /*wa-gí-Σ/	to give things to {x} to help out	theme
			to give {x} to people to help them out	beneficiary
	ANTIP x2 + BEN	*wawé'i* /*wa-wa-gí-Σ/	a giving (n.)	theme + beneficiary
2	Ø	*athí*^{n}	to have {x}	
	BEN	*éthi*^{n} /*gí-a-Σ/	to have {x} for {y}	
	INDEF + BEN	*wéthi*^{n} /*wa-gí-a-Σ/	to have {x} for somebody	beneficiary
3	ANTIP + INS	*wégat*^{h}*o*^{n} /*wa-í-Σ/	to pound (corn) with {x}	theme
	INDEF + INS + POSS	*wégigthat*^{h}*o*^{n} /*wa-í-gi-Σ/	to pound {*one's own thing*} with {x}	theme
4	Ø	*thizhá*	to wash {x}	
	ANTIP + INS	*wéthizha* /*wa-í-Σ/	to do washing with {x}	theme
5	Ø	*uhó*^{n}	to cook {x}	
	ANTIP	*úho*^{n} /*wa-u-Σ/	to cook	patient
	ANTIP + BEN	*uího*^{n} /*wa-u-gí-Σ/	to cook for {x}	theme
	ANTIP + O3PL + BEN	*úwagiho*^{n} /*wa-u-wa-gí-Σ/	to cook for them	theme
6	Ø	*shí* /Σ/	to ask {x} to do {y}	
	ANTIP	*washí* /wa-Σ/	to ask {x} to do smth	theme
	INS	*íshi* /í-Σ/	to pay {x} with {y} for the work done	
	ANTIP + INS	*wéshi* /*wa-í-Σ/	to offer {x} as a reward	beneficiary
7	Ø	*t'é*	to die	
	CAUS	*t'é_the* /Σ-the/	to kill {x}	
	ANTIP + CAUS	*wat'é_the* /wa-Σ-the/	to be a slayer	patient

'to cook', combined with the oblique prefix *u-*, although here this prefix does not have an applicative function.

The examples in Table 7.8 illustrate that *wa-* most often suppresses the base object of ditransitive applicative verbs (7 examples) rather than the applicative object (4 examples). This can be understood because the applicative object is more likely to be in focus than the base object. However, some examples attest that the antipassive can delete the applicative object, like in *wé'i* 'to give {x} to people to help them out' ("people" is the recipient that is left unexpressed and nonspecific); or *wéshi* 'to offer {x} as a reward' in (625). . Example (625) is one of the few where the omission of the beneficiary is attested in texts (others like *wé'i* are attested in ULCC (2015) verb charts).

(625) *thi-zhó^{n}ge* *wé-tha-shí* *ki, ...*
POSS:2-daughter ANTIP.BEN-A2-pay when
... when you offered your daughter as a reward. (Dorsey 1890:349.3 / Ó^{n}p^{h}o^{n}-To^{n}ga)

In block 6 of Table 7.8, the addition of the instrumental applicative *í-* to the verb *shí* 'to employ {x} to do {y}' does not add a fourth argument, but rather introduces an instrument (the object used to pay) at the cost of one of the original objects. The form *wéshi* 'to offer {x} as a reward' is exemplified in (625).

The antipassive marker can be used twice on ditransitive verbs, in order to suppress both of its objects. This is the case for *wawé'i* 'a giving' (block 1). It is analyzed here as a conversion from the verb *wawé'i* 'they gave various things to various people'. This example and analysis is suggested in (ULCC 2015: 72), who proposes in like manner *wawéshi* 'check, paycheck' (from "they offered to pay various people for various things")[22].

A similar case to *wawé'i* and *wawéshi* is *wawíu'e* 'lawyer', from the ditransitive verb *uthú'e* 'to counsel or advise one to do what you regard as good' (Dorsey's definition). This example, glossed in (626), shows how each *wa-* saturates one object. In this particular example, we see the strong correlation between the "nominalizing function" and the antipassive function of *wa-*: the final noun corresponds to the agent of the ditransitive verb.

(626) *uthú'e* (**í-u-'e*)
wíu'e (**wa-í-u-'e*)
wawíu'e (**wa-wa-í-u-'e*)
'to counsel or advise {x} to do {*something good*}'
'to counsel {*them*} to do {*something good*}'
'a lawyer' (literally: "he counsels {*them*}/people to do good things")

with the instrumental applicative *í-*. However, the stem **gat^{h}o^{n}*, which supposedly means "to pound {x}", is not attested.

[22]Note though that the relation between the verbal form and the noun "paycheck" is less obvious. It is not clear to me if the form *wawéshi* should be analyzed as having a benefactive *gí-* (the interpretation provided in ULCC 2015) or an instrumental *í-*.

In block 5, the verbal form *úwagiho^n* is morphologically very complex, and example (627) is its only attestation. It contains the base verb *uhó^n* 'to cook {x}', the benefactive marker *gí-* which adds an applicative object, and underlyingly it has two *wa-*. (The first *wa-* has merged with the oblique *u-* into accented *ú-*.)

(627) *Ó^{n}ba dúba zho^n* {*duáma*} {*duáthi^{n}k^{h}e*} *ú-wa-gi-ho^n=no^n* {*níkashi^{n}ga ama.*}
day four lie(?) {those.PX} {those.OBV} ANTIP(1)-O3PL-BEN-cook(2)=HAB {person PX.PL}
They cooked for the people four days. (Rudin et al. 1989-92: Old Times Powwows 128 / Mary Clay)

As can be seen, example (627) shows three definite NPs for two referents. The repetition of definite noun phrases with the same referent is commonly found in Rudin et al. (1989-92) (see §2.5.1.3). In the present example, the distinction between obviative and proximate (§2.6.1) leads us to recognize two 3PL arguments for this construction: a proximate subject, expressed twice (*duáma* 'those (px.)' and *níkashi^{n}ga ama* 'the people (px.)') and one obviative object, expressed once (*duáthi^{n}k^{h}e* 'those (obv.)'), which corresponds to the beneficiary. The translation provided in Rudin et al. (1989-92) leads us to assume that these arguments correspond to the agents and the beneficiaries, both plural[23]. One prefix *wa-* functions as an O3PL marker and refers to the beneficiaries, and the other is an antipassive marker and deletes the theme (the thing being cooked). The form *úwagiho^n* cannot be analyzed as a double antipassive construction because of the two arguments expressed as definite NPs.

Outside of Table 7.8, the combination of the underspecified argument marker with the applicative prefixes *á-* and *u-* is attested through nominalized forms, such as *wáthat^{h}e* 'table' ('something one eats on') or *ú'e* 'farm land' ('land where one farms').

7.4.3 Typology of the Umó^{n}ho^n antipassive and indefinite object

Heaton (2017: 183) surveys 11 binary features, copied below, to describe antipassive and antipassive-like constructions cross-linguistically. The first three are required for the construction to be considered antipassive, and they are also used as defining criteria in §7.4.1[24]. They are included so that antipassive-like constructions can be studied and compared to antipassive constructions. The features numbered here from 4 to 8 are the main features which are used to identify types of antipassive constructions which are common in her sample (445

[23]The obviation system is presented in §2.6.1. Generally, the subject is proximate and the object is obviative. Obviative subjects and proximate objects are sometimes attested, but a combination of both is not attested. So, most probably, *níkashi^{n}ga ama* refers to the agents (subject), and *duáthi^{n}k^{h}e* refers to the beneficiaries (object).

[24]Four defining criteria are provided in §7.4.1, also from Heaton (2017). The third one, that the subject is filled by the agentive argument, is not reproduced here because Heaton only surveys constructions which correspond to this criterion.

languages). The last three features are not used for identifying common antipassive constructions for two reasons. First, the feature [-PATIENT] cannot be filled in for most languages in her sample, because the grammars do not provide the necessary information. (Moreover, it is probably not a relevant feature in many languages.) Second, the features about lexical restrictions and productivity are completely independent from features 4 - 8.

- Defining features
  1. [MARK] the antipassive construction is formally marked;
  2. [ASYM] the corresponding non-antipassive construction is not marked or less marked; the antipassive construction corresponds to a less marked/unmarked transitive construction - there is thus asymmetry between the antipassive and the transitive construction;
  3. [INTRANS] the antipassive construction is intransitive.
- Features identifying common construction types
  4. [DEDICATED] the antipassive marker is dedicated to this unique function;
  5. [VALDEC] the antipassive marker is always valency decreasing, whatever its function
  6. [OBLIQUE] the removed patient can be expressed as an oblique argument
  7. [SEMANTICS] "presence of antipassive semantics/functions"[25]
  8. [SYNTAX] use of antipassive constructions in syntactic ergativity.
- Other features surveyed
  9. [-PATIENT] the antipassive construction "completely remove[s] any identifiable patient from the conceptual structure of the verb"
  10. [LEXICAL]/[-LEXICAL] the antipassive constructions are lexically restricted or not. When they are, they are thus totally unproductive.
  11. [PRODUCTIVE]/[-PRODUCTIVE] the antipassive construction is or is not productive

The feature [-PATIENT] refers to the non-referentiality of the object in the antipassive construction. Heaton (2017) remarks that there are two subtypes of antipassives among those which allow no expression of the patient (labeled "patientless antipassives"):

> First, there are patientless antipassive constructions which completely remove any identifiable patient from the conceptual structure of the verb, and refer to an action without any particular patient in mind. In contrast, other patientless antipassive constructions may continue to imply a particular patient or particular set of patients, even when that patient cannot be overtly expressed.

[25]The criterion of "semantics" is quite elusive in Heaton (2017). It only refers to the presence of antipassive semantics or functions, which should include all the constructions studied in her sample (whether they fit her definition of antipassive or not.

(Heaton 2017: 217)

Table 7.9 presents the features of Umóⁿhoⁿ antipassives and indefinite object constructions. Both satisfy the first two defining features. Given the characteristics of the indefinite object construction presented in §7.3.2, I do not consider it intransitive, and as a consequence it is not an antipassive construction. Typical examples of the antipassive construction and the indefinite object construction are repeated in (628) and (629).

(628) Typical antipassive construction

Wa-bthát^{h}e *í^n-udo^n.*
ANTIP-A1SG.eat D1SG-good

I like to eat. (Saunsoci & Eschenberg 2016: 15 / Alice Saunsoci)

(629) Typical indefinite object construction

Wa-shpáxu *t^{h}í-tha-the* *tho^n* *a-nó^n'o^n* *éde u'ó^{n}thi^{n}gé.*
INDEF-A2.write arrive.here-A2-CAUS REL:RND A1SG-hear but in.vain

I have heard what you wrote and sent hither, but it is in vain. (Dorsey 1891:64.1 / Gahige)

Table 7.9: Typological features of Umóⁿhoⁿ antipassive

Feature	Antipassive *wa-*	Indefinite object *wa-*
[MARK]	Yes	Yes
[ASYMM]	Yes	Yes
[INTRANS]	Yes	No
[DEDICATED]	No	No
[VALDEC]	No	No
[OBLIQUE]	No	-
[SEMANTICS]	Yes	Yes
[SYNTAX]	No	No
[-PATIENT]	Yes?	No
[LEXICAL]	Yes?	No
[PRODUCTIVE]	?	?

The result of assigning several distinct functions to *wa-* as an underspecified argument is that it cannot be considered a dedicated marker, nor a valency decreasing marker in all its functions[26]. Neither construction allows the patient to be expressed as an oblique argument,

[26]The distinction between O3PL and ANTIP made by Quintero (2004), and mentioned in §7.2.2, was used by Heaton (2017) as evidence for considering the antipassive marker of Osage a "dedicated marker".

neither construction serves a syntactic purpose (this feature only concern ergative languages), and both constructions have some associated semantic function, described in earlier sections.

The patient's referentiality is clearly not removed in the indefinite object construction, because I have defined this construction as having a referential covert object. The antipassive construction, however, can be considered to be "completely remov[ing] any identifiable patient from the conceptual structure of the verb" in a few cases, such as (628). In other cases, the antipassive verb in itself implies a particular set of patients, like "the herd" or "the enemies", but which only receive a generic interpretation. It is not clear to me if those examples should be considered [-PATIENT] because the reference is generic, or if the lexically-determined restriction to "the herd" or "the enemies" make them not [-PATIENT]. In §7.4.4 we will see that the antipassive is probably a lexically-restricted derivational process, applying to verbs whose semantics lends itself to this kind of derivation. By contrast, the indefinite object construction has characteristics which make it more likely to be productive, although it is also attested on a restricted set of verbs in the corpora surveyed.

In view of the features in Table 7.9, we see that the Umó^{n}ho^{n} antipassive instanciates only the three defining features, and then the feature [SEMANTICS] and maybe the feature [-PATIENT]. It typologically corresponds to a common antipassive type, which basically suppresses the object (with no possibility to express it) in order to foreground the activity in itself. It corresponds to the "indefinite" antipassive described by Heath (1976: 202) ("which deletes or demotes an indefinite, obvious, or insignificant [transitive object]"). Heaton (2017: 252) notes that "this particular set of features constitutes the minimum structural and semantic requirements for a construction to be considered an antipassive here." She identifies 40 constructions with the same characteristics, which constitute the biggest group within the common antipassive construction types. The Hoocąk construction and the Hidatsa construction surveyed also fall into this category. Note that if we choose to analyze the antipassive marker in Umó^{n}ho^{n} as a dedicated marker (positing that it is a distinct morpheme from the indefinite object marker), it would fall into another prototypical construction identified by Heaton, with 31 constructions. The Osage construction falls into this category.

The indefinite object construction can be defined as an antipassive-like construction, which shares with the Umó^{n}ho^{n} antipassive all features except the transitivity feature. This construction does not correspond to any common feature pattern identified in Heaton's database.

7.4.4 Antipassive vs. indefinite object: derivation and syntax

The antipassive is treated in the literature as being a syntactic construction and sometimes a voice alternation (among many others: Polinsky 2013a, Cooreman 1994, Janic 2013, Creissels 2016). But in languages where the antipassive serves functional and semantic purposes (backgrounding the object) rather than syntactic purposes, it can be lexically restricted to a small set of verbs (Heaton 2017), in which case we cannot speak of a productive antipassive

construction opposed to the basic transitive construction. The two possible interpretations of *wa-* when it saturates the object position, the antipassive and the indefinite object, differ in this way.

The antipassive interpretation of *wa-*, with no object or a generic plural object, produces verbal forms whose meaning is sometimes conventionalized, like *wadó^{n}be* 'to scout' and *wéthe* 'to detect enemies'. Thus, the prefix acts as a derivational prefix creating new lexical units that must be stored, and they are entered as headwords in dictionaries and lexicons (Dorsey n.d.b, Saunsoci & Eschenberg 2016, OLIT-UNL 2018). Importantly, the meaning of is not completely predictable. The prefix *wa-* with an antipassive interpretation is often found on verbs denoting socially recognized activities, as can be observed in Table 7.4, and they are often associated with some kind of durative or imperfective aspect expressed by verb series or by post-verbal markers; see examples (605f), (606b) and (608a). They are often referred to as "antipassive verbs", rather than the clause being called an antipassive construction.

In contrast with the antipassive, the indefinite object marker does not suppress the object's referentiality, and a few examples show that *wa-* does not reduce the verb valency, because the indefinite object it refers to can also be the object of other verbs. In these cases, *wa-* is always interpreted as "something", so that the meaning of *wa-* + V is totally transparent. No semantic narrowing is possible. In these cases, *wa-* falls into the syntactic domain and does not create a new lexical unit. It is, however, rather infrequent in the documentation.

7.5 The ambiguities between the functions of *wa-*

Sections 7.1 and 7.3 have presented the different functions associated with the prefix *wa-*, with as clear examples as possible. The examples have provided evidence that such distinctions are necessary.

Nevertheless, these functions are clearly related in formal, semantic and functional ways. In many contexts, the prefix *wa-* can be associated with several of the functions described earlier. In this section, I present different kinds of ambiguities. The concluding subsection (§7.6.1) presents the lexicographic and textual databases constituted for the study, and the classification used for the functions of *wa-*.

7.5.1 Antipassive vs. O3pl

In many contexts there is no way to distinguish the antipassive from the O3PL function. Some verbs beginning with *wa-* can be interpreted either as antipassive verbs or as transitive verbs with an undetermined and nonspecific plural object like "people"[27], which is not expressed as an NP. There is a semantic correlation between plurality (thus, low individuation) and antipassive (Givón 2001b: 169). As we will see in §7.6.3, the O3PL marker can in fact be the

[27]Several Siouanists describe *wa-* and its cognates as a marker for indistinct plural objects like "things" or "stuff". In Umó^{n}ho^{n}, the ambiguity is in fact only possible with plural animate objects.

source for antipassive.

The verbs that imply a conventional plural object which is not overtly expressed are ambiguous, although they are classified as antipassive verbs in the database (cf. §7.3.1). The verb ***wéthe*** 'to detect the presence of enemies' is illustrated in (630), where it appears at the very beginning of a tale. Thus, there are no previous entities the prefix ***wa-*** could refer to anaphorically. However, the verb ***wéthai*** is translated as "discovered them" in Dorsey's original gloss. Dorsey's translations and glosses in his texts and dictionary often feed the ambiguity.

(630) a. ***táxti wí^n mí^{n}ga táxti-zhi^{n}ga zhú<gi>gthai.***
deer one female deer-small <POSS>be.with
A Doe was with her Fawn.

b. ***táxti-zhi^{n}ga ak^{h}á wétha=i t^{h}e.***
deer-small PX-SG ANTIP.find=PX EVID
The Fawn discovered the presence of enemies. (Dorsey 1890: 358.1 / Joseph La Flesche)

The second text of the restricted corpus contains examples with the same kind of problem. It relates an expedition of Umó^{n}ho^{n}s in war against Pawnees. At the beginning of the tale, it is just told that the Umó^{n}ho^{n}s go on the warpath. There are then multiple references to the tents of the enemies and the fact that they are numerous (many tents, by metonymy many enemies). Nonetheless, the Pawnees themselves are named only in line 19. Before that, the verb ***wagtháde*** is found in the following sentence:

(631) ***Xthíazhi-xchi=ó^n wa-gtháde athá=biamá, ...***
noiseless-INTEN=AUX ?-creep go=PL.REPORT
They went creeping up on them, not uttering a sound. (Dorsey 1890, 359.4)

Wagtháde in (631) can be interpreted either as an antipassive verb with a conventional object ("to creep up towards the enemies"), or as the verb ***gtháde*** 'to creep up towards $\{x\}$' with an O3PL ***wa-*** referring to the ones living the the tents (the interpretation favored by Dorsey's translation). The dictionary entry provided by Dorsey does not help, because its definition is ambiguous and the example is provided out of context. Therefore, we do not know if the object of the English translation must be expressed by an NP (if ***wa-*** has an O3PL function) or not (ANTIP function with conventional object), as in the following example:

(632) ***wagtháde*** to creep up towards animals or persons in order to surprise (and kill) them.

No^n-xthíbazhí-xti wa-gtháda=i
INS:foot-silent.PX-INTENS ANTIP(?)-creep.up=PL

He (or they) crept up to them without making the slightest noise. (Wdj.)
(Adapted from Dorsey n.d.b)

The way that speakers themselves translate Umóⁿhoⁿ into English shows that "they" or "them" can be used even when no referent is previously identified. In one of Rudin et al.'s (1989-92) recordings, Mary Clay, Clifford Wolfe and Bertha Wolfe are discussing how Powwows were held in the old times. At one point, Bertha reports things that she has heard about Powwows when she was young, apparently by hearing adults speaking about them. She introduces this information by the sentence reproduced in (633). Note that the English translation uses the definite pronoun "them" to refer to the people Bertha heard talking, which is an unusual use of this pronoun in standard English, given that the people she heard are unidentified. This is regularly found in translations from Umóⁿhoⁿ texts, and it is a clue to how *wa-* works in Umóⁿhoⁿ.

(633) *Pahóⁿga tʰe-oⁿ-dí uthá a-wá-noⁿ'oⁿ.*
formerly DEF-?-LOC tell A1SG-O3PL-hear
In the old days I heard them talking. (Rudin et al. 1989-92: Old Times Powwows, 25 / Bertha Wolfe)

Ambiguity between O3PL and ANTIP also arises when a plural antecedent is recoverable, but without being close enough to be sure that it is anaphorically referred to. In a letter from Dorsey's texts, the sender (Shoⁿtoⁿ-zhiⁿga) relates how some people regularly steal horses and other animals from him. He first relates two thefts of sixty animals each (plural object). Later, he relates the theft of his horse (singular). Finally, a few lines later, he mentions that one of the thieves may continue stealing (things? them?) from him:

(634) *Tʰí-tha-thá=zhi ki, wa-íⁿ-moⁿthoⁿ shóⁿshoⁿ iⁿ-gáxe tá=akʰá.*
arrive-A2-CAUS=NEG if ?-D1SG-steal always D1SG-make IRR=EVID
If you do not send here (to stop it) the young man will always work against me by stealing my horses, etc., from me. (Dorsey 1890, 694.4 / Shoⁿtoⁿ-zhiⁿga)

In this precise context, the prefix *wa-* can be interpreted either as a marker of O3PL referring generally to the writer's animals, or an antipassive marker deleting any particular referent. Dorsey's translation does not seem to favor any interpretation.

The form *wéhoⁿbthe* in (635), from *íhoⁿbthe* 'to dream about {x}', is ambiguous for the same reasons as (634). A highly topical, plural antecedent is available for the verb's object ("two persons, two ghosts", which are the focus of the story), making possible the interpretation of *wa-* as an O3PL marker. Nonetheless *wéhoⁿbthe* is used as a noun in the sentence, translated by the speaker as a "dreaming person", suggesting that the verb is in fact antipassive, and used without any specific object in view.

(635) *Gashíbe wé-ho^{n}bthe ga-ak^{h}e níkashi^{n}ga ak^{h}á hó^{n}bthe ak^{h}e gó^{n}tha*
outside ANTIP(?).INS-dream DEM-PX.SG person PX.SG dream PX.SG want(?)
wé-ho^{n}bthe ga-t^{h}e égo^n zhó^n=i.
ANTIP(?).INS-dream DEM-VERT thus lay=PX
That dreaming person, that's the way he dreamed about them, going out. (Tape 6, Two Ghosts Story, 37 / Mary Clay)

The frequent ambiguity typified in the preceding examples is the argument put forward by Helmbrecht (in progress: §6.3.8) to rule out the forms with conventional plural object as being antipassive. He also considers that *wa-* as a third person plural object marker can be used impersonally. He only considers as antipassive a few verbs like "to eat" and "to win", and explains: "In all other cases I checked with different speakers, *wa-* OBJ.3PL always filled the U argument of the transitive verb no matter, whether it was interpreted as a third plural or as impersonal."

7.5.2 Antipassive vs. indefinite object

In §7.3.1 the prefix *wa-* is described as having an antipassive function when the object is generic or nonspecfic. In contrast to that, the "indefinite object marker" *wa-* fills the object position as a specific but indefinite object. I consider that in the first case, the prefix *wa-* derives an intransitive verb from a transitive one, while in the second, *wa-* stands for the object and the verb remains transitive, because *wa-* can be anaphorically referred to or serve as head-noun in relative clauses.

However, when there is no evidence that *wa-* stands for a syntactic object, it is often impossible to determine if it stands for a specific object, or if it removes the object, both interpretations being possible. Example (636) illustrates this. The verb series composed of the verb *wabáxu* 'to write (something)' or *wagíbaxu* 'to write (something) to $\{y\}$' and a verb of sending are very common in Umó^{n}ho^n letters (cf. App. C.2). In these cases, *wa-* is definitely an indefinite object marker. The frequency of this construction favors an interpretation of *wa-* as an indefinite object marker in (636), although in this case an antipassive interpretation is also available. The indefinite object marker interpretation is also suggested by the interlinear gloss and translation chosen by Dorsey: "I write to you about something" (and not just "I write to you").

(636) *K^{h}agé-ha, wa-wí-paxu.*
friend-VOC ANTIP?-A1SG/P2-A1SG.write
O friend, I write to you about something. (Dorsey 1891, 55.1 / No^{n}zadazhi, first sentence of the letter)

Many other verbs with no overt object and a gloss or translation involving "something" are cases where it is not possible to determine the referential status of the object. In other

instances, like example (637), the gloss and translation involve a plural object, "things", which further complicate the analysis as it introduces the possibility that the prefix *wa-* could refer to a generic O3PL marker (see §7.5.1).

(637) *Wáxe thi^{n}k^{h}é (...), wagáxtho^n abthí^n ékigo^n, wa-í^n-thit^{h}ó^n=i.*
White ANIM.OBV.SG servant A1SG.have be.alike ANTIP-D1SG-work=PX
The white man (...) works at various things for me, just as if I had him as my servant. (Dorsey 1891:81.6 / Lion)

Note that several verbs beginning with *wa-* are translated into English with a generic object, such as "things" or "goods". One example is provided below:

(638) *Wáxe ak^{h}á wá-'i^n at^{h}í amá.*
White PX.SG ANTIP-carry arrive.here REPORT
The white man came with a load of goods. (Dorsey 1890:571.1 / One Horn)

In this example, the verbal form *wá'i^n* is glossed by Dorsey as "transporting goods". This is a typical example where it is not possible to determine the degree of specificity of the object deleted by *wa-*. Moreover, it is worth noting that the English gloss and translation can bias in our understanding of this phenomenon. In English, some verbs like *see* and *hear* have a A/S lability (*I see (it)*), while others like *carry* do not. Thus, the syntactic features of English *carry* oblige Dorsey to mention an object in his gloss.

7.6 *Wa-*: a network of functions

We can summarize the previous sections in the following way: the prefix *wa-* in Umó^{n}ho^n corresponds to several morphemes with various functions and effects. The different functions assigned to *wa-* in Umó^{n}ho^n are also attested in other Siouan languages. In most contexts, there is no morphological distinction between these functions (§7.2.1). In very specific contexts though, there seem to be formal distinctions between the O3PL function and the ANTIP function (§7.2.2).

Alongside the morphological resemblance, the distinct functions are semantically and functionally linked in a way that often creates ambiguities. O3PL, ANTIP and INDEF *wa-* all fill the object slot of a transitive verb, but have different referential status. The same can be said of the nominalizing function of *wa-*, where the prefix stands for a P argument of the verb. Moreover, all functions can be viewed as decreasing (even if slightly) the transitivity scale of the verb, as I argue in §7.6.4.

In §7.6.1 I present my database of verbs and nouns with *wa-* and their classification into the different categories. The various functions of *wa-* and the ambiguous examples presented in the previous sections are the result of the constitution and analysis of this database. In §7.6.2

I then present all the different functions or interpretations associated with *wa-* organized in a network which can represent a diachronic pathway between the functions of *wa-*. In §7.6.3 I focus on two possible sources for the ANTIP function. Finally, in 7.6.4 I show that whatever the function of *wa-* on verbs is, it results in some kind of transitivity reduction in Hopper & Thompson's (1980) transitivity scale.

7.6.1 Classification of the functions of *wa-* in the database

Fourteen texts of the corpora were searched for every occurrence of the prefix *wa-* in them (except when it expressed P1PL), and the examples found were integrated into the lexicographic database (except for the plain O3PL forms which did not present any ambiguity)[28]. The database additionally contains many verbal and nominal forms with *wa-* gathered throughout my dissertation project, from all kinds of sources (including Fletcher & La Flesche 1911 and Hahn c. 1930s). Leaving aside the 1st person plural patientive marker which is underlyingly **a-wa-* (§7.1.2), I have identified seven distinct categories into which *wa-* can be classified: O3PL, ANTIP, INDEF, NMLZ, a category tentatively labeled ASP(?), and two categories for the forms which are not analyzed at this point of research: DERIV and OPQ.

As it is a lexicographic database, the inflectional functions of *wa-*, such as O3PL, the kind of aspectual/partitive marker (ASP(?)), and the indefinite marker (INDEF) are not expected to be indexed in it. They are reported, though, for the purposes of this research. All examples where *wa-* unexpectedly co-occurs with a non-plural object NP are indexed. Verb forms with O3PL are included when they constitute a separate headword in Dorsey's dictionary (n.d.b), or when they present interesting forms. ("Interesting forms" include those where *wa-* as O3PL formally differs from *wa-* as an "underspecified argument"; see §7.2.2.) All the categories and their characteristics are listed below.

Table 7.10 shows the distribution of the different categories identified in the lexicographic database. The database contains 268 different form-meaning pairs with the prefix *wa-*. When the same form is attested in various contexts which suggest different categories for *wa-*, it is repeated twice in the database, once for each category. One example is *wéthi^n*. It is classified once as a "dubious case" halfway between O3PL and ANTIP, because of Dorsey's translation in his dictionary, "to take {x} to give it to <u>others</u>"[29], and once as an INDEF category, because of the example in (639) where *wa-* seems to refer to an indefinite singular patient. Some forms are repeated up to four times to account for several functions of *wa-* (e.g., *wabáxu* and *úho^n*). All forms are listed in a Table in the Appendix E.5. I have generally excluded forms which are regular derivations from another form already listed. As an example, *wa'ó^n* 'to sing an ordinary song' was included as OPQ, and *áwa'o^n* 'to sing in praise of {x}', which is an

[28]See §2.1.3 for a presentation of the "lexicographic database". The list of the searched texts is presented in App. E.5, Table E.5.

[29]The complete definition in Dorsey's dictionary is: "to have or keep any thing with the intention of giving it to others (who know nothing about it); to keep for others (not yet the owners, or if the owners, without their knowledge)".

Table 7.10: Number of attested forms in the lexicographic database

Categories	Database
O3PL	21 (inflectional)
DUB (ANTIP/O3PL)	5
ANTIP	43
ANTIP/NOUN	22
DUB (ANTIP/INDEF)	9
INDEF	9 (inflectional)
ASP(?)	11 (inflectional)
DUB (ANTIP/INDEF/ASP)	1
NMLZ	41
DERIV	52
OPQ	54
TOTAL	**268**

applicative derivation from the first, was not included. Derived forms were only included if they presented a special interest; for example if they corresponded to a textual example of one of the categories least attested (INDEF, ASP(?)), if they showed dubious / ambiguous cases, or if *wa-* was assigned a different function in the derived form than in the base form. Derived forms whose base is also included in the database are signaled by the letter D in the second column of Table E.6 in App. E.5.

(639) *ki Mo^{n}ch^{h}ú ak^{h}á gá=biamá: "Hébe wé-tha-hni^{n} shí*
and Grizzly.Bear PX.SG say=PX.REPORT piece INDEF.DAT-A2(1)-A2.have(2) A2.arrive
ézho^{n}mí^{n}", á=biamá.
so.I.think say=PX.REPORT
And the Grizzly bear said as follows: "I think that you took a piece to some one." (Dorsey 1890: 43.16 / Nudó^{n}-axa)

The categories used in Table 7.10 are listed below, with a summary of the characteristics of each, and some indications about the classification choices that I have made.

- O3PL - The verb is transitive, and *wa-* indexes (one of) its animate plural object(s). The object is either expressed in an NP, or referred to by anaphora. Described in §7.1.1 of this chapter (see also 3.1.3).

- DUB (ANTIP/O3PL) - Dubious cases where *wa-* could be interpreted as an O3PL marker or an ANTIP marker. The only examples included are cases where a plural animate antecedent is retrievable and could be referred to anaphorically, but are glossed and/or translated by Dorsey as intransitive verbs (see §7.5.1). There is additionally one example attested as a headword in Dorsey's dictionary, with not enough information to determine if the antipassive reading is possible.

- ANTIP - The prefix *wa-* fills the object position of the verb and has a nonspecific (possibly generic) reference. The verb is intransitive. In the case of *wadó^{n}be* 'to act as a scout', the meaning is not predictable. The antipassive is presented in §7.3.1.

- ANTIP/NOUN - Nouns which are converted from antipassive verbs and where, therefore, the prefix *wa-* is not a nominalizer. The distinction between this category (converted nouns with *wa-*) and the NMLZ category is commented at the end of §7.3.3 (see in particular examples (615) and (616)).

- DUB (ANTIP/INDEF) - Dubious cases of three kinds. First, in several examples an inanimate and/or singular participant is available to serve as a patient that *wa-* could refer to. Secondly, several verbs in Dorsey's texts are glossed and translated in a way that suggests that *wa-* refers to a specific but indefinite object, but no syntactic evidence can be found to support this interpretation. Finally, one definition in Dorsey (n.d.b) is not specific enough to choose the ANTIP or the INDEF interpretation.

- INDEF - *Wa-* stands for an indefinite argument which is specific and which does fill a syntactic function. Thus, the verb is transitive, and *wa-* could be interpreted as a kind of incorporated indefinite object. The participant *wa-* refers to can be the object of a second verb in a verb series, or it can be the unexpressed head noun of a relative clause. It is described in §7.3.2. Many examples of *wa-* marking an indefinite object in a verb series are found with the verbs *wabáxu* 'to write <u>something</u>' and *wagíbaxu* 'to write <u>something</u> to $\{x\}$' (see App. C.2).

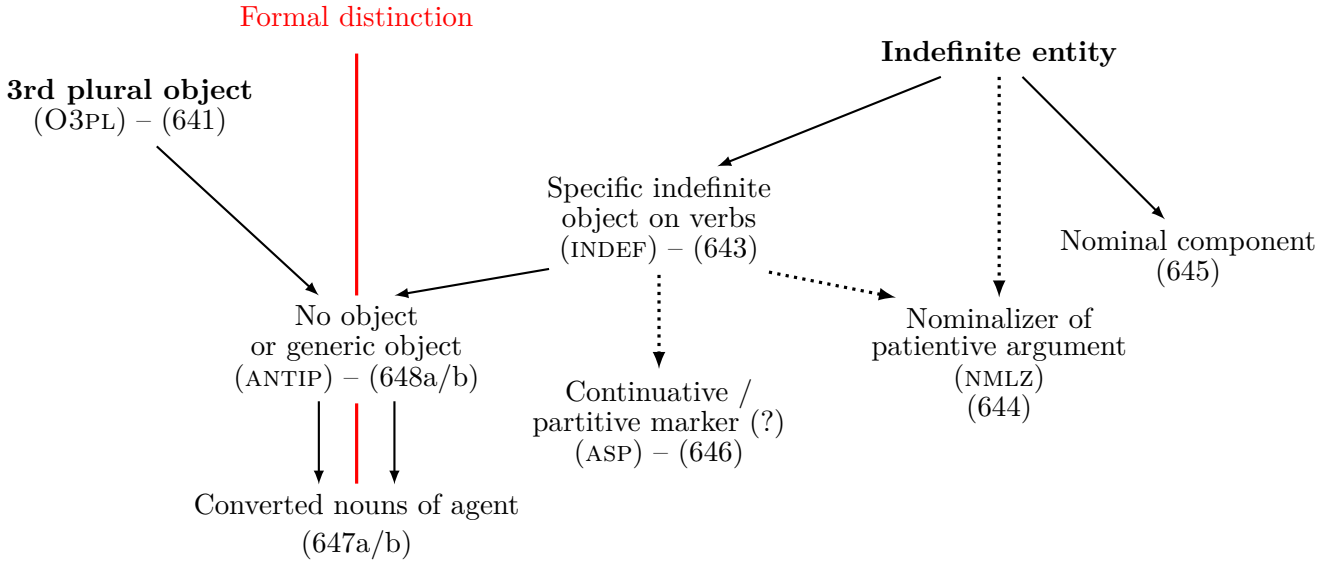
- ASP(?) - Examples where *wa-* co-occurrs with a definite or indefinite inanimate object expressed in an NP. Binah Gordon (p.c.) suggests that in some of these forms *wa-* takes a kind of partitive semantics and an implicature of continuative aspect. This is the least understood category.

- DUB (ANTIP/INDEF/ASP) - The only verb of this category is *wábaha*, attested once in Dorsey's texts, as illustrated in (640) below. It is not clear if the NP *no^{n}bé* 'hands' should be considered a verb object or an adjunct. (See §2.5.3 for a presentation of core arguments, peripheral arguments, and adjuncts in Umó^{n}ho^{n}.)

- NMLZ - Nouns derived with *wa-* which correspond to a patientive argument of the verb: the subject of an intransitive stative verb, the (base) object of a transitive verb, or an applicative object.

- DERIV - Derived verbs with an attested base verb, where we cannot assign to *wa-* any of the functions identified in this study. This can be due to the fact that *wa-* co-occurs with other derivational prefixes, or that the documentation is not clear enough to assign *wa-* to any function. This is a category of verbs which would be useful to review and analyze in future research. See §7.1.4.

Figure 7.1: A network of functions for *wa-* in Umóⁿhoⁿ



- OPQ - Opaque lexical items containing the prefix *wa-*. The morphological behavior of verbs confirms that *wa-* is not part of the root (also the noun *wa'ú* 'woman' which conjugates). Described in §7.1.4 (also §7.2.1 for the common formal behavior with other functions of *wa-*.

(640) *Noⁿbé wá-baha thé amá ki, Umóⁿhoⁿ akʰá niníba athíⁿ gi tʰóⁿ*
hand ?-show go REPORT when Umóⁿhoⁿ PX.SG pipe have come.back OBV.STD
móⁿdehi í-zhahá=bi egóⁿ, t'é-tha=biamá.
spear AP:INS-stabPX as die-CAUS=PP.REPORT
When the Ponka extended his hand, as if to give it to him, the Omaha thrust a spear at the one who brought the pipe, and killed him. (Dorsey 1890: 400.3-4 / Óⁿpʰoⁿ-Toⁿga)

As can be seen in Table 7.10, there are many more verbs classified as ANTIP than as INDEF. This is due to the fact that I have made the choice to consider verbs as instances of the INDEF function only when there is some evidence that *wa-* stands for a syntactic object, or if the context strongly suggests that *wa-* stands for a specific object (like in (611)). By contrast, verbs are classified as instances of ANTIP whenever no antecedant is available to fill the patientive role of the verb.

7.6.2 Network and examples

Considering the data currently available, I propose in Figure 7.1 a network of functions attested in Umóⁿhoⁿ which can represent diachronic pathways. The network is organized around two diachronic sources: the "indefinite entity", on the right, and the O3PL function, on the

left. Both functions are old in Siouan[30]. They share some common semantic features (like the non-individuation of the entity they refer to), but at this point in the research we cannot determine which function is older nor whether they are related. As a consequence, they are represented as distinct sources in Figure 7.1. Kasak (2019: 231) identifies in Mandan three morphemes from distinct sources, with varying vowel length: *wa-* as a "unspecified argument prefix" (corresponding to INDEF and/or ANTIP here), *waa-* as a nominalizer, and *waa-* as a partitive marker. These three morphemes have not been distinguished from each other in previous works on Mandan. Consequently, it is possible that the nominalizer and the "continuative/partitive marker" come from distinct historic sources. This is why they are only connected with dotted lines to the other functions.

The formal distinction presented in §7.2.2 is represented by a red line between the O3PL function and the indefinite, nominalizing, and continuative/partitive functions. Only the antipassive function and the resulting converted nouns straddle both sides of the line. This accounts for my hypothesis that the antipassive function attested for *wa-* can in fact come from both sources, as will be argued in §7.6.3. Below, I provide examples for all the other functions identified in Figure 7.1.

(641) Third person plural marker O3PL

ó^{n}ba théthu {shaó^n amá} wa-tó^{n}be ha, Umó^{n}ho^n tíi thó^n-di.
day here {Dakotas PX.PL} O3PL-A1SG.see DECL.M Umó^{n}ho^n village RND-LOC

On this day I have seen the Yanktons at the Umó^{n}ho^n village. (Dorsey 1890:707.1 / Unázhi^n-ska)

The verb *washí* 'to employ {x} to do something' is ambiguous between a specific and nonspecific reading of "something". As a result, the sentence in (642) illustrates an ambiguity between ANTIP and INDEF.

(642) Ambiguity between ANTIP and INDEF

tahó^n-ha, wa-wí-shi tá mi^{n}k^{h}e há.
brother.in.law-VOC INDEF-A1SG/P2-employ IRR 1SG.AUX DECL.M

Brother-in-law, I wish you to do something. (Dorsey 1891a: 118.9 / George Miller)

In (643) we again see a typical construction unambiguously corresponding to an "indefinite object" as defined in §7.3.2. The prefix *wa-* clearly stands for a specific object, and represents a syntactic argument which is also the object of the second verb of the verb series.

(643) Indefinite object (INDEF)

[30]Helmbrecht (2002c) proposed that Siouan *wa-* could originate from an indefinite pronoun meaning "something", but this hypothesis has been rejected by other Siouanists, in particular Koontz (2002).

Wa-shpáxu *t^{h}í-tha-the* *tho^n a-nó^n'o^n* *éde u'ó^{n}thi^{n}gé.*
INDEF-A2.write arrive.here-A2-CAUS RND A1SG-hear but in.vain

I have heard what you wrote and sent hither, but it is in vain. (Dorsey 1891:64.1 / Gahige)

(644) Nominalizer of patientive arguments

baxú	→	*wa-báxu tho^n*	*wéthigtho^n*	→	*wa-wéthigtho^n t^{h}e*
to write {x}	→	the letter	he decided for them	→	the plan/order given

The prefix *wa-* seems to act as a nominal component in two examples, reproduced in (645). Two comments are necessary here. First, note that in (645b), *nágthe* 'prisoner' is considered a noun, in accordance with the only source where it is attested (Dorsey n.d.b). If it were considered a stative verb ('to be a prisoner'), then *wa-* could be interpreted as a nominalizer, and *wanágthe* 'domestic animal', could be rendered literally as "something that is a prisoner". Second, we notice that in both examples, *wa-* entails a semantic restriction to animals. This was also the case of *waníta* 'animal' (from "to be alive") and *wazhí^{n}ga* 'bird' (from "to be small").

(645) Nominal component

a. *há* → *wa-há*
skin → animal skin

b. *nágthe* → *wa-nágthe*
prisoner → domestic animal; livestock

(646) Aspectual/ partitive marker (?)

no^{n}bé tó^n *mazhó^n* *wa-thíto^n* *wagázhi* *agtha-í.*
hand have land INDEF-work O3PL.command go.back=PX

He went home after telling us to work the land with our hands. (Dorsey 1890: 507.7 / Te-úko^{n}ha)

7.6.3 Two possible sources for the antipassive

The pair of converted nouns in (647) provide strong evidence that the antipassive in Umó^{n}ho^n can in reality arise from two sources, either INDEF or O3PL. Two agent nouns meaning "murderer", stemming from the same causative verb *t'é_the* 'to kill', show different slot positions for *wa-*. These correspond to the slot positions assigned respectively to the antipassive marker and to O3PL (see §7.2.2).

(647) a. Noun converted from ANTIP, source: INDEF

t'é-the → *wa-t'é-the*
die-CAUS → ANTIP-die-CAUS
to kill {x} → a slayer

wa-t'é-the: "one who has killed a person accidentally; a slayer, sometimes used in the sense of a murderer" (Dorsey n.d.b)

b. Noun converted from ANTIP, source: O3PL

t'é-the	→	*t'é-wa-the-shtó^n*
die-CAUS	→	die-O3PL-CAUS=HAB
to kill $\{x\}$	→	a murderer

t'é-wa-the-shtó^n: "one who kills habitually; a murderer" (Dorsey n.d.b)

The two possible origins of the antipassive can be observed in verbs as well, as in (648), although we find no minimal pairs such as (647). In (648a), the verb *wa-thá'e-the* is considered ANTIP because of its English translation, "to be kind", where no object is implied. It does not originate from a verbal form with O3PL indexation marker, because in this case we would expect the prefix *wa-* to be inserted before the causative marker: **thá'e-wa-the*.

In (648b), the antipassive verb implies a conventional object, which is plural and generic: "the enemies". Thus, there is a bridge between the O3PL function and this kind of ANTIP verbs (an affinity which is also supported by Dorsey's gloss and translation, as seen in §7.5.1).

(648) a. ANTIP verb, source: INDEF)

thá'e-the	→	*wa-thá'e-the*
miserable-CAUS	→	ANTIP-miserable-CAUS
to pity $\{x\}$	→	to show pity

wathá'ethe: 'to be kind, show pity' (Dorsey n.d.b)

b. ANTIP verb, source: O3PL

táxti-zhi^{n}ga ak^{h}á wétha=i t^{h}e.
**wa-ítha=i*
deer-small PX.SG ANTIP-find=PX EVID

The Fawn discovered the presence of enemies. (Dorsey 1890: 358.1 / Joseph La Flesche)

The O3PL function can easily be conceived as a source for the antipassive, despite the formal differences presented in §7.2.2. Example (649) shows the form *wadó^{n}be*, often used without object with the meaning 'to go scouting'. Here however, there is an object: *té* 'buffaloes'. It appears as a bare noun, and only the prefix *wa-* marks the object's plurality. This sentence arises in a context very similar to those where the antipassive form *wadó^{n}be* 'to go scouting' arises: when people are in a hunt party or a war party and some of them go in search of the game or the enemies. This could be a pivot example in which a transitive construction with 3rd person plural object gives rise to an antipassive verb.

(649) *té wa-dó^{n}be a-gthí=bi egó^n, (...)*
buffalo O3PL-see OBL-come.back=PL as

> When they returned from seeing the buffaloes, (...) (Dorsey 1890: 339.8 / Ónpʰoⁿ-Toⁿga)

ULCC (2015) also highlights the O3PL and antipassive ambiguity, by labeling the *wa-* forms "acting on THEM or PEOPLE/STUFF IN GENERAL" in the conjugation charts.

The following list shows examples, in Umóⁿhoⁿ and other Mississippi Valley Siouan languages, where the antipassive interpretation seems closely linked either to the INDEF (singular) function, or conversely to the O3PL function.

- Antipassive verbs linked to INDEF
  - In Osage: *iitáðe* 'to give birth to {x}' → *waiitaðe* 'to give birth'. In this case, it is counter-intuitive to analyze *wa-* as coming from a plural marker.
  - In Umóⁿhoⁿ: *áthixe* 'to marry {*a man*}' → *wáthixazhi* 'to be a virgin' (= not to have married). Here too, *wa-* cannot stand for O3PL because of the lexical meaning of the verb involves a singular patient.
  - In Hoocąk: the antipassive form *waruuc* 'to eat' can be used even in contexts where the thing eaten is singular (Hartmann 2015).
- Antipassive verbs linked to O3PL
  - In Hoocąk: Helmbrecht (in progress) reports from his elicitation work that except for a few verbs like 'to eat', the speakers he works with analyze *wa-* forms as generic third person plural.
  - In Umóⁿhoⁿ: At least seven antipassive verbs imply conventional plural generic patients (not expressed), like *wanóⁿse* 'to surround the herd of buffaloes or elks'.

7.6.4 *Wa-* as a marker of transitivity decrease

We have seen throughout this chapter that the different functions of *wa-* intermingle and can hardly be differentiated in many cases. The ambiguities cannot be resolved and must be seen as part of *wa-*'s polysemy and polyfunctionality. Some common points can be found between the different verbal function of *wa-*, however. Cooreman (1994) writes that antipassive constructions "indicat[e] a certain degree of difficulty with which an effect stemming from an activity by A on an identifiable O can be recognized." This statement can be generalized here to the O3PL, INDEF and ASP(?). Indeed, all these functions correspond to a decrease in the transitivity scale of the action, as presented by Hopper & Thompson (1980: 252-3). Hopper & Thompson argue that transitivity should be considered a scalar rather than an absolute category. They propose a set of 10 features that indicate higher or lower transitivity degree, four of which are reproduced in Table 7.11.

All of *wa-*'s functions can be linked to one of these features and correspond to the lower transitivity value, as summarized in Table 7.12. The reduction of the transitivity for O3PL

Table 7.11: Four features high/low transitivity by Hopper & Thompson (1980: 252-3)

	High transitivity	**Low transitivity**
Participants	2 or more participants, A and O	1 participant
Aspect	telic	atelic
Affectedness of O	totally affected	not affected
Individuation of O	highly individuated: *proper; human, animate; concrete; singular; count; referential, definite*	non-individuated: *common; inanimate; abstract; plural; mass; non-referential*

is minimal, as it only concerns a decrease in the individuation of P through plurality. The decrease of transitivity is maximal in the case of the antipassive, especially in the cases where any reference to a patient is suppressed.

Table 7.12: *Wa-* and the decrease of the transitivity scale

Function	Transitivity feature	Value
O3PL	Individuation of O	*plural*
ANTIP	Participants	1 participant
	Aspect	atelic
	Individuation of O	*non-referential*
INDEF	Individuation of O	*indefinite* (sometimes)
ASP/PART	Affectedness of O	partially affected (partitive)

7.7 Comparative data

The prefix *wa-* is old in Siouan, since it has been traced back to Proto-Siouan **wa-* as an "absolutive" marker (Carter et al. 2006: 928)[31]. It has cognates in every Siouan language documented, except maybe Catawba, which is not surveyed here. (The Catawba form *wi-* for third person plural is not indexed in Carter et al. (2006) as a cognate of PS **wa-*.)

The function of *wa-* as a valency reducer is thus well established in the family. (See §7.7.2 for a quick survey of the terminology used by Siouanists.) Table 7.13 summarizes all the functions documented for the cognates of *wa-* across the family, with a sample of 11 languages[32].

[31] The authors remark that the vowel length varies across languages in a way not yet understood, but they reconstruct **wa-* with a short vowel because they "have numerous examples in all languages in which the prefix has undergone syncope".

[32] The languages reviewed and their sources are the following: Mandan (Mixco 1997, Hollow 1965, Kennard 1936, Kasak 2019); from the Missouri Valley branch: Crow (Graczyk 1991, 2007); Hidatsa (Boyle 2007, 2009b); from the Ohio Valley branch: Biloxi (Einaudi 1974, Nicklas 1990, Boyle 2009b) and Tutelo-Saponi (Oliverio 1996: with Boyle (2009b) interpretation); from the Mississippi Valley branch, Dakotan: Lakhota (Ullrich 2008) and Assiniboine (Cumberland 2005); from the Mississippi Valley branch, Dhegiha: Umóⁿhoⁿ and Osage (Quintero 2004); from the Mississippi Valley branch, Hoocąk-Jiwere: Hoocąk (Helmbrecht in progress, Hartmann 2015)

It is inspired by Boyle's (2009b) survey. The columns represent the possible functions of *wa-* or types of nouns where it is attested. Note that I only mention the presence or absence of the functions in each language and I do not discuss their frequency or productivity. This is a preliminary work based on reference grammars or sketches; a deeper study of each language would be necessary in order to complete the filling of this table.

"Yes" in the cell means that I have found in one of the references a clear instance of the function labeled in the head of each column. "(Yes)" indicates cases where I suppose, but cannot be entirely sure, that a function is attested. This is the case in particular when authors make assertions without providing examples, or when examples are provided of *wa-* standing for an indefinite object with uncertain specificity. The O3PL function of *wa-* is the easiest to check, and this is the only column where "no" is used. All other cells are left blank.

I will comment on the surveyed functions of *wa-* in the following subsections: O3PL (§7.7.1), underspecified arguments on verbs (§7.7.2), and *wa-* appearing on nouns (§7.7.3). In the latter case, I do not attempt to determine if *wa-* has a nominalizing function, but merely report the presence or absence of *wa-* on nouns, and the kind of argument to which it corresponds. Finally, the last column reviews other functions that are documented in particular languages (§7.7.4).

7.7.1 O3pl

The function of *wa-* as a marker of O3PL person is the easiest to check in language descriptions, which is why this column is entirely filled. It is generally said that this function is restricted to Mississippi Valley Siouan, a fact reflected in Table 7.13.

There are semantic restrictions in the uses of the O3PL function. It is restricted to definite objects in Hoocąk (Helmbrecht in progress: §6.3.8) and to animate objects in Umóⁿhoⁿ (cf. §3.1.3). It may be restricted to animate objects in Jiwere too (Goodtracks 2018). I have not found any explicit mention of a semantic restriction for *wa-* O3PL in Osage (but I have not found either any clear example of *wa-* encoding inanimate or indefinite objects). Lakhota and Assiniboine are the only Mississippi Valley languages from the sample that do not mark O3PL arguments with *wa-*. However, they do encode them with another prefix: *wičha-*, which comes from "man", and which is also restricted to animate objects. On the other hand, Mandan, Missouri Valley languages and Ohio Valley languages have no marking at all of third person plural objects.

7.7.2 Underspecified argument marker

I distinguish three kinds of underspecified arguments on verbs: nonspecific object, specific indefinite object, and indefinite subject. The function of *wa-* as an underspecified argument

and Jiwere (Whitman 1947, Goodtracks 2018).

Table 7.13: Functions of **wa-* in Siouan languages

	Language	Cognate	O3PL	OBJ non-specific (ANTIP)	OBJ specific	SBJ indefinite	Noun for A (tr)	Noun for A (intr)	Noun for P (tr)	Noun for P (intr)	Others
Mandan	Mandan	wa- / waa-	no	yes	yes	yes (intr-s, intr-a) (*waa-*)		yes		yes	nominal component; independent item; agreement with indefinite object; partitive.
Missouri	Crow	baa-	no	yes	yes	yes (tr)		yes	yes	yes	independent; depossessivizer.
	Hidatsa	maa- / wa-	no	yes	(yes)				yes	yes	
Ohio	Biloxi	a-	no	(yes)	yes		yes		yes	yes	
	Tutelo-Saponi	waa-	no	(yes)	(yes)	(yes, intr-a)			yes	yes	
Mississippi						Dakotan					
	Lakhota	wa-	no	yes			yes	yes	yes	yes	approximate.
	Assiniboine	wa-	no	yes			yes		yes		nominal component; valency increasing indefinite marker.
						Dhegiha					
	Umó^{n}ho^{n}	wa-	yes (ANIM)	yes	yes	no	yes	(yes)	yes	yes	nominal component; (aspectual/partitive ?).
	Osage	wa-	yes	yes	(yes)		yes		yes		
						Hoocąk-Jiwere					
	Hoocąk	wa-	yes (DEF)	yes	yes				yes	yes	indefinite/partitive (?)
	Jiwere	*wa-*	yes (ANIM?)	yes					yes	yes	
	TOTAL		4	9-11	5-8	2-3	5	3-4	10	9	

is variously labeled "valency-decreasing" (e.g., Boyle 2009a), "detransitivizing" (Hartmann 2015: 1270), "absolutive"[33] (e.g., Carter et al. 2006, Hollow 1965), "indefinite" (Cumberland 2005), "indefinite object marker" (e.g., Ullrich 2008: 735) or "unspecified argument" (e.g., Mixco 1997, Kasak 2019). Note that some of these labels imply that the verb containing *wa-* is intransitive, while others do not, and this has a direct consequence on whether or not we analyze *wa-* as an antipassive marker.

The nonspecific object is the most pervasive function of *wa-* as it is attested at least in nine languages. I consider that in these cases *wa-* is an antipassive marker. However, it often seems to be attested on a limited set of verbs. The nonspecificity of the object culminates with its total suppression from the lexical-semantic structure of the verb, alongside a semantic shift. Some examples are:

- Crow: *íkaa* 'to see $\{x\}$' → *baaíkaa* 'to see things','to have a vision'
- Crow: *chimmí* 'to count $\{x\}$' → *baachimmí* 'to study', 'to go to school' (Graczyk 1991: 236)
- Lakhota: *manúŋ* 'to steal $\{x\}$'[34] → *wamánuŋ* 'to steal things, do stealing, be a thief' (Ullrich 2014?).
- Hoocąk: *hohí* 'to defeat $\{x\}$' → *woohí* 'to win'. (Helmbrecht in progress)

The existence of *wa-* standing for a specific object is more difficult to establish, as most authors translate antipassive verbs with objects such as "things" or "something", which allows no clear interpretation of their specificity[35]. Aside from Umóⁿhoⁿ, unambiguous examples are provided by Graczyk (2007) for Crow, as in (650), by Helmbrecht (in progress: §6.2.3) for Hoocąk, and by Urgo (2009) for Biloxi. Specific objects are very likely possible in Hidatsa too, as Boyle (2007: 272) writes "it is indefinite and often non referential". (This implies that sometimes it can be referential, i.e., specific.)

(650) Crow: Specific indefinite object incorporated to the verb

bilaxpáakee-m dí-ss[-baa-kaan]-nak *kuu-a-kuú-h*
person-DET P2-GOAL-INDEF-ask.for-COND give-COND-give-IMP

If a person asks for something from you, give it to him. (Graczyk 2007: cited in Boyle 2009)

[33]Kasak (2019) mentions that the term "absolutive" comes from Siouanists' having studied with Terrence Kaufman, who described ergative Mayan languages. The term "absolutive" then remained in Siouan studies although Siouan languages do not have an ergative alignment (personal communication of Bob Rankin to Kasak).

[34]The original is 'to steal something', which I replaced by 'to steal $\{x\}$'.

[35]Boyle (2009b) faces the same problem: "In many Siouan languages, it is difficult to determine if the [*wa-] morpheme is a *nonspecific argument* and syntactic in nature, or if it is an *anti-passive* and derivational in nature.

Note: *waa-* is nonspecific in the first clause, but becomes specific/definite in the second clause

Finally, in several examples *wa-* saturates the subject argument of verbs. A good example is found in Crow (example (651)), where *baa-* stands for the indefinite subject of the verbs "reach" and "go inside". In this particular case, it is translated as "nothing".

(651) Crow: Indefinite subject

isht-úua baa-híi-leeta-(a)k baa-awuu-ss-dée-ssuu-k
eye-PL INDEF-reach-not.exist-SS INDEF-inside-GOAL-go-NEG.PL-DECL

nothing can reach and penetrate their eyes. (Graczyk 1991: 234)

Kasak (2019) also provides examples of long *waa-* which acts as an indefinite subject. He closely links this function to *waa-* as a lexical item which can be used independently (see §7.7.4).

(652) Mandan: Indefinite subject

waa-ti-ishi=ka=o'sh
someone-arrive.here-CERT=HAB=IND.M

someone must be coming here (Kasak 2019: 239, sentence originally documented in Hollow (1973))

7.7.3 *Wa-* attested on nouns

Wa- is often attested on nouns, and these nouns correspond to various kinds of verbal arguments. Below are chosen examples of various nouns attested with *wa-*:

- Noun for A, transitive verbs
  - Biloxi: *asne* 'steal' → *asne* (underlying /a-asne/) 'thief' (Einaudi 1974: 103)
  - Assiniboine: *snokyá* 'know {x}' → *wasnókya* 'one who has sacred knowledge' (Cumberland 2005: 99)
- Nouns for A, intransitive verbs
  - Mandan: *pa-* 'by pushing' + *prax* 'to stand up' (with epenthetic *-a-*) → *wápaparax* 'rooster' (Hollow 1965: 486-7)
  - Lakhota: *kȟa* 'earth' + *škaŋ* 'to move' → *wamákȟaškaŋ* 'animal' (something that moves on earth) (Ullrich 2008: 753)
- Nouns for P, transitive verbs
  - Crow: *dichiíchi* 'boil' + PL → *baa-lichíit-uu* 'boiled meat' (Graczyk 2007: 48)

  - Tutelo-Saponi: *luːte* 'eat' → *waːluːti* 'food' (Oliverio 1996: 145)
  - Hoocąk: *waagáx* 'the thing/something one writes' → 'paper' (Helmbrecht in progress: §6.3.8)

- Nouns for P, intransitive verbs
  - Hidatsa: *aríidi* 'to be hungry' → *maaʔaríidi* 'famine' (Boyle 2007: 105)
  - Lakhota: *tȟó* 'blue, green' → *watȟó* or *watȟóka*[36] 'vegetation'(Ullrich 2008)

Note that the only dubious example (cell filled with "(yes)"), comes from Umóⁿhoⁿ: it refers to *waníta* 'animal', from the verb *níta* 'to be alive'. As observed in §7.3.3, this verb is attested with person markers of agentive and patientive arguments, so that its verb class is uncertain. In any case, it is semantically a stative verb.

7.7.4 Other functions

Other functions are sometimes attested in particular languages. Most importantly, *baa-* in Crow and *waa-* in Mandan are attested as independent lexical items. Concerning Crow, Boyle (2009b: 4) points out: "In Crow, [baa-] can serve as an independent lexical word. In these examples, it is always indefinite and suffixed with the indefinite determiner (Graczyk 2007: 284)." In (653), *baá-m* stands as an NP which is the subject of the verb "to go". For an example of *waa-* as an independent lexical item in Mandan, see Kasak (2019: 240, example (3.82g)).

(653) Crow: Independent marker

baá-m *biaxsée-n* *dée-loo-t* *bach-kuxxáa* *awá-ss-daa-(a)k*
INDEF-DET under-LOC go-EXCL.PL-TEMP RECP-equal earth-ALL-go-SS
dappii-áhi-i-lu-k
kill-PUNCT=HAB-PL-DECL

Whenever something goes under them, together they moved downward, they kill it tight away. (Graczyk 2007: cited in Boyle (2009b))

In three languages, including Umóⁿhoⁿ, *wa-* is attested in nominal compounds:

- Mandan: *rok* 'leg' → *wároke* 'someone's leg' Hollow (1965: 187)
- Assiniboine: *pʰahá* 'hair' → *wapʰáha* 'war bonnet' (Cumberland 2005: 99)[37]
- Umóⁿhoⁿ: *há* 'skin' → *wahá* 'skins of animals' (Dorsey n.d.b)

[36] The suffix *-ka*, subject to Ablaut, means 'kind of, sort of'.

[37] Cumberland (2005) provides three examples of *wa-* 'indefinite' combining with nouns, but one of them at least is composed with the homonym *wá* 'snow': *wasú* 'hailstone', from *sú* 'seed'. The third example, *wahąpi* 'clear soup', from *hąpí* 'sap', is unclear.

Kasak (2019) proposes a "partitive" function for long *waa-* in Mandan, which is an equivalent to an indefinite specific object with an additional partitive value, as in (654). It could correspond to the putative partitive value of *wa-* in Umóⁿhoⁿ, except that in all five examples of "partitive" in Kasak (2019), the object is not overtly expressed as an NP in the same clause.

(654) Mandan: partitive
hiré rá'skama'k wáawahe'sh, manápusheke

hire ra'ska wą'k waa-wa-hE=o'sh wrą pushek=E
now summer POS.lie PRTV-1A-see=IND.M tree juneberry=SV

I saw some now this summer, juneberries that is (adapted from Kasak 2019: 238, sentence originally documented in Hollow (1973))

Helmbrecht (in progress: §6.2.3) also cites an example which resembles example (618) p. 394 in Umóⁿhoⁿ, where *wa-* has a sort of partitive semantics. He includes it as one of the possible values of *wa-* as a third person plural object marker, but reckons that in this context it refers to masses or "stuff".

(655) Hoocąk: partitive semantics? Reference to masses

heesge hąini=ga hegụ waruc hija kere-ire='anąga
that's.why morning=CONT that.way food there put.upright-SBJ.3PL=and
hị-gi-kere-ire='anąga 'eegi 'ụụxịnị 'ụụxịnị seep nịge
P1E-AP:BEN-put.upright-SBJ.3PL=and and.then charcoal charcoal be.black somewhere
waasge hikiją=hija wa-t'ụụp-ire
dish on.side=there O3PL-put.down-SBJ.3PL

That's why in the mornings they put some food out there by me and they put a piece of black coal next to the dish. (Helmbrecht in progress: §6.2.3; adapted gloss)

Mixco (1997) provides one example (reproduced in Boyle 2009b) of what he considers as an agreement marker with an "unspecific argument", "whose function is to reflect a relationship with an **overt** or covert ((un)specified) argument (...)" (bolding mine). He provides the noun "coffee" as an example, in (656). It is possible that it represents the "partitive marker" described by Kasak, which would mean that the partitive can co-occur with an NP.

(656) *wrą wa-ra-xu:(re)*
wood INDEF-INS:fire-scorch
coffee (literally "scorched wood") (Mixco 1997: 25. Adapted gloss)

In Assiniboine, Cumberland (2005) documents cases where *wa-* stands for an indefinite object which is not part of the argument structure of the base verb. An unambiguous example of this is provided below. In (657), *wa-* cannot be interpreted as a valency reducer, because it creates the object position that it fills. This is what I labeled "valency-increasing indefinite marker".

(657) Assiniboine: Valency-increasing indefinite marker

kní 'to return back here' → *wakní* 'to return home bringing game, meat'

Finally, two marginal functions of *wa-* are documented: the "depossessivizer" in Crow (see Boyle 2009b), and the approximate in Lakhota (*henákeča* 'to be that way' → *wahénakeča* 'to be about that way').

7.7.5 Possible sources of the antipassive marker

In his paper about the different possible sources of antipassive markers, Sansò (2017) presents four recurrent grammaticalization sources for antipassive markers: agent nominalizations, generic/indefinite elements in object position, action/result nominalization, and reflexive/reciprocal constructions. Sansò treats Siouan languages as dubious cases, because out of the four grammaticalization paths identified, three correspond to other identified functions of *wa-* and its cognates: (1) agent nominalizations; (2) generic/indefinite elements in object position (both incorporated and as an independent unit expressing the object, as we have seen in Crow and Mandan); and (3) action/result nominalization.

Moreover, in Umóⁿhoⁿ the ANTIP function and the O3PL function are somehow ambiguous (§7.5.1), which adds more uncertainty as to the possible origin of the antipassive marker. Possible diachronic links between antipassive and personal markers have been identified by Auderset (2021), in both directions. (Her results mainly show cases of evolution from antipassive markers towards person markers, though.)

Diachronic studies of the prefix *wa-* in Siouan show that it is very old, dating back to Proto-Siouan at least (Carter et al. 2006). Kasak (2019) comments as follows:

> Historically, this prefix originates as a merger between the *wi- and *wa- classifiers in Proto-Siouan, where *wi- marks animate non-human arguments and *wa- marks inanimate arguments. After *wi- merged with *wa-, *wa- became used to mark not only nominal stems, but verbal stems as well. This process seems to have taken place before late Proto-Siouan, as this behavior is observed in every branch of the Siouan language family, where some reflex of *wa- has become part of the outer pronominal set (Rankin et al. 1998).
>
> (Kasak 2019: 231)

Thus, it is very unlikely that the antipassive originally comes from the 3rd person plural object marker, despite the evident link between both functions in synchrony. From Kasak's summary of the origin of antipassive *wa-* (2019), it seems that it was originally used on nominal stems before verbal stems. But the old **wa-* seems to be a classifier on nouns, and not a nominalizer.

7.8 Summary

This chapter investigates the functions and semantics of *wa-* on verbs and nouns, with special emphasis on identifying and describing its antipassive function. Leaving out the unrelated P1PL *wa*~*awa-* prefix (§7.1.2), there are at least two homophonous *wa-* prefixes in Umóⁿhoⁿ. One is the O3PL marker (for animate objects only; §7.1.1), and the other is what I have labeled the "underspecified argument marker" (§7.1.3).

"Underspecified argument marker" is a label that regroups several subfunctions: the antipassive (ANTIP), the "indefinite" (INDEF), and the nominalizer (NMLZ), at least. The prefix *wa-* in these three subfunctions always exhibits the same morphophonological behavior (§7.2.1), the semantics are similar, and in many contexts there is an ambiguity between ANTIP and INDEF (§7.5.2). (There can also be ambiguity between INDEF and NMLZ.)

The main difference between the antipassive and indefinite functions concerns the syntactic status of the argument replaced by *wa-*. The antipassive corresponds to a valency reduction; I assume that the undergoer, though possibily still existent/implicit in the lexical semantic structure of the verb, is no longer a syntactic argument. The indefinite does not correspond to a valency reduction, but only fills in for the object NP, and it has an indefinite, but specific, reference. Most instances of verbs with "underspecified argument" *wa-* admit both interpretations, and the distinction between ANTIP and INDEF could seem superfluous at first sight. Some examples, however, unequivocally admit only one interpretation. In particular, we see that the prefix *wa-* refers to a specific object when this object is also the head of a RC, or when it is the object of another transitive verb in the sentence. Another noteworthy difference between ANTIP and INDEF is that the first appears to be a lexically restricted derivational marker, while the second has inflectional features (§7.4.4).

The antipassive *wa-* can combine with applicative markers, in which case it generally saturates the base object, although a few cases of *wa-* saturating the beneficiary of applicative verbs are reported in §7.4.2. This is consistent with other characteristics of ditransitive verbs that suggest that Umóⁿhoⁿ has double object constructions (§2.5.1.2, §6.2.3). Additionally, the antipassive marker *wa-* can be applied twice, in which case both objects of a ditransitive verb are saturated. Typologically, the Umóⁿhoⁿ antipassive construction corresponds to the most common group identified by Heaton (2017), with a set of features that constitute "the minimum structural and semantic requirements for a construction to be considered an antipassive [in her survey]" (p. 252).

In some contexts the antipassive *wa-* is ambiguous with O3PL *wa-* (§7.5.1), while in others it is ambiguous with INDEF *wa-* (§7.5.2). In §7.6 I propose a network representation of all the functions and subfunctions of *wa-*. The ambiguities between ANTIP and O3PL on the one hand, and between ANTIP and INDEF on the other hand, reflect two possible sources of the antipassive construction. The historical link between the indefinite object marker and the

antipassive marker seems obvious from their common formal behavior and from the survey of other Siouan languages. Conversely, to the best of my knowledge the historical link between the O3PL marker and the antipassive has not been suggested in any comparative work to date, and moreover the O3PL marker is only attested in Mississippi Valley Siouan. This link is evidenced in Umóⁿhoⁿ, however, by a few verbs and nouns where the antipassive marker fills the O3PL slot. In Hoocąk, Helmbrecht (in progress) also links the O3PL and antipassive functions of *wa-*[38].

In §7.7 I present the first comparative survey of the functions of *wa-* in Siouan languages that takes into account its referential statuses. The survey results are summarized in Table 7.13. The contexts attested in most languages are transitive verbs with nonspecific objects, nouns referring to the patientive argument of transitive verbs, and nouns referring to the patientive argument of intransitive verbs. The data clearly shows that the prefix *wa-* and its cognates throughout the language family regularly stand for an indefinite argument in a general way. This argument is often (but not always) nonspecific, and it often (but again not always) corresponds to the patientive argument of verbs. In Mandan, Kasak (2019) identifies several nearly homophonous prefixes with close semantics, such as *wa-* and *waa-*, and remarks that they have not been distinguished in earlier works. It cannot be excluded that the many functions of *wa-* in Umóⁿhoⁿ result from the merging of several sources with related semantics.

In conclusion, many aspects of the Umóⁿhoⁿ prefix *wa-* are still uncertain. These include its precise referential value in many contexts (which is difficult to obtain without elicitation from native speakers), its historical source(s) and its diachronic pathway(s). Several counterexamples to the analysis proposed here need to be accounted for. A greater understanding can be gained by both continuing the study of Umóⁿhoⁿ examples and making further cross-linguistic comparisons.

[38]To be precise, Helmbrecht (in progress) considers that, except for a very limited number of verbs such as "to eat" and "to win", the prefix *wa-* on verbs always corresponds to the O3PL marker, which has either a nonspecific or generic reference.

Chapter 8

Nominal Incorporation

Noun incorporation can be defined as "[a morphological structure] in which a nominal constituent is added to a verbal root, and the resulting construction is both a verb and a single word" (Aikhenvald 2007: 11). This definition is in line with Sapir (1911) and Mithun (1984), and contra Baker's (1988) syntactic account of noun incorporation, although Mithun (1984: 847) recognizes that "Noun incorporation is perhaps the most nearly syntactic of all morphological processes". As seen in §1.4.4.2, the incorporated noun most often corresponds to a verb argument, and it loses its syntactic status. As a result, the NI verb[1] valency is decreased in comparison with the base verb valency. Following Graczyk (2007), I use "nominal incorporation" (NI) rather than "noun incorporation" in order to include a greater diversity of incorporated elements (in this case, pronouns and clausal complements).

NI is not really productive in Umó^{n}ho^{n}, and distinguishing NI verbs from bare noun constructions is not always easy. This chapter builds on a database initially produced from Dorsey's (1890, 1891a) corpora, of N-V stems written as one word. In **§8.1**, I provide an overview of the description of NI in other Siouan languages and address methodological issues regarding the study of NI in Umó^{n}ho^{n}. **§8.2** focuses on formal evidence of N-V coalescence: the diverse morphological and accentual features that suggest that a N-V sequence constitutes only one word, in accordance with the definition of NI provided above. As specified in §8.2.7, at this stage of research and documentation NI created by morphological compounding cannot be distinguished from NI created by syntactic adjunction (where several words fuse into one lexical unit). In **§8.3** I present morphosyntactic features of NI: conjugation, the nature of the incorporated and incorporating elements, the various verb arguments liable to be incorporated, and the semantic and pragmatic functions of NI. In **§8.4** I present bare noun constructions and their interplay with NI. Finally, in §8.5 I show the morphological specificities of some discontinuous stems that illustrate ongoing diachronic evolution. The

[1] I use the following terms: "NI" for the process of nominal incorporation (e.g., the fact that *mí^{n}-* 'female' incorporates into *gthó^{n}* 'to marry {x}'); "NI verb" for a verb having incorporated a nominal (e.g., *mí^{n}gthó^{n}* 'to take a wife'); and "incorporating verb" (e.g., *gthó^{n}*) & "incorporated nominal" (e.g., *mí^{n}-*) for each part of a NI verb.

chapter is summarized in §8.6.

8.1 Methodology: how to recognize Noun Incorporation?

8.1.1 NI in Siouan languages

NI is attested in several Siouan languages, including at least Missouri Valley Siouan and Mississippi Valley Siouan. NI is described as more or less frequent and productive depending on the language and the scholar. Helmbrecht (in progress) and Kasak (2019) explicitly say that NI is displayed to a limited degree in Hoocąk and Mandan, respectively. (Kasak calls it "object incorporation", thus delimiting its function.) de Reuse (1994) argues that NI is widespread in Lakhota, but his results are disputed by Ullrich (2018), who agrees that NI exists in Lakhota but demonstrates that it is not nearly as widespread as de Reuse argues. Similarly, Crow is described by Graczyk (1991, 2007) as having pervasive incorporation, including incorporation of whole phrases. This analysis is contested by Golston et al. (2018), who claim that what Graczyk considers incorporation is merely a prosodic phenomenon (the treatment of unfocused verb complements together with the verb as a single phonological phrase). (See also Gebhardt 2019 for a summary of Golston et al. 2018.) The grammatical features described in §8.1.3, which makes NI difficult to recognize in Umó^{n}ho^{n}, are used by Golston et al. (2018) as an argument for rejecting the idea that NI exists at all in Crow. Generally speaking, comparing the NI system across languages is difficult given the various treatments and definitions of this term in different frameworks.

Below is a list of Siouan languages which reportedly have NI, with some basic information and how NI is recognized and described.

Crow. Crow (Missouri Valley Siouan) has been considered to have pervasive NI since Graczyk's (1991, 2007) works on the subject. However, Graczyk's notion of incorporation is not the same as the one used here, since he follows Sadock's Autolexical framework (1991). Sadock does not consider morphology and syntax as ordered components where the output of the first forms the input of the second. As a result, the notion of "incorporation" is used broadly for a wide array of morpheme combinations. Graczyk (1991, 2007) considers modal auxiliaries to "incorporate" verbs, and the personal inflectional prefixes to be pronominals incorporated into the verb. Nonetheless, lexical noun incorporation (which corresponds to the definition of NI used here) exists as well, as in (658), and is very frequent.

(658) *shóotdak Mr. Latch* *bishka-lúupia-i-k*
perhaps Mr. L. dog-dislike-HAB-DECL
[he] doesn't like dogs (Graczyk 2007:279)

Graczyk (1991: 279-80) describes the formal evidence that the noun is incorporated as follows: "either the object or the verb stem loses its lexical accent, in accord with the regular rules for accent placement in compounds, and the object-plus-verb-stem is pronounced as

a single phonological word, with no possibility of a break in the stream of speech between the nominal and the verb." He adds that the stem-final short vowel of the noun is deleted, following a regular phonological process within words. According to him, whole phrases can be incorporated (PPs and relative clauses).

Golston et al. (2018) contest Graczyk's analysis, and argue instead that Crow regularly includes in the same phonological unit topical or non-important referential expressions with the verb.

Mandan. Noun incorporation exists in Mandan, according to Kasak (2019: 343-4), but seems to be "limited to a small number of lexical items". Kasak refers to it as "object incorporation", since apparently only objects can be incorporated in this language. There is morphological evidence of NI; the incorporated element appears closer to the stem (slot 9) than the negation prefix (slot 10), as seen in (659) with a possessed DP (determiner phrase).

(659) *waa-w'-eexi#o-hi=xi=o'sh*
NEG-1.POSS-belly#PV.LOC-be.full=NEG=IND.M
I am not full (Kasak 2019: 343, citing Hollow 1973)

Hoocąk. Hoocąk (Mississippi Valley Siouan) also displays a limited degree of NI, according to Helmbrecht (in progress). The verb can encode a patient argument, an instrument argument, and a locative argument, although in all cases the argument is a verb object (a base object or an applicative object), and never a peripheral argument. Although Helmbrecht does not give any explicit information about how NI is recognized, the NI verbs he presents have only one accent and display word-internal phonetic or phonological changes. One example is reproduced in (660).

(660) *šaagígicaš*
šaak-hí-gicaš
fingernails-AP:INS-type
to type with the fingernails (Helmbrecht in progress: §"Noun incorporation")

Helmbrecht explicitly states that Type IV of Mithun's (1984) NI types is not attested in Hoocąk: the incorporated object never acts as a classifier, leaving the object argument position open to a new object. For instance, a sentence like **haazišucke haas-ha-gihi=ną*, literally 'I berry-picked raspberries', is not possible.

Lakhota. A first thorough survey of NI in Lakhota is presented in de Reuse (1994), but is highly criticized by Ullrich (2018). De Reuse argues that NI in Lakhota is much more frequent than previously thought. He identifies three formal levels of NI, which are all illustrated by the incorporation of *phá* 'head' to *kaksá* 'to cut': "lexical compounding" with only one primary accent (*phakáksA*), "syntactic compounding" with one primary and one secondary accent (*phá kaksÀ*), and "noun stripping" with two independant phonological words (*phá kaksÁ*). The last

one corresponds, according to him, to Mithun's "composition by juxtaposition". At the functional level, de Reuse (1994) argues that all four types of NI in Mithun's (1984) typology are represented in Lakhota, although the majority of them are type I[2].

Contra de Reuse's analysis, Ullrich (2018: 90 ff.) argues that "noun stripping" does not exist in Lakhota, given that nonspecific referring phrases are obligatorily undetermined (as in English, there is no nonspecific determiner). The same is true of Umóⁿhoⁿ, as presented in §8.4. Ullrich also shows with phonetic analyses that some N-V sequences which had previously been analyzed as "syntactic compounding" (with a reduced accent on the V) in fact have both N and V fully accented. Below are two examples of NI recognized by Ullrich. In each case, the nominal element takes a reduced form, although this reduction is not systematic in NI.

(661) *čhap-khúwa* — *mas-pȟégnakA*
beaver-hunt — metal-wear.in.hair
he is beaver hunting — to wear metal (ornament) in one's hair
Ullrich (2018: 82)

It should be noted that Ullrich (2018) distinguishes two types of lexicalized N-V sequences, according to the way they have been created; he considers NI a morphological process, in line with the definition chosen in the present dissertation. He opposes NI to "complex predicates", which he defines as being created in syntax. He uses phonological accent rules to argue that some supposed examples of "lexical compounding" in de Reuse's work are in fact created in syntax: "There are lexicalized expressions which look like instances of [NI], for instance *háyuzA* 'to skin smth (as an animal)' (containing *há* 'skin' and *yúzA* 'to take smth'), but these, too, originate in the syntactic construction exemplified in (59a) except that the H* peak on *yúzA* 'to take' is undershot (or deleted) due to the tonal crowding created by the adjacent stressed syllables from *há*+*yúzA*" (p. 115) and "De Reuse (1994:212-213) considers *ípuzA* 'to be thirsty' to be an instance of NI, which is not tenable within the view of the present analysis which treats it as a complex predicate." (p. 113). As stated in the introduction of the present Chapter, no such distinction is made in Umóⁿhoⁿ.

8.1.2 Does Umóⁿhoⁿ have Noun incorporation?

NI is difficult to establish in Umóⁿhoⁿ, due to several grammatical features which are presented in §8.1.3. There are, however, a few clear instances of NI. The contrast between *gthóⁿ* 'to marry {x}' and *míⁿ_gthóⁿ* 'to marry', illustrated in (662) below (partly repeated from §4.6.2), is the best instance of NI as a valency-reduction process. The curly brackets mark the NPs corresponding to the verb arguments: subject and object. As can be seen, *míⁿgthóⁿ* has no object expressed, since its original object is incorporated into the verb in the form of *míⁿ*- 'female'.

[2] De Reuse's (1994:234) examples of Type IV NI (classificatory NI) are formally lexical compounds accented on the second syllable, an important fact given that this seems to be the only kind of NI recognized by Ullrich (2018).

(662) a. Non-incorporating verb (transitive)

égithe {*wa'ú*} *gthó^n*=*biamá* {*Íshibázhi ak^{h}á.*}
finally {woman} marry-PX.REPORT {I. PX.SG}
OBJ SBJ

At length Ishibazhi took a woman. (Dorsey 1890: 387.16 / Joseph La Flesche)

b. Incorporating verb (intransitive; inside a relative clause)

{*Níashi^{n}ga*} *mí^n-gthó^n* *amá* *wó^{n}githe té* *wa-k^{h}ída*=*biamá.*
{person} female-marry PX.PL all buffalo O3PL-shoot=PL.REPORT
SBJ

All of the persons who had taken wives shot at [the buffalos]. (Dorsey 1890: 86.15 / Nudó^n-axa)

In this case, the incorporated element is not identical to the equivalent free noun. *Mí^n-* means 'female' and is a truncated version of the word *mí^{n}ga* 'female', used for animals. *Mí^{n}ga* is not attested as a syntactic object of *gthó^n* 'to marry {x}' (and it seems never to be used in reference to women). Instead, *gthó^n* typically takes nouns like *wa'ú* 'woman' or kinship terms as head nouns of the object NPs, as in (662a). The difference between *wa'ú* and *mí^n-* clearly establishes that *mí^{n}gthó^n* forms one word, a verb, and that this verb is intransitive. A detailed survey of the uses of *gthó^n* and *mí^n_gtho^n* in Dorsey's texts is presented in §8.3.4.

Umó^{n}ho^n also possesses many discontinuous verbal stems which could be old instances of NI become opaque. Many discontinuous stems are partly semantically analyzable, as can be seen with the "INC+" category of the database (cf. §8.1.4). The outer instrumental prefixes described in §5.3 are probably old incorporated nouns (Rankin n.d.); they fill the same prefixal slot as incorporated nouns and they never co-occur with them. Everything indicates that NI is an old process in Siouan languages, even though it no longer seems truly productive in Umó^{n}ho^n.

8.1.3 Why NI is difficult to recognize in Umó^{n}ho^n

In contrast with (662), we observe in (663c) a supposed case of noun incorporation, according to Dorsey's choice of writing the noun and the verb as one word. The incorporated object is identical to its free counterpart in (663a), and the incorporating verb is also attested as a non-incorporating verb, in (663b)[3].

(663) a. Free noun *tó^{n}wo^n* 'town'

[3]This specification is important, as we will see cases where the incorporating stem is in fact a bound root, which is never attested alone as a verb. Such cases definitely form one word and cannot be confused with a verb with its bare noun object; but they cannot be considered true instances of NI either.

shó^n mazhó^n tó^{n}wo^n-mádi, mazhó^n Kansas, águdi méha tó^n kízhi,
and land town-LOC land K. where winter.hides abound when
i^{n}wí^n-tha-na kó^{n}btha.
D1SG(1)-A2-A2.tell(2) A1SG.wish

I wish you to tell me whether winter hides abound anywhere in the towns of the State of Kansas. (Dorsey 1891a: 17.4 / No^{n}zadazhi)

b. Verb *gígtho^n* 'to put {x} in {y} for {z}' (?)

{*Shó^{n}ge t^{h}o^n nó^{n}xa*} {*shának^{h}ágthe*} *í^{n}gtho^n=i=ga, á=biamá.*
{horse OBS.STD vertebra} {saddle} D1SG-put=PP=IMP.M say=PX.REPORT

"Put ye a saddle on the horse's back for me," said he. (Dorsey 1890: 193.16-7 / Sho^{n}ge-ska)

c. Noun Incorporation: *tó^{n}wo^n_gígtho^n* 'to put {x} at the head of a nation'

ki gá=biamá: {*mashchí^{n}ge*} *tó^{n}wo^n- í^n-gtho^n ta=í, á=biamá.*
and say=PL.REPORT {Rabbit} town- A1PL.DAT-put IRR-PL say=PL.REPORT

And they said as follows: "Let us put the Rabbit at the head of the nation." (Dorsey 1890: 28.13 / Nudó^n-axa)

Here, the identification of *tó^{n}wo^n_gígtho^n* 'to make a nation for {x}' as one verb exhibiting NI is entirely based on Dorsey's choice of writing it as one word. As can be seen in (663c), both the object and the verb retain their form and accent. *Tó^{n}wo^n-* takes no determiner, but this cannot be taken as evidence for NI; bare nouns are frequent in Umó^{n}ho^n, as (663b) and (663c) themselves illustrate (see §8.4).

The following difficulties arise in the process of identifying NI verbs in Umó^{n}ho^n:

1. Incorporated nouns are placed before the verb stem, and non-incorporated syntactic objects are also realized before the verb. When the verb is conjugated, person markers are inserted between the incorporated noun and the verb stem (cf. §8.3.1, exception in §8.2.2). Thus, NI in Umó^{n}ho^n is not signalled by a change of alignment as in English (*to berry-pick* vs. *to pick berries*). The same is true of other Siouan languages. Golston et al. (2018) calls this a "string-vacuous" operation, and denies it is NI in Crow.

2. Syntactic objects are frequently realized as bare nouns: the determiners are often absent, either because there is no appropriate determiner for a given type of reference, or for information-structural purposes. Bare nouns can also be subjects, incidentally. See §8.4.

3. There is no formal difference between transitive and intransitive clauses. That is, Umó^{n}ho^n does not display a transitive vs. intransitive paradigm, like Yup'ik does (Mithun 2000); nor does it obligatorily encode the object, as in many languages; nor does it have an ergative alignment distinguishing subjects of transitive and intransitive clauses. The only evidence of intransitivity in Umó^{n}ho^n could be the absence of *wa-*

with third person plural objects. (But counterexamples are found; see §8.2.3 and §8.5.) Such evidence can be used only sporadically, when the supposed incorporated object represents a plural animate entity.

4. Finally, the accentual and prosodic system of Umóⁿhoⁿ is still underdocumented. There are no precise studies on accentuation and phonological wordhood. Both Koontz (1988) and Larson (2009) report that Umóⁿhoⁿ words are characterized by a high-low pitch contour, but the text documentation available does not enable us to distinguish these contours and identify phonological words. No spelling has ever distinguished between primary and secondary accents. As noted in §2.2.3, Dorsey (n.d.b) explicitly mentions "secondary accent" in reference to the accents written after the first one. But as he writes them all with acute accents on the vowel, this does not help us to recognize word boundaries. Dorsey also uses a variety of diacritics on vowels, but they correspond to articulatory differences only (see Dorsey 1890: 4-7), and these distinctions have been given up in the modern spelling used in this dissertation. Materials written by the Umóⁿhoⁿ language team in Lincoln (OLIT-UNL 2018; Sanchez, Larson & Walker in progress) also use several diacritics on vowels, corresponding to vowel pitch contours (see §2.2.3), but their use on long lexical items is still uncertain, and examples of NI for this study are not drawn from these sources. Few oral materials are available, most of them are old, and to date no phonetic study of them has been attempted. See §2.1 for more detail about the primary resources on Umóⁿhoⁿ, and §2.2 for a presentation of the phonological system of Umóⁿhoⁿ.

Modern materials often illustrate the existing uncertainties about wordness. Example (664) illustrates two treatments of the same N+N/V sequence for 'cheese'. It means literally 'what mice eat' (N-V), or 'mouse food' (N+N), according to the function assigned to *wa-* (cf. Ch. 7).

(664) Difference of spellings for the compound word 'cheese'

iⁿchʰóⁿga	*wa-thátʰe*	*iⁿčʰóⁿga-wa-thatʰe*
mouse	NMLZ?-eat	mouse-NMLZ?-eat
cheese		cheese

ULCC (2018: 188) and OLIT-UNL (2018: 591)

While ULCC (2018) treats it as two words, each accented individually, OLIT-UNL (2018) treats it as one word with one accent[4]. Each example comes from the respective lexicons in the texbook *Umóⁿhoⁿ Íye-tʰe, Umóⁿhoⁿ Úshkoⁿ-tʰe. The Omaha language and the Omaha Way* (ULCC & OLIT 2018). It is possible that both kinds of compounds exist; Binah Gordon

[4]This example is representative of the spelling choices of each language program. ULCC (2018) tends to write many sequences as separate words, separately accented or not, while OLIT-UNL (2018) tends to write them as one word, sometimes with a hyphen.

(p.c.) told me that she sometimes hears *ní thatóⁿ* 'to drink water' pronounced as two phonological words, and sometimes as one (*nitháto*ⁿ). In Lakhota, Ullrich (2018) also reports that lexicalized expressives such as *čhaŋtéwaštè* 'to be glad' (lit. 'to be of good heart') can have the second component pronounced with a reduced accent, or with a full accent.

A series of formal features suggest that a noun really is incorporated into the verb. They are thoroughly described in §8.2.

8.1.4 The database

The study presented in this chapter is grounded in a spreadsheet database of 86 verbs which present various degrees of NI. These verbs were first selected relying on the authors' writing choices (Dorsey n.d.b, 1890, 1891a, Saunsoci & Eschenberg 2016): all nouns and verbs which are written together, or separated by a hyphen, were included in the database to be analyzed. Additionally, discontinuous stems and verbs which could be analyzed as old instances of NI were included. Finally, noun-verbs pairs were gradually included when they exhibited some NI features, even if they were written as separate words in the primary sources. The database is reproduced in Appendix E.6.

The database is restricted to verbs. If nouns were taken into account, one could undoubtedly build a database of several hundred compound nouns formed by a verb and its object. It is not clear, however, whether such nouns are nominalized NI verbs (i.e., conversion), are nominalized clauses with verb and object, or are directly created as nouns (§2.3.2 shows that compounding is a pervasive and highly productive way to create nouns)[5]. Only three nouns are included in the database, because they clearly correspond to nominalized clauses with one incorporating verb: *moⁿ_nóⁿ'e* 'to paw the ground' in *Táxti moⁿnóⁿ'ai-kʰe* 'September', glossed in (675); *Táxtigíkidabi* 'He for whom they shoot at the deer', glossed in (671); and *níⁿkashiⁿga t'éthe* 'slayer of Indians', glossed in (728). The first incorporates a bound element. The N stem of the two others semantically corresponds to a third person plural animate object of the verb, but the verb takes no *wa-* O3PL.

The verbs listed in the database receive different labels according to the degree of formal integration between the incorporated element and the verbal base[6] and the degree of semantic compositionality. Table 8.1 shows each category with a basic example and with the number of verbs involved. The categories range from the lowest degree of integration with the presumed NI verbs "INC?" to the highest degree of integration with the "DISC+" category. The forms of the "INC?" category are those that show no formal or semantic feature of NI, except for

[5]Even if a noun is created by nominalization from a clause and includes a noun stem and a verb stem, we cannot clearly determine whether the original clause was a single NI verb or a verb and its object. In any case, both stems become a single lexical item in the nominalization process.

[6]Throughout this dissertation, I use the word "base" rather than "verb", "stem", or "root" in the study of morphologically complex words. The word "base" avoids specifying its nature. For instance, it can be a verb, a bound root, or a stem which is morphologically complex but not attested as an independent verb.

Table 8.1: Labels used in the database for NI and discontinuous stems

Label	Number	Meaning & example
semantic compositionality, attested verb base and incorporated noun		
INC?	10	likely noun incorporation
		e.g., *tóⁿwoⁿ_gígthoⁿ* 'to put {x} at the head of a nation'
		→ *tóⁿwoⁿ-thé-gthoⁿ* with A2 of the dative paradigm
INC	40	noun incorporation
		e.g., *míⁿ_gthóⁿ* 'to marry'
		→ *miⁿ-á-gthoⁿ* with A1SG
INC+	25	intermediary step towards discontinuous stem
		e.g., *ní_woⁿ* 'to swim' (with *ní* 'water')
		→ *ní-oⁿ-woⁿ* with A1PL
DISC	9	discontinuous stem
		e.g., *kú_he* 'to fear an unseen danger'
		→ *kú-a-he* with A1SG
DISC+	2	possible discontinuous stem
		e.g., *móⁿgthe* 'to be erect'
		no conjugated form attested
semantic opacity, incorporated element and base not attested as free forms		

being written as one word. The category "INC+" includes forms where either the incorporated element or the incorporating stem is not analyzable[7]. Verbs included in the "INC+" category are probably old instances of NI which have become partly opaque. The category "DISC" refers to discontinuous stems, which are composed of a "preverb" and a main root, the person markers being inserted between them (see §3.4). These may also be old instances of NI, but they are completely opaque, and some are intransitive statives, an unusual verb class for a NI verb. The category "DISC+" includes two verbs which could be old instances of NI, but without any evidence for this. A continuum from the lowest degree to the highest degree of integration is presented in §8.4.4.

8.2 Formal evidence of N-V coalescence

As explained in §8.1.3, NI is difficult to recognize in Umóⁿhoⁿ. In this section, I present a series of features that suggest that a given N-V sequence constitutes one word. Each form listed in the database can show one or several of the following features, and Table E.8 in App. E.6 shows, for each N-V sequence, which coalescence features it displays. For ease of reference,

[7]The verb *ní_woⁿ* 'to swim', illustrated in Table 8.1, is one where the incorporated element (*ní* 'water') but not the incorporating stem is analyzable. Most of the "INC+" verbs follow this pattern. The verb *wa'íⁿ_boⁿ* 'to give the attacking cry' illustrates the opposite situation; **wa'íⁿ* does not exist as a noun, and *bóⁿ* is an intransitive verb meaning 'to call'.

each formal feature is associated with a number, here and in the database. See §8.2.7 for a summary and discussion of these features.

8.2.1 Bound nominal elements [1]

Bound nominal forms constitute one of the strongest pieces of evidence that the N-V form is one word (a verb), and not two words. Several cases of NI incorporate bound forms which are easily linked to a free equivalent; the bound form is close enough to its free counterpart and/or the resulting verb is semantically transparent enough for an analysis.

Table 8.2 shows a few bound nominal forms which are attested in NI. Three of them form verbs with bound roots indicating position: *ití-*, *pí-*, and *zhé-*. As can be seen in the table, they do not correspond to any noun. The verbs resulting from such composition are classified as "INC+", midway between NI and discontinuous stems; the fact that the incorporating base is not attested alone prevents them from being analyzed as NI, but each part is easily associable with a meaning, making them more semantically transparent than discontinuous stems.

Table 8.2: Bound forms found in NI

Cat.	Bound form	Equivalent free noun	NI verb
INC	*hú-* 'fish'	*huhú* 'fish'	*hu_gási* 'to fish'
INC+	*ití-* 'in the blanket above the belt'	?	*ití_'o^{n}he* 'to put {*a lg. ob.*} in the blanket above the belt'
INC	*mí^n-* 'woman; female'	*mí^{n}ga* 'female'; *wa'ú* 'woman'	*mí^n_gthó^n* 'to marry'
INC	*mó^n-* 'earth'	*mo^{n}thíka* 'earth'	*mo^n_nó^n'e* 'to paw the ground'
INC	*ní^{n}ka-* 'person; foe(?)'	*ní^{n}kashi^{n}ga* 'human being'; *ukíte* 'foreigner; enemy'	*ní^{n}ka_thixe* 'to chase the foe'
INC+	*pí-* 'safe(?), good(?)'	?	*pí_'o^{n}he* 'to lay {*a tool or long obj.*} away'
INC	*shi(e)-* 'child; baby'	*shí^{n}gazhí^{n}ga* 'child; baby'	*shi_áthi^n* 'to be pregnant'
INC+	*zhé-* 'by/on fire'	*péde* 'fire'	*zhé_'o^{n}he* 'to put {*a long object*} in a fire to roast'

The other forms represent instances of NI encoded "INC" in the database. Several of the bound forms seem to be truncated variants of their free counterarts. They are analyzed as bound forms because, very likely, they correspond to an old nominal root. This is established

for *hú-* 'fish': the Proto-Mississippi Valley form is **ho*, the noun for 'fish' still is *hó* in the other Dhegiha languages (Carter et al. 2006: 288). Umóⁿhoⁿ-Paⁿka is the only language where 'fish' is *huhú*, probably due to a reduplication. This mismatch between the incorporated form and the equivalent free noun in usage unambiguously shows that *hú_gasi* 'to fish' and *hú_btho^n* 'to have a fishy odor' are NI verbs.

8.2.2 Inflection and derivation on the left edge of NI [2 & 3]

Derivational or inflectional prefixes placed on the left edge of the nominal stem unambiguously signal that this noun is incorporated into the verb, and forms with it a new verb stem.

2. Inflection on the left edge of the incorporated noun. The verb *tígaxe* 'to play' is clearly composed of *tí* 'house' and *gáxe* 'make'. (See §8.2.6 for further detail about the meaning.) Dorsey only glosses and translates this verb as 'to play' in his texts, as in (665). There are no instances of conjugated forms in Dorsey's texts, but he provides the following conjugational paradigm in the dictionary entry: *a-tigaxe* for A1SG, *tha-tigaxe* for A2, and *o^n-tigaxai* for A1PL (hyphenation and underlying mine; unfortunately, Dorsey did not write any accent). This is a unique example of an incorporating verb having all its person markers positioned at the left edge of the incorporated noun.

(665) *tí-gaxe athá-biamá.*
house-make go=PL.REPORT
They went to play children's games. (Dorsey 1890: 288.13 / Nudóⁿ-axa)

Several NI verbs exhibit inflection on both edges of the incorporated nouns. Sometimes, it depends on the person, as in the discontinuous stem *ní_wo^n* 'to swim'; Dorsey writes *aniwo^n* for A1SG in his dictionary, and *níoⁿwo^n* for A1PL in text (Dorsey 1890: 455.9). In other cases, different sources give different forms for the same person, as in (666) and (667). Both examples have the same incorporated noun: *wazhí^n* 'disposition, temper'.

(666) Conjugation of *wazhí^n_ska* 'to be wise, in their right mind, clever'[8] by two speakers

wazhí^n-o^n-ska	*o^n-wázhi^n-ska*
temper-P1SG-white	P1SG-temper-white
(Rudin et al. 1989-92 / Mary Clay)	(Saunsoci & Eschenberg 2016 / Alice Saunsoci)

(667) Conjugation of *wazhí^n_pí(b)azhi* 'to be in bad humor, cross, mad' as given by Dorsey (n.d.b: 1st column) and Saunsoci & Eschenberg (2016: 49; 2nd column)

P1SG	*wazhí^n o^{n}pí-mazhi*	*o^{n}wóⁿzhi^{n}pi-mazhi*
A2	*wazhí^n thipíazhi*	*wathízhi^{n}pi-azhi*
A1PL	*wazhí^n wapí-bazhi*	*wawázhi^{n}pi-bazhi*

[8] See the complete sentence spoken by Mary Clay in (699).

One very interesting form in this respect is the discontinuous verb *wat^{h}ézugtho^n* 'to be pregnant (with {x}?)', which is attested with A and P person markers in different slots. See discussion in §8.5, and example (732).

3. Derivation on the left edge of the incorporated noun. Sometimes, a NI verb is derived into a new lexical unit. The derivational prefix is placed to the left edge of the incorporated noun. Two examples are provided in (668) and (669), with the incorporated noun underlined.

(668) *u-gthó^n*
AP:INESS-*put
to put {x} into {y}

í-u-gtho^n
mouth-AP:INESS-*put
to put {x} into the mouth (DD)

wá-i-u-gtho^n
NMLZ-mouth-AP:INESS-*put
'something put into the mouth': a mouthful (DD)

(669) *mó^{n}gthe*
erect
to be erect (DD)

pa-mó^{n}gthe
head-erect
to bow the head (DT)

ga-pá-mo^{n}gthe
INS:force-head-erect
to lower the head to charge (U)

The database also shows instances of oblique applicative prefixes placed between the incorporated noun and the verb base, as *u-* of *í-u-gtho^n* in (668). In these cases, the oblique applicative adds an argument, and the incorporated noun saturates this argument (see §8.3.3). Thus, the incorporation occurs after the applicative derivation of the base verb.

8.2.3 Conjugation forms [4 & 5]

In §8.2.2 I showed that the position of the person markers can provide evidence that the N-V forms one word, not two words. Here, I focus on the presence and the form of two specific person markers.

4. Absence of *wa-* for O3pl animate N stems. The prefix *wa-* encodes O3PL animate arguments (see §2.5.2.3 and §3.1.3). As a result, the absence of *wa-* on a N-V sequence where the noun is animate, apparently plural, and represents the object of the verb, can be considered evidence that the N has lost its status of syntactic object of the verb. This criterion led me to include four N-V forms which are written as separate words in the database. The best example is *té uné* 'to hunt/seek buffalos', in (670); while *té* 'buffalo' appears to be plural, the verb *uné* does not encode *wa-* O3PL (the O3PL form of *uné* would be *úne*[9]. See §8.4 for further discussion on bare noun.

(670) *té* *uné*
buffalo seek
'to hunt buffalos'; 'to go on a buffalo hunt': 4 occurrences in Dorsey (1890)

[9]See §3.5.1 for the morphophonological rule and Table B.4 in App. B for the conjugation chart.

Example (671) shows the absence of *wa-* on a nominalized NI verb incorporating an apparently plural noun.

(671) *táxti-gí-kida=bi*
deer-DAT-shoot=PL
He for whom they shoot at the deer (lit. 'they shoot at the deer for him'). (Dorsey 1890: 573.15 / George Miller)

While a total of six or seven N-V forms show an absence of *wa-*[10], we also have examples of the opposite, where object-incorporating verbs take *wa-* to encode O3PL. Example (672) is the clearest case of this: the NI verb *hú_gasi* incorporates the bound form *hú-*, which clearly corresponds to the verb object. According to Dorsey (n.d.b), the verb takes O3PL *wa-* when more than one fish is caught. Note, however, that there is no example of this in the textual corpora.

(672) a. *hú-gasi* (dictionary headword in Dorsey n.d.b)
"to fish or catch fish with hook and line"
Hu-á-si bthé "I'm going to catch a fish" (DD)

b. *hu-wá-si* (dictionary headword in Dorsey n.d.b)
"pl. ob. of hugási: to catch fish (more than one)"
hu-á-wa-si 1st person singular form (DD)

Another example concerns the NI verb *tét^{h}i_gáxe* 'to make animals approach (by calling)'. This verb is included in Dorsey's dictionary as the non-incorporating sequence *tét^{h}i gáxe*, but in Dorsey's text it is written as one word and takes *wa-* O3PL in reference to the plural causee "animals", as illustrated in (693), p. 449. (Note that according to Dorsey's definition, this sequence always includes a plural causee; however Dorsey provides a headword without *wa-*).

Finally, *mi^n_áda* 'to be jealous (of {x}?)' might be a third counterexample, since Dorsey also records the form *mí^{n}wada*, but the definitions provided and its unclear context of use make it very difficult to analyze. See comments in App. E.6 (entry n°58).

5. The P1pl person marker surfaces as *awa-*. Another piece of evidence comes from the form of the P1PL marker. As evoked in §3.4.3 and §7.1.2, this morpheme surfaces as *wa-* only when it is positioned at the left edge of the prefix/preverb sequence, and as *awa-* or separate *wa-* and *a-* when it is positioned inside the prefix/preverb sequence[11]. Thus, when a N-V

[10] As shown in App. E.6, the NI verb *mí^n_gthó^n* 'to marry' is attested once in a context where the incorporated noun is semantically plural ("all grown men took wives"), but a distributive interpretation is possible. As a result, this is not a true example of the absence of *wa-*.

[11] The latter case is found in discontinuous stems, in verbs causativized with *-the* and its derived forms, and in verb paradigms with oblique prefixes (see §3.4.4).

sequence takes a P1PL marker which surfaces as *awa-* before the verb stem, this shows that the preceding element is integrated into the prefix/preverb sequence and makes the P1PL marker non-initial. The only example found thus far is the form *shiézhid_égo^n* 'to behave like a child' in (673), which takes *awa-* as a P1PL marker, according to Dorsey (n.d.b). Note, however, that *shiézhide* 'to be childish' is not a noun (see 8.3.2). As most NI verbs incorporate their object and derive intransitive verbs, the possibilities of using this identifying feature are reduced.

(673) *shiézhide-áwa-go^n=i*
childish-P1PL-be.thus=PL
We behave like children (Dorsey n.d.b)

8.2.4 Accentual patterns [6 & 7]

Nouns and verbs are inherently accented, generally with a lexically determined accent on the first or second syllable of the stem. Thus, a N-V form which only has one accent shows evidence of NI (criterion 6). The accentual patterns of many N-V forms of the database are similar to accentual patterns of words described in §3.5.1, and this is used as criterion 7 for establishing evidence of NI.

6. Loss of primary accent in the N or the V. Some monosyllabic incorporated nouns lose their accent, as *o^{n}b-* in (674). *O^{n}b-* is in fact a shortened version of the bisyllabic word *ó^{n}ba* 'day', lexically accented on the first syllable, and its accent is lost when it is incorporated by the verb *ízho^n*.

(674) *Gó^{n}ki ithádi ak^{h}á o^{n}b-í-zho^n=i t^{h}e ha.*
and POSS:3-father PX.SG day-AP:SIM-lie=PX EVID DECL.M
That day his father was reclining in the lodge. (Dorsey 1890: 610.3 / Yellow Buffalo)[12]

Other similar examples are shown in (675). The cases of *hu_wáthishna* and *i_úp'a* are particularly interesting, because the base verbs *wathíshna* 'to be visible' and **up'á* 'to be bitter in {x}' are accented on the second syllable. In the NI verb, the noun loses its accent, and the accent of the verb moves left to respect the "First Two Syllable Constraint" (Rule 1 in §3.5.1: the accent must be on one of the two first syllables of the word).

(675)	*mo^n-nó^n-'a=i*	*hu-wáthishna*	*i-ú-p'a*
	earth-INS:foot-dig=PL	voice-visible	mouth-AP:INESS-bitter
	'they paw the earth'	'to have the voice heard'	'bitter in mouth'

Sometimes, by contrast, the incorporated noun retains its accent, but the verb loses it, as typified in (676).

[12] In the original text, *o^{n}b ízho^n* is written as two words. However, in another text, we find this verb conjugated and written as one word. I retained the one word spelling.

(676) *tí-gaxe* *ú-to^n*
house-make wound-have
'to play' 'having wounds'

N-V coalescence resulting in a single phonological word could be a productive process. B. Gordon (p.c.) reports that she regularly hears speakers refer to the act of drinking water with either *ní thatóⁿ* 'water drink' (two phonological words) or *ni-tháto^n* 'water-drink' (one phonological word, NI verb).

7. Accent moving inside the prefixal sequence. Several N-V sequences display interesting accentual patterns which suggest that the N is incorporated into the prefixal sequence of the V. In such cases, the incorporated noun is accented when there is no person marker, and the accent shifts to the right when there is one. Examples (677) and (678) illustrate such cases. One can hypothesize that the accent cannot move rightward into the root, but can move within the prefixal chain. In each example, the prefixal chain is in blue. It includes the instrumental prefix *ga-* 'by force'[13] in (677) and the dative prefix *gí-* in (678). However, this is at odds with the morphophonological rule 4 (see §3.5.1), which states that the accent shifts to the right only in vowel sequences (within the prefixal chain). In (677) and (678) the accent's rightward move is not restricted to vowel sequences.

(677) Conjugated forms of *hú_gasi* 'to fish' (Ponca variant; Dorsey n.d.b)

hú-gasi	*hu-ásí*	*hu-thásí*	*hu-ó^{n}gasi*
fish-to.fish	fish-A1SG.to.fish	fish-A2.to.fish	fish-A1PL.to.fish

(678) Conjugated forms of *thé_gi'o^n* 'to do thus to {x}' (Dorsey n.d.b)

thé-gi-'o^n	*the-é-'o^n*	*the-thé-'o^n*	*the-í^n-'o^{n}i*
this-DAT-DO	this-A1SG.DAT-DO	this-A2.DAT-DO	this-A1PL.DAT-DO
the-wí-'o^n			
this-A1SG/D2-DO			

Rule 4 is respected in some verbs, like *zhé_gtho^n* 'to cook {*food*} by putting it on a fire' in (679), where the accent shift is prevented in the A2 form due to the approximant /th/ which "blocks" it (*zhégtho^n* is classified as "INC").

(679) Conjugated forms of *zhé_gtho^n* 'to cook {*food*} by putting it on a fire' (Dorsey n.d.b)

zhé-gtho^n	*zhe-á-gtho^n*	*zhé-tha-gtho^n*	*zhe-ó^n-gtho^n*
fire?-put.RND	fire?-A1SG-put.RND	fire?-A2-put.RND	fire?-A1PL-put.RND

Although more research is certainly needed in this area, there is some evidence that nominal items displaying the properties described in 6 and 7 form a single phonological word with the incorporating verb.

[13] See §5.2 for a detailed study of the instrumental prefix *ga-*.

8.2.5 Loss of final vowel [8]

The incorporated noun sometimes loses its final vowel, as in (680). Another example is *o^{n}b_ízho^n* 'to lie by day', already exemplified in (674). Another example, *no^{n}b_útho^n* 'to shake hands with {x}', is exemplified in (680).

(680) *No^{n}b-útho^n=biamá*
hand-hold=REPORT
They shook hands, they say. (Dorsey 1890: 349.9 / Ó^{n}p^{h}o^n-To^{n}ga)

The loss of the final vowel of the noun shows a certain degree of coalescence with the verb, and Graczyk (2007: 280) observes the same phenomenon in lexical noun incorporation in Crow (for short vowels). However, this is not conclusive evidence that N-V forms one word. As previously seen (§3.5.2), final vowel drop occurs regularly in Umó^{n}ho^n, especially in fast speech. For instance, see examples (108) p. 120 and (350) p. 239. Example (680) is interesting, however, because the vowel dropped normally bears the lexical accent of *no^{n}bé* 'hand'. By contrast, final vowel drop generally affects unaccented vowels.

8.2.6 Semantic opacity [9]

Finally, I consider semantic opacity as a criterion bringing evidence that a given N does not occur as a syntactic argument of the verb, but forms a lexical unit with this verb. This is the most frequently satisfied criterion, because I consider any form whose base or whose incorporated element is unattested to be semantically opaque. Thus, all forms from the "DISC" and "INC+" categories are considered semantically opaque.

Few NI verbs with both N and V attested are semantically opaque. One of them is *tígaxe*, which literally means 'to make houses', and which is used to mean 'to play'. Dorsey (n.d.b) defines this verb as follows: "to make mud lodges, as Indian children do in sport; to play any game or sport, as children do". It contrasts with the semantically transparent construction involving *tí* as an object of the verb *gáxe*, which is attested several times in the texts, as illustrated in (681) through (683).

(681) *I^{n}sh'áge ak^{h}á ti gáxe tat^{h}e.*
old.man PX.SG house make IRR
The old man should make a house. (OLIT-UNL 2018: 537)

(682) *Little Warrior tí wí^n thé-shkaxe ta=í.*
L. W. house one A2.DAT-A2.make IRR=PP
Make a house for Little Warrior. (Dorsey 1891a: 104.16 / Tenuga-zi)

(683) a. *"K^{h}e, tí zhí^{n}ga gáxa=ga", a=biamá shínudó^n ak^{h}á.*
Come! house small make=IMP.M say=PP.REPORT dog PX.SG
The dog said, "Come, make a small lodge."

b. *Wa'ú akʰá (...) xáde tí gaxá-biamá.*
woman PX.SG grass house make=PP.REPORT
The woman (...) made a grass lodge. (Dorsey 1890: 169.12-3 / Joseph La Flesche)

8.2.7 Summary and discussion

Below is the list of formal features that bring formal evidence of N-V coalescence.

1. The incorporated element is a bound form
2. The N-V sequence is inflected on the left edge of N
3. The N-V sequence undergoes further derivation, with derivational prefixes on the left edge of N
4. The N semantically corresponds to the plural animate object of the V, and there is no prefix *wa-* O3PL
5. The person marker for P1PL is realized as *awa-* between N and V
6. The N-V sequence has only one (primary) accent
7. The N-V sequence shows word-specific accent movement
8. The final vowel of N drops
9. The N-V sequence is semantically opaque

These features show different kinds of coalescence; features 1, 2, 3, and 5 show that the N-V sequence behaves as a word morphologically. Features 6, 7, and 8 show phonological coalescence, and phonological wordhood. Features 4 and 9 suggest that the N-V sequence constitutes a single lexical unit, either because the N has lost its status of verb object (feature 4), or because the sequence is not semantically compositional (feature 9).

Research on wordhood and word creation in Umóⁿhoⁿ is not advanced enough for a distinction between N-V coalescence produced by compounding and N-V coalescence resulting from syntactic adjunction. All instances of nouns corresponding to a core argument of a verb which loses their word status and/or verb argument status are relevant to my research, because this results in a reduction of the verb valency. In view of these considerations, I use the term "nominal incorporation" rather broadly, as the result of both processes. In this respect, I deviate from Mithun's (1984) and Aikhenvald's (2007) definition of NI.

8.3 Morphosyntactic features of NI

In this section, I present morphological (§8.3.1) and syntactic (§8.3.2-§8.3.4) features of NI in Umóⁿhoⁿ. Whenever possible, I provide examples with verbs that show some formal evidence

of NI (which are in the "INC" category in the database), but verbs with no evidence of NI ('INC?' category) are also sporadically used. As previously stated, verbs categorized as "INC?" correspond to forms which present no formal evidence of NI other than being written as one word in the corpus; I entirely depend on Dorsey's analysis for considering them instances of NI.

8.3.1 Conjugation of incorporating verbs

A sample of attested and representative conjugated forms of NI verbs are presented in Tables 8.3 and 8.4 for A/P and A/D person markers, respectively. NI verbs and discontinuous stems share similar conjugation patterns, and conjugated forms of discontinuous stems are used here to fill the Table gaps.

Table 8.3: Conjugated incorporating verbs: A/P person markers

	P1SG	P1PL	P2	P3SG	O3PL
A1SG			*zhu-wí-gthe* *no^{n}b-ú-wi-bthó^n*	*mí^n-a-gthó^n* *wái^n-mí^n*	*gá-a-wa-ki'o^n* *zhu-á-wa-gthe*
A1PL			*zhu-ó^n-thi-gígthai*	*zhu-ó^n-gigthe* *ní-o^n-wo^n*	*zhu-ó^n-wo^n-gígthai*
A2	(not found)	(not found)		*mí^n-tha-gthó^n* *wái^n-zhí^n*	*zhú-wa-thá-gthai*
A3	*zhu-ó^n-gthe* *no^{n}b-ó^{n}wo^n-tho^{n}i*	*shiéwhide-áwa-go^{n}i*	*zhú-thi-gthe*	*ní-wo^n* *mí^n-gthó^n*	*zhó^n-wa-'ó^{n}h[ai]* *hú-wa-si* *wazhí^{n}ga Ø-kíde*

Table 8.4: Conjugated incorporating verbs: A/D person markers

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*ga-wí-'o^n*	*zhe-é-gtho^n*	*égo^n-e-wé-'o^n*
A1PL				*tó^{n}wo^n-í^n-gtho^n*	*ég-i^n-wi^n-'o^n*
A2	*gá-i^n-thé-'o^n* *égo^n-i^n-thé-'o^n*	(not found)		*ga-thé-'o^n*	(not found)
A3	*ed-í^n-gtho^{n}i*	(not found)	(not found)	*ga-gí-'o^n*	*ga-wé-'o^n*

NI verbs show the same conjugation patterns as their non-incorporating counterparts, except that person markers are inserted between the incorporated nominal and the incorporating verb[14]. We see that several conjugational paradigms are represented in the tables:

[14]The example of *tígaxe* 'to play', which indexes its subject on the left edge (§8.2.2), is exceptional and not taken into account here.

the glottal-stop athematic paradigm with *wái^n-mí^n* and *wái^n-zhí^n*, the *u-* oblique paradigm with *no^{n}b-ú-wi-bthó^n* and *no^{n}b-ó^{n}wo^n-tho^n=i*, and the regular A/P and A/D paradigms with the other verbs. We cannot define any accent rule, given the diversity of accentual patterns attested. Note the attested variation in the O3PL forms of the NI verbs in Table 8.3. The O3PL column is mostly filled with discontinuous stems, because NI verbs are generally intransitive. As discussed in §8.2.3, the absence of O3PL *wa-* in agreement with an animate plural incorporated nominal should be taken as evidence that the nominal is indeed incorporated (i.e., has lost its status of syntactic constituent). However, a couple of NI verbs still take O3PL *wa-* in agreement with their plural incorporated nominal, as *hú-wa-si*.

8.3.2 Nature of incorporated and incorporating elements

As mentioned in the introduction, I chose the term "nominal incorporation" rather than "noun incorporation" because not only nouns are incorporated. I briefly present here the nature of incorporated elements, and the verb classes of incorporating verbs. I take into account the 48 NI verbs classified as "INC?" and "INC" in my database.

Incorporated nominals. Out of 50 NI verbs[15], 41 incorporate nouns, that is, almost all of them. A few of them are nominalized verbs; for instance *tí* 'house, tepee' is nominalized from the verb "to pitch the tent; to reside" (cf. §2.4.8). Five NI verbs incorporate demonstrative pronouns and the pronoun *égo^n* 'thus', as in (684), which is also deverbal (derived from *égo^n* 'to be so').

(684) *K^{h}agé-ha, thí shti égo^n-i^n-thé-'o^n thó^{n}shti, á=biamá Ishtínik^{h}e ak^{h}á.*
friend-VOC you too thus-D1SG-A2-do heretofore say=PX.REPORT I. PX.SG
"My friend, you, too, have done a similar thing to me," said Ishtinik^{h}e. (Dorsey 1890: 97.20 / Frank La Flesche)

One NI verb incorporates *shó^n* 'enough', which is labeled as an adverb here, but which is in fact difficult to classify. It is often used as an interjection, meaning 'that's enough'. (See for instance the last sentence of Octa Keen's speech in App. D.2.) It is incorporated by *gáxe* 'to make {x}'. *Sho^{n}gáxe* means 'to stop {CL/NP}', and is discussed in §8.3.3.3.

Finally, three NI verbs involve incorporation of clauses (CL in the database), specifically clausal objects of the incorporating verb (cf. §2.5.5). These are borderline examples; two of them are classified as "INC?", and the last one is in fact a sequence of two stative verbs: *shiézhid_égo^n* 'to behave like a child', attested in Dorsey's dictionary. The bivalent stative verb *égo^n* 'to be like {x}' incorporates its object, *shiézhide* 'childish' as in (685b) below. Although it is classified as an intransitive stative verb, because it is a property word typically used predicatively, *shiézhide* is part of the subcategory of stative verbs which cannot take person

[15] I include here the 10 N-V sequences categorized "INC?", and the 40 N-V sequences categorized as "INC".

markers, and which encode their subject with a conjugated article[16]. Thus, ***shiézhide*** exhibits both verb features and noun features. Note that ***shiézhid_égo^n*** is attested with a ***awa-*** P1PL person marker (§8.2.3), establishing that ***shiézhide*** 'childish' forms one word with ***égo^n***.

The other two NI verbs with incorporated clauses are ***íu'o^{n}he_tó^n*** 'to have {x} put in the mouth' and ***tét^{h}i_gáxe*** 'to make {*animals*} approach (by calling)'. Each incorporated clause is written as one word and contains a noun stem and a verb stem. They are themselves included as NI verbs in the database.

Incorporating verbs. The incorporating verbs range from stative intransitive verbs (intr-s) through intransitive active (intr-a), bivalent stative (bi-s) and transitive verbs (tr) to ditransitive verbs (dtr). The majority of them are bivalent and trivalent verbs (41 verbs), and they incorporate (one of) their object(s)[17]. Eight NI verbs involve intransitive incorporating verbs, in which case the incorporated nominal represents diverse syntactic functions which will be discussed in §8.3.3.

Two incorporating "verbs" are in fact attested as adverbs in their non-incorporating forms: ***kihá*** 'down, downward' (DD) and ***mó^{n}gthe*** 'erect, upright'. The latter is translated "erect" in DT and as "upright; sitting or standing up, either slumped or erect" in Sanchez, Larson & Walker (in progress). Both of them are only attested in adverbial functions, but when they incorporate nouns they function as predicates; ***kihá*** is equivalent to a transitive verb meaning "to turn down {x}", and ***mó^{n}gthe*** functions as an intransitive stative verb "to be erect". They are classified as both verbs and adverbs in the database.

8.3.3 Syntactic functions incorporated

Most NI verbs incorporate core arguments of the base verb, always or almost always objects, in which case the NI decreases the verb valency[18] (§8.3.3.1). Object incorporation corresponds to the most frequent type of NI cross-linguistically. I have also found examples of incorporated possessed objects (§8.3.3.2), and a few dubious examples are presented in §8.3.3.3. They could correspond to the incorporation of adjuncts and verb modifiers.

8.3.3.1 Core arguments

The incorporated arguments can be base objects, applicative objects, and possibly subjects. Clausal complements can also be incorporated.

[16] As noted in §2.4, the "articles" are polyfunctional. Alongside their function of determiners, they act as relativizers, auxiliaries, copulas, and evidentials (although not all or them are attested in all functions). A subcategory of stative verbs need the article ***thí^n*** as an auxiliary in order to encode their subject. See §2.4.1 and §2.4.3, for a presentation of verbs and articles, respectively.

[17] There is one exception, ***sho^n_gáxe*** 'to stop ({*VP/NP*})', where I consider that the incorporated element serves as a modifier of the syntactic object. See §8.3.3.3.

[18] One possible exception to the incorporation of core arguments is ***waí^n_'í^n*** 'to wear {x} as a robe', which is discussed in §8.3.3.3.

Base objects. Most of the time, the incorporated nominal corresponds to the object, like *mí^n-* 'female' in *mí^n_gthó^n* 'to marry' (§8.3.4) and *mí^n_thigtho^n* 'to think of a women' (see also examples in Table 8.2).

The NI verb *tó^{n}wo^n_gígtho^n* 'to put {x} ahead of a nation', exemplified in (663c) on p. 431, has an applicative incorporating verb which is ditransitive. It is the base object, inanimate, which is incorporated, while the beneficiary retains its status of syntactic object. Thus, a ditransitive verb becomes monotransitive through NI.

The incorporated object can also correspond to the inanimate object of a bivalent stative verb, like *égo^n* 'to be like {x}'. This verb is typified in (685a), with its two arguments, by contrast with the NI verb *shiézhid_égo^n* 'to behave like a child' in (685b), which is an intransitive stative verb encoding its subject with P.

(685) a. {*Thé*} {*í^{n}ch^{h}o^n ubthá t^{h}e*} *égo^n=i=t^{h}e*
this now A1SG.tell COMP like.it=PP=EVID
[It is] just like I'm telling it now (Rudin et al. 1989-92: T6, TGSD / Mary Clay)

b. *áxto^n shiézhid-ó^n-go^n t-ádo^n?*
how.possible childish-P1SG-be.like IRR-therefore
Why should I behave like a child? (implying the impossibility of so doing) (Dorsey n.d.b)

Applicative objects. Several NI verbs incorporate oblique applicative objects expressing locations, instruments, and time information, as exemplified in (686) through (691). The first example illustrates the incorporation of the applicative object of *ágthi^n* 'to sit on {x}'. In this case, the NI verb **dudágthi^n* (the non-conjugated form is not attested) means 'to dwell on this side'.

(686) Incorporation of the applicative object: location introduced with *á-* 'on'

dúd-o^{n}g-á-gthi^n shó^{n}ge wi^n éthashni^n tha-t^{h}í,
this.side-A1PL-AP:SUPESS-sit horse one A2.BEN.have A2-arrive

When we dwelt on this side of (Omaha Creek?) you brought a horse to give to him. (Dorsey 1890: 659.7 / Mo^{n}ch^{h}ú-No^{n}ba)

In the other examples, the incorporating verbs are either not true instances of applicative derivations, or not attested as non-incorporating applicative verbs. The verb *ugthó^n* 'to put {x} inside {y}' in (687) is not a true instance of applicative derivation, as it is built on the bound root **gthó^n* for 'sitting position', which is also the incorporating stem of two verbs classified as "INC+"[19].

[19] These verbs are *ití_gtho^n* 'to carry {*food / cv. ob.*} in the blanket above the belt' and *zhé_gtho^n* 'to cook {x} by putting it on a fire; to bake {x}'. See also *wat^{h}ézugtho^n* 'to be pregnant (with {x}?)' commented on in §8.5.

(687) Incorporation of the applicative object: location introduced with *u-* 'inside'

Góⁿki tá hébe thizá-bi egóⁿ, i-ú-gthoⁿ-wá-kʰithá=biamá
and dried.meat piece take=PX as mouth-AP:in-put-O3PL-CAUS=PX.REPORT

Taking pieces of dried buffalo meat, the woman made them put them in their mouths (Dorsey 1890: 393.12 / Joseph La Flesche)

Example (688) illustrates the incorporation of an instrument, and this instrument corresponds to an applicative object because of the *í-* applicative prefix present on the incorporating base. However, *a_ígatha* 'to carry {x} on the arm' is classified as "INC+", because although one can retrieve the meaning 'to carry {x}' for the base **gatha*, this base is not attested alone.

(688) Incorporation of the applicative object: "instrument" introduced with *í-* 'with'

Néxe a-í-gatha moⁿthíⁿ=hnoⁿ=i.
kettle arm-AP:with-*carry walk=HAB=PX

She always walks with a kettle on her arm. (Dorsey 1890: 328.10 / Páthiⁿ-noⁿpázhi)

The applicative incorporating verbs in (689) and (690) are not attested outside these verbs, but their meaning is transparent and can be retrieved: *p'á* 'to be bitter' derived with *u-* becomes **up'á* 'to be bitter in {x}', and *moⁿ_thíⁿ* 'to walk' derived with *í-* becomes **ímoⁿthiⁿ* 'to walk during {*time*}'.

(689) Incorporation of the applicative object: location introduced with *u-* 'inside'

thatʰá=bi ki i-ú-p'a=biamá, chú=biamá.
eat=PX when mouth-AP:in-bitter=PX.REPORT spit=PX.REPORT

When he ate them they were bitter in the mouth, and he spit them out. (Dorsey 1890: 71.15 / Hupetha)

(690) Incorporation of the applicative object: time information

Hoⁿ-í-moⁿthiⁿ édi athá=biamá.
night-AP:?-walk there go=PL.REPORT

They went thither by night. (Dorsey 1890: 402.6 / Óⁿpʰoⁿ-Toⁿga)

In several incorporating verbs, the applicative prefix *í-* introduces an incorporated time or place word. This is unique within Umóⁿhoⁿ; such a meaning of the *í-* oblique prefix is only attested in NI verbs. The other examples are *oⁿb_ízhoⁿ* 'to lie by day' (incorporating *óⁿba* 'day') and *ped_íshkoⁿ* 'to move by the fire' (incorporating *péde* 'fire'). See §6.1.3.

Finally, the transitive verb *thité* 'to ford {*a stream*}' is attested with both the applicative prefix *á-* 'on' and the incorporated noun *ní* 'water', in (691). This results in the NI verb *ni_áthite(†)* 'to cross {*a river*} in a boat'.

(691) *Mo^{n}dé-ha o^n-gáxa=i* *égo^n,* {*Nishúde k^{h}e*} *ni-wó^{n}g-a-thíte*
boat-skin A1PL-make=PL as {Missouri HORIZ} water-A1PL-SUPESS-cross
o^{n}gá-gtha=i.
A1PL(1)-go.back=PL
We made skin-boats, and crossed the Missouri in them. (Dorsey 1890: 443.20-1 / Páthi^n-no^{n}pázhi)

At first, this verb seems to be a non-valency-reducing instance of NI. But in fact, *ní* 'water' can be interpreted as the applicative object of *á-* 'on', specifying the mode of crossing the river: while the base verb *thité* is attested in Dorsey's corpus as "to ford {x}", in (692), *niáthite* in (691) is glossed "we crossed by boat". I suggest interpreting (691) as "we above-water-crossed the Missouri River".

(692) {*Wach^{h}íshka zhí^{n}ga gáxa* *edí t^{h}e*} *o^{n}thítai ki, ...*
{river small going.aside there VERT} A1PL-ford when
When we forded the small stream which went aside from the creek, ... (Dorsey 1890: 441.5 / Páthi^n-no^{n}pázhi)

Clausal complements. There is one case of a N-V-V sequence, illustrated in (693). It represents a causative construction with *gáxe* 'to make', the first N-V corresponding to the caused event, which is generally a clausal complement (unless the causative construction is analyzed as a complex predicate, see discussion in §5.6), and the second V being the causative *gáxe*. The caused event, *té-t^{h}i*, is completely incorporated into the causative verb, written as one word with one accent, and in this context means 'animals come'. There is some degree of semantic opacity, since *té* here designates animals in general. (It normally means "buffalo".)

This sequence presents contradictory data concerning wordhood. On the one hand, it is written as a single word by Dorsey, and presents some degree of semantic opacity. This suggests that it is a NI verb. On the other hand, the causative verb *gáxe* takes an O3PL *wa-* prefix designating the animals (the causees), which suggests that *té* retains its status of syntactic object. The sequence *tét^{h}i gáxe* 'to make animals come (by calling)' is included in the database and is classified as "INC?". Note that the sequence *tét^{h}i* is probably itself a NI verb, as explained below.

(693) *té-t^{h}i-wa-shkáxe=hno^n* *amá.*
animals?-arrive-O3PL-A2.make=HAB EVID
You are used to calling the animals, they say. (Dorsey 1890: 80.3 / Frank La Flesche)

Intransitive subject? The example commented on above is included in Dorsey's dictionary as follows: *tét^{h}i gáxe* 'to call the animals, making them approach'. In this dictionary entry, *tét^{h}i* is presented as non-incorporated into the causative verb *gáxe*, and is nonetheless written as one word, with the same non-predictable meaning as in (693). As a consequence, *té* should be analyzed as an incorporated intransitive subject. This is the only such example found thus

far. Note, however, that among the "possessed objects" of §8.3.3.2, two could alternatively be analyzed as the subjects of the incorporating intransitive stative verbs.

8.3.3.2 Possessed objects

Sometimes, the incorporated noun corresponds to a possessed object and the possessor can be encoded as the verb object. This is exemplified in (694) and (695); while the former seems to be a regular case of object incorporation, the latter shows a P1SG patient indexed with the prefix *o^n-* on the verb.

(694) *No^{n}b-útho^n=biamá*
hand-hold=REPORT
They shook hands, they say. (Dorsey 1890: 349.9 / Ó^{n}p^{h}o^n-To^{n}ga)

(695) *No^{n}b-ó^{n}w{o^n}tho^n=i.*
hand-{P1SG.}hold=PL
They shook hands with me. (Dorsey 1890: 372.10 / Nudó^n-axa)

This is a common phenomenon, especially with body parts. Incorporated body parts with possessors realized as syntactic objects have been mentioned at least as far back as Sapir (1911: 279), and Mithun (1984) writes this is a common phenomenon. She cites examples that are apparently similar to Umó^{n}ho^n under her Type II of NI, defined as a construction that "advances an oblique argument into the case position vacated by the incorporated noun". She provides two examples of incorporated possessed objects in Blackfoot (Algonquian, spoken in Montana and Alberta). In each case, the possessor can be expressed as a peripheral argument (not indexed on the verb), or it can move to the direct object position vacated by the incorporated possessed object. The move to the direct object position is almost obligatory with body part incorporation, for pragmatic reasons (Mithun 1984: 858-9).

Umó^{n}ho^n is different from Blackfoot; the possessor is regularly encoded as the patient, whether or not the body part is incorporated. (696) shows the non-incorporated counterpart of *no^{n}b_útho^n* 'to shake hands with {x}'. Here *no^{n}bé t^{h}e* is a verb object and the possessor, once again a P1SG person, is indexed on the verb. Comparing (695) and (696), we see that *no^{n}bútho^n* illustrates a valency-reducing NI.

(696) {*No^{n}bé t^{h}e*} *o^{n}w{ó^n}tho^n=ga*
{hand the} {P1SG}.hold=IMP.M
Take hold of my hands. (Dorsey 1890: 97.15 / Frank La Flesche)

Notice that *no^{n}b_útho^n* 'to shake hands with {x}' has an idiomatic meaning, and denotes a "nameworthy, unitary activity" (Mithun 1984: 874), and a culturally relevant activity, while the non-NI counterpart *no^{n}bé t^{h}e uthó^n* has a compositional meaning.

The NI verb *ti_úpe* means literally "to enter a lodge", which is the first definition provided by Dorsey (n.d.b). However, in all attested examples with this verb, the lodge's owner is mentioned, and the verb means "to visit {*x*}" (DD, SE). Like *no^{n}b_útho^n*, the possessor can be indexed on the verb with a P indexation marker, or it can be expressed as an NP, as in (697).

(697) {*Ko^{n}há*} *ti-u<á>pe* *ki,* *i-ó^n-thishi.*
{grandmother} house-<A1SG>enter when <P1SG>feed
I went to visit Grandma and she fed me. (Saunsoci & Eschenberg 2016: 202 / Alice Saunsoci)

In (698) we see the non-incorporated version of *tiúpe*. As with *no^{n}bútho^n*, the non-incorporated version takes a literal compositional meaning, "to enter {*x's lodge*}", and not "to visit {*x*}". Here, both the possessor and the lodge are expressed as nouns. The possessor is the head of a relative clause.

(698) *ki* {*ní^{n}kagahi*} {*tí*} *upa=í* *ak^{h}á* *íe* *shtewó^n=bazhí=biamá.*
and {chief} {lodge} enter=PL PX.SG speak whatereve=px.neg=pl.report
The chief whose lodge they had entered did not speak at all. (Dorsey 1890: 393.9 / Joseph La Flesche)

The same phenomenon happens with stative intransitive verbs, always with inalienable possession; a body part or other physical or mental attribute is incorporated, and the possessor is the patientive subject of the verb. The only examples attested in textual corpora have idiomatic meaning and no non-incorporated counterpart. The verb *wazhí^n_ska* literally means "white temper", but is defined as "to be wise, prudent, in their right mind, clever" (DD, SE), and it is used by the speaker Mary Clay in (699) with the meaning "to be grown enough to have memories".

(699) *O^n-zhi^{n}ga* *wazhí^n-*{*o^n-*}*ská* *t^{h}edit^{h}o^n ní* *t^{h}e* *édi* *shó^{n}sho^n.*
P1SG-young temper-{P1SG-}white since water VERT there always
Ever since I can remember the water was always there. (Rudin et al. 1989-92: T14, OTP nº110 / Mary Clay)

Other verbs of this type are *wazhí^n_pí(b)azhi* 'to be in bad humor', *hu_wáthishna* 'to have the voice heard', and *pamó^{n}gthe* 'to bow; to have the head bowed'.

8.3.3.3 Other syntactic functions and dubious cases

Four NI verbs in the database do not correspond to the descriptions proposed thus far. Example (700) shows the apparent incorporation of an adjunct with a similative meaning, *mo^{n}ch^{h}ú_xáge* 'to cry like a Grizzly-Bear'. However, this N-V sequence is classified as "INC?" because I have found no evidence of NI besides Dorsey's choice of writing it as one word[20]. No other example of this kind has been found.

[20] In reality, *mo^{n}ch^{h}ú_xáge* is divided between two lines in Dorsey's original text: *Mo^{n}ch^{h}ú-* is at the end of line 15, and *xáge-hno^n* is at the beginning of line 16. We cannot know if he meant the two parts to be separated by a hyphen, or if the hyphen is due to the line break.

(700) Incorporation of an adjunct ?

Gó^n Mo^{n}ch^{h}ú-xáge=hno^n wénaxithá=biamá.
and Grizzly.Bear-cry=HAB O3PL.attack=PP.REPORT

Then, crying regularly like a Grizzly bear, she rushed on them. (Dorsey 1890: 288.15-6 / Nudó^n-axa)

There are two cases where I consider the incorporated element to act as a modifier of a verb argument. In such cases, NI does not decrease the verb valency, or not obligatorily at least. One example is *sho^n_gáxe* 'to stop ({*NPVP*})', which literally means "to make (it) enough". It is often used as an intransitive verb, although the thing being stopped is always understood from the context. In some instances, as in (701), the action stopped is expressed. The analysis of this verb as transitive or intransitive poses the same problem as the analysis of instrumental verbs *thashtó^n* 'stop talking, drinking, etc', *gashtó^n* 'to stop striking', and others (see p. 309). In this case, we can consider *shó^n* 'enough' as modifying the activity, and specifying that it is stopped. Both the base verb *gáxe* 'to make {x}' and *sho^n_gáxe* 'to stop ({*NPVP*})' can be used transitively. See another example of *sho^n_gáxe* in (155) p. 138.

(701) *sho^n-shkáxe ta=í á=biamá atha+++! wach^{h}ígaxe t^{h}e, á=biamá.*
enough-A2-make IRR=PL say=PL.REPORT indeed! dance VERT say=PL.REPORT
"You shall stop the dance," said the old man. (Dorsey 1890: 191.6 / Sho^{n}ge-ska)

Another incorporated noun which acts as a modifier is *wi^{n}dét^{h}o^n* 'half', which modifies the subject of the incorporating verb *hí* 'to arrive there'. The resulting NI verb is *wi^{n}dét^{h}o^n_hi* '{*half of x*} to have come'. It is attested only once in reference to the day, as seen in (702).

(702) *ó^{n}ba wi^{n}dét^{h}o^n-hi, mí^{n}thumó^{n}shi t^{h}édi o^n-nó^{n}shto^n=i,*
day half-arrive noon when A1PL-stop.walk=PL
u-wá-zhetha-xti=ó^n=i.
(1)-P1PL-tired(2)-INTENS=AUX=PL
When half of the day had gone, and it was noon, we stopped, as we were very tired. (Dorsey 1890: 440.5-6 / Páthi^n-no^{n}pázhi)

Finally, the last verb is *waí^n_'í^n* 'to wear {x} as a robe', in which *waí^n* 'robe' is incorporated into *'í^n* 'to wear {x}', illustrated in (703). Both the incorporated noun 'robe' and the syntactic object *ní^{n}ka-nazhíha* 'scalp' can be interpreted as patients, except that 'robe' is a general noun and 'scalp' specifies the material the robe is made of. This NI verb could be analyzed as one instance of Mithun's Type II of NI, with a new object introduced in the vacated object position. This would be the only instance of this type of NI in Umó^{n}ho^n. In any case, 'robe' and 'scalp' do not have the same semantic relation to the verb 'wear'. I can see two possible semantic analyses of (703), which are presented in (704); either the incorporated noun is the semantic patient, and 'scalp' acts as a kind of non-incorporated modifier (the interpretation favored by Dorsey's translation), or the incorporated noun moves from patient to "adjunct-like", specifying how the scalp is worn.

Table 8.5: Conjugated forms of *míⁿgthóⁿ* and *gthóⁿ*

míⁿgthóⁿ		*gthóⁿ*			
A1SG	*míⁿagthoⁿ* (262.2), *miⁿágthoⁿ* (626.2)	A1SG	*agthóⁿ* (92.16)	P1SG	*oⁿgthóⁿ* (171.8)
A1PL	–	A1PL	–	P1PL	–
A2	*míⁿ-thagthoⁿ* (200.11)	A2	*thagthóⁿ* (DD)	P2	*thigthóⁿ* (171.10)
A3	*míⁿgthóⁿ*, *míⁿ_gthoⁿ*	A3	*gthóⁿ*	O3PL	*wagthóⁿ* (148.12)
		A1SG/P2	*wigthóⁿ* (125.12)		

(703) {*níⁿka-nazhíha*} *wáiⁿ-míⁿ* *au*
{person-hair} robe-A1SG.wear DECL?
I will wear a robe made of scalps. (Dorsey 1890: 176.12 / Joseph La Flesche)

(704) Possible semantic analyses of (703)

a. Incorporated noun: patient; syntactic object: modifier
→ I will wear a robe made of scalps (Dorsey's translation)

b. Incorporated noun: adjunct-like; syntactic object: patient
→ I will wear scalps as a robe (alternative translation)

8.3.4 Case study: *gthóⁿ* vs. *míⁿgthóⁿ*

The NI verb *míⁿ_gthóⁿ* 'to take a wife, to marry' is the only one in Umóⁿhoⁿ which regularly alternates with an equivalent syntactic construction. *Míⁿ_gthóⁿ* incorporates *míⁿ-* 'female' as an object. It contrasts with the transitive verb *gthóⁿ* 'to marry {*a woman*}'. Both verbs designate the marriage of a man (argument A) to a woman (argument P)[21].

A search of Dorsey's texts (1890, 1891a) finds 67 occurrences of *gthóⁿ* and *miⁿgthóⁿ*: 44 of *gthóⁿ* 'to marry {x}'[22] and 23 of *míⁿ_gthóⁿ* 'to take a wife', 'to marry'. Additionally, three occurrences have been found with the reflexive marker, which will not be discussed here (but see §4.7 and App. C.3): one of *kigthóⁿ*, meaning in context 'to marry one another's sisters', and two of *kigthóⁿ_kʰithe* 'to make {x} marry one another'. All occurrences are reported in Appendix C.3, and all attested conjugated forms are shown in Table 8.5.

Analysis of the uses of the occurrences shows a clear tendency for the incorporating verb to designate the state of being married or the act of marrying in itself, with an unspecified

[21] The marriage of a woman (argument A) to a man (argument P) is expressed by the verb *áthixe* 'to marry {*a man*}'.

[22] I include as *gthóⁿ* one occurrence of *wagthóⁿ* with a singular object overtly expressed as an NP: *Wáxe-hébe akʰá póⁿka wa'ú wagthóⁿi* 'A half-caste married a Ponka woman' (see (865) in Appendix C.3). The function of *wa-* in this context is not understood to date. See Chapter 7.

object. Conversely, the transitive verb *gthó^n* is typically used with definite objects. This contrast is illustrated in (705) and (706) below.

(705) *ní^{n}kagahi i-zhí^{n}ge ak^{h}á thi-zhó^{n}ge gthó^n gó^{n}tha=i, á=biamá.*
Chief POSS:3-son PX.SG POSS:2-daughter marry want=PX say=PL.REPORT
"The chief's son wishes to marry your daughter," said they. (Dorsey 1890: 200.15 / Sho^{n}ge-ska)

(706) *Níashi^{n}ga mí^n-gthó^n amá wó^{n}githe té wa-k^{h}ída=biamá.*
person female-marry PX.PL all buffalo O3PL-shoot=PL.REPORT
All of the persons who had taken wives shot at them [the buffalos]. (Dorsey 1890: 86.15 / Nudó^n-axa)

Table 8.6: Object properties of incorporating vs. non-incorporating *gthó^n*

	gthó^n	*mí^n_gtho^n*
Formal marking		
with overt object	35	2
with marker for definiteness	(27)	
with indefinite *wí^n* 'one'	(4)	(1)
bare noun	(4)	(1)
without overt object	9	21
TOTAL	**44**	**23**
Reference		
nonspecific / generic	1	21
a specific object is recoverable		(8)
indefinite	6	2
definite	37	0
TOTAL	**44**	**23**

Table 8.6 shows the object properties (when there is an object) of *gthó^n* and *mí^n_gtho^n*. Object properties are categorized by their formal marking and by their referential status. On the formal side, Table 8.6 shows if an object is overtly expressed or not. Overt objects can be NPs or personal marking for P on the verb. "Markers of definiteness" include the articles, the alienable possessive *wiwíta* 'my', the inalienable possessive *thi-* 'your', the demonstrative pronoun *é* 'that' (which stand for an NP), and personal markers on the verb.

The precise characteristics found for each verb are detailed below.

8.3.4.1 *Mí^{n}gthó^n*

There are 23 occurrences of *mí^n_gthó^n* in Dorsey's texts, which are consistently glossed and translated by Dorsey as "to marry" or "to take wife". Twenty-one of them are used without

any object. Example (706) above shows a typical case where the focus is on a social status, "being married", and not on the woman married. Below are comments on three types of particular examples.

In one tale, exemplified in (707), *mí^{n}gthó^n* seems to refer to the act of marrying. It is translated as a noun by Dorsey ("marriage-feast"). As seen in §2.4.8, the noun-verb distinction is tricky in Umó^{n}ho^n. *Mí^{n}gthó^n t^{h}e* could be interpreted either as a verb in a completive clause ('his marrying', 'that he married'), or as a noun ('the marriage'). In the examples from this tale, however, *mí^{n}gthó^n* is followed by *t^{h}ego^n* 'in order that', which makes the nominal interpretation impossible[23]. It seems that *mí^{n}gthó^n* has never lexicalized as a noun; at least, it is not found as such in any text I have checked.

(707) *Mí^n-gthó^n* *t^{h}égo^n* *úho^n=i* *t^{h}e* *ús'u* *wí^n* *thahé*
female-marry in.order.that ANTIP.cook=PL RELAT piece one carry.in.mouth
gí=ga, *á=biamá.*
come.back=IMP.M say=PL.REPORT
Bring back in your mouth a slice of the meat that is cooked for the marriage-feast. (Dorsey 1890: 125.6 / Joseph La Flesche)

In eight cases, a specific referent is available in the context around *mí^n_gtho^n*, which could be analyzed as the object of the verb. However, considering what has been described so far, and the translations chosen by Dorsey, it is highly unlikely that such referents are object arguments of *mí^n_gtho^n*. In (708), we have one sentence with *gthó^n* and its overtly expressed definite object. This sentence is immediately followed by another one with *mí^{n}gthó^n*. In such case, *mí^{n}gthó^n* is focused on the status of being married. Interestingly, the second sentence is absent from Dorsey's free translation.

(708) a. *... zhi^{n}gá thi^{n}k^{h}é* *gthó^n=biamá.*
small OBV.SIT.SG marry=PX.REPORT

b. *Gó^n gthi^n=biamá,* *mí^n-gtho^n=bi* *egó^n.*
and sit=PX.REPORT female-marry=PX as
...he married the younger daughter of the chief, making his abode in the chief's lodge. (Dorsey 1890: 591.15 / George Miller)
Literally: He married the young one. And he sat (=dwelt), having married.

In two instances, *mí^{n}gthó^n* is used transitively, with an overt indefinite object. One of these examples is reproduced in (709). No note at the end of the text or in the appendices explains such a construction. Both are produced by the same speaker, Joseph La Flesche, but he also produced eight sentences with *mí^{n}gthó^n* used intransitively. These sentences stand as exceptions for which I have no explanation at the present.

[23] Rudin (p.c.) suggests that *t^{h}ego^n* could act both as a complementizer and as a postposition, like *for* in English, making it hard to distinguish between nouns and verbs. Almost all the examples of *t^{h}ego^n* I have checked, however, follow conjugated verbs. Example (707) is the only one found thus far where *t^{h}ego^n* could be analyzed as a postposition.

(709) *shó^n níashi^{n}ga wí^n wa'ú wí^n mí^n-gthó^n ki,...*
and person one woman one female-marry when
A man took a wife and had one child. (Dorsey 1890: 384.1 / Joseph La Flesche)
(Introductory clause for a new story.)

8.3.4.2 *Gthó^n*

The transitive verb *gthó^n* 'to marry {*a woman*}' is used more often than its incorporating counterpart; there are 44 occurrences of it in Dorsey's texts. In all occurrences but two, the object is specific. In 40 cases, it is definite. In nine cases, the object is not explicitly expressed in the same clause as the verb, but it is nonetheless definite (and often introduced in the preceding clause). Examples (710) and (711) show constructions with a 2nd person object indexed on the verb and a definite object not explicit, respectively.

(710) *Gó^n nú thi^{n}k^{h}é thi-gthó^n tat^{h}é, á=biamá.*
and man OBV.SIT.SG P2-marry IRR say=PL.REPORT
The man shall surely marry you. (Dorsey 1890: 171.10 / Joseph La Flesche)

(711) *Ahní^n tha-gthí ki tha-gthó^n tat^{h}é, á=biamá.*
A2.have A2-arrive.back when A2-marry IRR say=PL.REPORT
"If you bring him back, you shall marry her," said he. (Dorsey 1890: 346.15 / Ó^{n}p^{h}o^n-To^{n}ga)

In four instances, the object is indefinite but still specific (referential). In these cases, the object is expressed by an NP whose core noun is modified by a stative verb, as in (712).

(712) *Sam ak^{h}á wa'ú wi^n údo^n-xti gthó^n=i.*
Sam PX.SG woman one good-INTENS marry=PX
Sam has married a fine woman. (Dorsey 1891a: 91.4 / Mo^{n}shu-nita)

Finally, we find in (713) and (714), from the same story, the transitive verb *gthó^n* combined with nonspecific objects expressed by the bare noun *wa'ú* 'woman'. As the objects are nonspecific, we could expect the expression *mí^{n}gthó^n* to be preferred over *wa'ú gthó^n*. However, in both cases the choice of the transitive construction with bare objects can be explained by the anaphoric reference to the object found in the following clause. Example (713a) introduces the fact that Ishibazhi marries. It is followed by a clause informing us that Ishibazhi does not sleep with his wife, and the wife becomes definite. Thus, it is necessary for the speaker to introduce *wa'ú* as an object in (713a) in order to refer back to it anaphorically.

(713) a. *égithe wa'ú gthó^n=biamá íshibázhi ak^{h}á.*
finally woman marry-PX.REPORT Ishibazhi PX.SG
At length Ishibazhi took a woman.

b. *gthó^n=bi* *ki,* *Íshibázhi* *ak^{h}á* *wa'ú* *thi^{n}k^{h}é* *zhó^n'o^{n}ha=bázhi=hno^n*
marry=PX when I. PX.SG woman OBV.SIT.SG lay.on=PX.NEG=HAB
sho^{n}shó^n=biamá.
continually=PX.REPORT
When he married her, Ishibazhi never lay with the woman. (Dorsey 1890: 387.16-7 / Joseph La Flesche)

Shortly after the sentences in (713), Ishibazhi's father speaks to him, making a general statement about married men and women, in (714). Here, the object *wa'ú*, although non-referential, is necessary because it is also the object of the verb in the following clause. Thus, (714) illustrates a syntactic constraint that prevents the incorporation of the non-referential object.

(714) *Nisí-ha,* *wa'ú* *wa-gthó^n* *ki,* *zhó^n-wa-'ó^{n}he=hnó^n=i ha.*
child-VOC woman O3PL-marry when lie-O3PL-lay=HAB=PL DECL.M
"My child, when they marry women, they usually lie with them.(...)" (Dorsey 1890: 387.19 / Joseph La Flesche)

8.3.5 Summary

NI verbs conjugate like their non-incorporating counterparts, except that the incorporated nominal is on the left edge of the person markers. One consequence of this is the realization of P1PL as *awa-* rather than *wa-* (see §8.3.1). No accentuation rule can be drawn from the data, since NI verbs display several distinct accentual patterns, as seen in §8.2. The incorporated element is most often a noun, but we also find instances where pronouns and clauses are incorporated, i.e., they behave as one word with the incorporating verb, and they correspond to the verb's object (§8.3.2).

Usually, the incorporated element is the object, or one of the objects. Applicative objects can be incorporated. We see in the contrast between *gthó^n* and *mí^{n}gthó^n* (§8.3.4) that the NI verb designates a socially relevant state, and is used when the object is not specific or not important. (Sometimes there is a recoverable object in the context.) Conversely, the non-incorporating verb *gthó^n* is used to designate the act of marrying a particular woman.

Other pairs of N-V sequences are attested both as NI verbs and as non-incorporating verbs and their objects. The four contrasts found thus far are shown in Table 8.7. It can be said, following Mithun (1984: 874), that NI occurs to denote "nameworthy, unitary activities" (and also culturally relevant activities), where the N-V can acquire a meaning slightly different (or more specific) than the purely compositional meaning. The contrast between *hu_gási* and *gasí* is peculiar, because the NI has become the default form. In his dictionary, Dorsey specifies that *gasí* is "never used alone". I think this means that this non-incorporated form is only used with specific and modified objects. Dorsey provides three similar examples, one of which

Table 8.7: Contrast between NI verbs and non-incorporating counterparts

NI verb	Object + Verb equivalent	Reference
mí^n_gthó^n	*thizhó^{n}ge gthó^n go^{n}thai*	
'to marry'	'he wants to marry your daughter'	(705)
no^{n}b_útho^n	*no^{n}bé t^{h}e o^{n}wó^{n}tho^n-ga*	
'to shake hands with {x}'	'take hold of my hand'	(696)
ti_úpe	*ní^{n}kagahi tí upaí ak^{h}a*	
'to visit {x}'	'the chief whose lodge they had entered'	(698)
tígaxe	*K^{h}e, tí zhí^{n}ga gáxa-ga*	
'to play'	'Come, make a small lodge.'	(683)
hú_gasi	*Hu níwo^n thi^n ási*	
'to fish'	'I fish for the fish as he swims towards me'	DD

is reproduced in Table 8.7. *Húgasi* is also specific in another way: it is one of the few examples surveyed where the incorporated object is still encoded with *wa-* when it is plural.

8.4 Bare nouns

8.4.1 Absence of determiner as a grammatically determined feature

Bare nouns are frequent in Umó^{n}ho^n, which is rather logical since the articles presented in §2.4.3 are all definite. There are no neutral indefinite determiners, but only quantifiers: *wí^n* 'one', *dúba* 'some, four', and *áhigi* 'much, many', for instance. As a result, plural indefinite referents and nonspecific referents are usually expressed by NPs without any determiner. I use the label "bare noun" in reference to any noun which is used alone, without any determiner or modifier[24].

The verb *athí^n* 'to have {x}' is often used with indefinite objects, usually expressed by bare nouns, as in (715) and (716). Determiners are also absent on the head nouns of relative clauses, as described in §2.5.4. This is not surprising, since several studies have established that internally-headed relative clauses always have indefinite heads.

(715) Bare noun for an indefinite plural object

shó^n shó^{n}ge wáthi^n=nó^n=bi thó^{n}zha, no^{n}péhi^n t'a=í égo^n
and horse O3PL-have=HAB=PL although hungry die=PL as

[24]Noun modifiers can be used to identify a precise referent, whereas in investigating the boundary between bare nouns and NI, I am looking for nouns with non-referential or generic reference. Moreover, the boundary between a modifier and a determiner is not clear-cut in Umó^{n}ho^n (e.g., *ázhi* 'different' seems to function as a determiner in *shó^{n}ge ubáh-adi ázhi* (horse side-LOC different) '(an)other horse(s) beside [the horses that I already have]' (Dorsey 1890: 645.1 / Maxpíya-xága). See also (718).

wégthi^{n}wi^n=nó^n=biamá.
O3PL.sell=HAB=PL.REPORT

And although they usually have horses, it is said that as they are dying from hunger they are selling them. (Dorsey 1890: 676.3-4 / Duba-mo^{n}thi^n)

(716) Bare noun for an indefinite inanimate object

Umó^{n}ho^n-hébe am-éde gí amá; niníba athí^n kíbaxtha agí amá;
Umó^{n}ho^n-part PX.PL-but come.back px.mov pipe have face.to.face come.back EVID

A half Omaha was coming back to us, forcing his way through the ranks of the combatants, and bringing a pipe. (Dorsey 1890: 399.14-400.1 / Ó^{n}p^{h}o^n-To^{n}ga)

The bivalent stative verb *thi^{n}ge* is almost always used with the meaning 'to lack {x}; not to have {x}', in which case it always takes a nonspecific object. Accordingly, the objects of this verb are bare nouns, as can be seen throughout this dissertation[25]. The object noun is sometimes followed by *shte* or *shtéwo^n* acting as a determiner, and meaning 'not any'; 'not even'; 'at all ' in this context. Examples (717) and (718) illustrate the verb *thi^{n}ge* used with *nié* 'pain' as an object, as a BN in (717), and determined by *shtewó^n* in (718). Interestingly, the bare noun seems to be used in a sort of idiom *nié thi^{n}gé*, meaning 'to be well', while *niyé* metaphorically designates the sickness when it is followed by *shtéwo^n*, and Dorsey keeps the literal translation "there is no pain" (i.e., no sickness).

(717) Bare noun for an nonspecific object

Thi-kó^n shti thi-tígo^n edábe nié thi^{n}gé ki, a-wá-no^n'o^n
POSS:2-grandmother also POSS:2-grandfather also pain lack if A1SG-O3PL-hear
kó^{n}btha.
A1SG.wish

I wish to hear whether your grandparents are well. (Dorsey 1890: 698.13 / To^{n}ga-gaxe)

(718) *Ádo^n í^{n}t^{h}o^n t^{h}e nié shtewó^n thi^{n}gé wa'ú shti ázhi abthí^n.*
therefore now VERT pain whatever lack woman again different A1SG.have

Therefore, now, that there is no sickness (here), I have another wife. (Dorsey 1891a: 92.10 / Masho^n-ska)

We also find bare nouns as verb subjects, as in (719).

(719) Bare noun for indefinite subjects[26]

[25] *Thi^{n}ge* sometimes means 'not to have {x} any more', in which case the object is specific and definite, and is not a BN.

[26] This example is from the first few sentences of a tale. *Níashi^{n}ga* 'persons' refers to people of the tribe and their enemies, and is translated "they" by Dorsey. The precise referential status of this word is in fact not easy to establish.

Níashi^{n}ga *ákikithaí* *t^{h}edí-hi* *ki, ...*
person RECP.fight there-arrive when

When they attack one another, ... (Dorsey 1890: 372.6 / Nudó^n-axa)

The examples in (715) through (719) illustrate that as there is no default determiner for indefinite and nonspecific reference, NPs having these referential statuses are often bare nouns. In such cases, bare nouns do not instantiate the speaker's choice of expressing a particular bond between the verb and its argument[27].

Because the absence of a determiner is the default form for some kinds of reference or in some syntactic constructions, we cannot use it as a marker of incorporation. In other words, we cannot recognize the instances of bare nouns in Umó^{n}ho^n as equivalent to "composition by juxtaposition" constructions described by Mithun (1984) in Type I of NI.

8.4.2 Absence of determiner in an information-structural variation

In some cases the determiner is dropped in definite referential expressions, so the examples provided in §8.4.1 do not cover all uses of bare nouns. Gordon (2016) views determiner drop in different Siouan languages as an information-structural variation, and concludes that "the majority of bare nominal expressions have referents which are either nonspecific or recoverable" (p.404), and that in a subgroup including Umó^{n}ho^n we sometimes find specific indefinite referents without determiner[28]. "RECOVERABLE" means that the referent is either at the center of attention, or that it can be inferred by logic or from other entities previously evoked[29]. Nonspecific bare nouns have already been introduced in the previous section. Recoverable referents, on the other hand, not only are referential, but they all have the cognitive status of "uniquely identifiable" in Gundel et al.'s (1993) Givenness Hierarchy.

Recoverable referents expressed by BN can be persons or objects not previously mentioned, but directly identifiable through kinship relations or possessions. Kinship terms are regularly used without determiners, as in (720), which is the first sentence of a tale. Kinship terms are also very frequently used with articles, and so are proper names, such as *Wahó^{n}thishige*. So, it is not the case that all recoverable referents are used without determiners.

[27] As previously said, some determiners are available: quantifiers for indefinite reference, and *shtewó^n* for nonspecific reference. However, there are no default, unmarked determiners available, such as *un* ('a') or *des* (indefinite plural) in French.

[28] Gordon (2016) divides Siouan languages into two groups: those which have two indefinite articles, and those which have one or no indefinite articles. Umó^{n}ho^n belongs to the latter group.

[29] Gordon specifies that "recoverable" comprehends the cognitive statuses "in focus" and "inferrable" in Gundel et al. (1993). The status "inferrable" is originally from Prince (1981). In fact, the few examples of BNs at the center of attention rather seem to correspond to the 'familiar' or 'activated' cognitive statuses of Gundel et al. (1993).

(720) *Wahó^{n}thishige* (*ak^{h}á*) *i-kó^n* *zhú-gi-gthe* (*ak^{h}áma.*)
W. PX.SG POSS:3-grandmother (1)-POSS-be.with(2) EVID
Wahó^{n}thishige lived with his grandmother.[30] (Dorsey 1890: 107.1 / Mary La Flesche)

Possessed inanimate objects and possessed animals are also found as BN, as in (721). In this case, unlike kinship terms and proper nouns, the BN expression seems very frequent, if not the default expression. The expression of possession between the subject and the object is expressed by the possessive marker *gi-* on the verb, which makes the object identifiable even if it was not previously mentioned, which is the case in (721). See other examples in (489) p. 324 and (469) p. 317.

(721) *Xthí=azhi mó^{n}de g-thíza=i=ga.*
noiseless bow POSS-take=PL=IMP.M
"Seize your bows in silence." (Dorsey 1890: 359.4-5 / Frank La Flesche)

Example (722) shows coordinated BNs for possessed objects. The possession is not encoded on the verb this time, because it is the maleficiary, and not the agent, who is the possessor. The fact that BNs are coordinated here provides further evidence that the absence of determiner is not to be systematically associated with NI; they keep their status of verb argument.

(722) Bare nouns as coordinated definite/recoverable objects

shó^n shó^{n}ge, tíha, wathát^{h}e gthúba-xti, we-náshe 'i^n agí=biamá.
and horse tent.side food all-INTENS D3PL-*take.from carry come.back=PL.REPORT

The Omahas captured all the horses, tent-skins, and food, which they brought home. (Dorsey 1890: 403.14 / Ó^{n}p^{h}o^n-To^{n}ga)

Gordon (2016) includes among "recoverable" arguments those whose referents are at the center of attention, although she does not cite any Umó^{n}ho^n example involving a BN at the center of attention. I have found a few examples in Dorsey's texts, but this seems very infrequent. An example is found in the tale called "The Coyote and the Gray Fox". The Gray Fox plays a trick on the Coyote, who gets caught by humans. The Coyote manages to come back alive, and attacks the Gray Fox, as seen in (723). *Tíkaxude* 'Gray Fox' is the BN object of *iénaxíthe* 'to attack {x}', but it is obviously definite, and a familiar referent of this tale, although it was not mentioned in the previous sentences[31].

(723) Animate object at the center of attention as BN

ki nó^{n}ge agthá=biamá Míkasi ak^{h}á. Tíkaxúde iénaxíthe agthá=biamá.
and run go.back=PX.REPORT Coyote PX.SG Gray.Fox attack go.back=PX.REPORT

[30] This sentence is modified following Dorsey's note in Appendix, p. 531. The two words added are in parentheses.

[31] Note that although the Coyote and the Gray Fox act as proper names, they are often followed by article, including in the tale sentence (723) is extracted from.

(But the Coyote managed to get loose, and) he ran homeward. He went back to attack the Gray Fox. (Dorsey 1890: 570.14 / One Horn)

The noun *níkashi^{n}ga* or *níashi^{n}ga* 'person' is regularly found as a BN in subject position, as in (719) above, or in object position, as in (724). As this noun in itself is very generic, it is not clear what its referential status in sentences is; even when it is used in contexts where a referent is recoverable, I wonder if the choice of the BN *níkashi^{n}ga* / *níashi^{n}ga* could be a way to lower the definiteness of the verb argument.

(724) *Gá ak^{h}á nikashi^{n}ga ak^{h}á nikashi^{n}ga wé-k^{h}u=no^n=i.*
that PX.SG person PX.SG person D3PL-invite=HAB=PX
That person invited them. (Rudin et al. 1989-92: T.14, OTP n°31 / Mary Clay)

8.4.3 Bare nouns losing their syntactic status

Among the many instances where verb objects are expressed as bare nouns, we find examples of nonspecific plural animate BNs which seem to have lost their syntactic status. We know this from the absence of the expected *wa-* O3PL on the verb, while it would be expected (feature 4 of formal evidence in §8.2). All the examples found are reproduced below. This is the kind of evidence that can only be found for third plural animate objects. Bare nouns which display non-argumenthood, for semantic or grammatical reasons, can be considered cases of noun incorporation by juxtaposition. I avoid calling them instances of "noun stripping" because, as previously said, the noun being bare is not in itself evidence of noun incorporation.

Note that the item *té uné* 'go on buffalo hunt', one example of which is reproduced in (725), is attested each time with an obviative form on the verb (*uné* rather than *unái*). The transitive counterpart of this item (with O3PL marking on the verb) is not attested.

(725) *té uné* 'go on buffalo hunt' (4 occurrences in DT)

Umó^{n}ho^n té uné amá k^{h}í ki, a-nó^n'o^n kó^{n}btha.
Umó^{n}ho^n buffalo seek PX.PL arrive.back when A1SG-hear A1SG.wish

I wish to hear when the Omahas who went on the buffalo hunt reach home. (Dorsey 1890: 635.9 / Hexaga-sabe)

(726) *táxti ábae* 'to hunt deer' (1 occurrence in SE)

Niáshi^{n}ga-azhi táxti ábai athí, ó^{n}pho^n tó^{n}ga mo^{n}zhó^n tho^n-ta tí k^{h}e-di
person-other(?) deer hunt go elk big land RND-ALL lodge HORIZ-LOC
wamó^{n}he=no^n.
stay=HAB

There are men here hunting deer, they board at the cabins at Big Elk Park. (Saunsoci & Eschenberg 2016: 121 / Alice Saunsoci)

(727) *wazhí^{n}ga kíde* 'to shoot at birds' (1 occurrence in DT)

Wazhí^{n}ga kíde ahí=hnó^n=biamá.
bird shoot arrive=HAB=PX.REPORT

They used to go to shoot at birds. (Dorsey 1890: 210.12 / Páthi^n-no^{n}pázhi)

(728) *ní^{n}kashi^{n}ga t'éthe* 'slayer of Indians' (1 occurrence in DT, converted noun)

Itígo^{n}thaí bthída=mazhi. Ní^{n}kashí^{n}ga t'é-the bthíde.
president A1SG.call=1SG.NEG person die-CAUS A1SG.call

I do not mention the President by that name; I call him the "Slayer of Indians"! (Dorsey 1891a: 23.5-6 / Te-úko^{n}ha)

These sequences are probably the result of syntactic fixation of a nonspecific BN, rather than morphological compounding. It is not even sure that they are lexicalized (i.e., generally admitted by speakers to form a lexical unit). They were included as cases of NI in the database, however, because the resulting N-V sequence acts as an intransitive complex predicate. As seen in §8.2.7, the N-V sequences that are classified as "INC" in the database are not necessarily created by compounding; at the point of research and with the documentation available, the two processes are not systematically distinguishable.

8.4.4 From definite syntactic object to NI by juxtaposition

To summarize this section, we see that object NPs written separately from the verb can lie on a continuum ranging from highly individuated syntactic objects to BNs which have lost their syntactic status, as shown in §8.4.3.

Example (729) illustrates a sentence with the verb *gthó^n* 'to marry {x}' and a highly individuated object, "the chief's daughter". The curly brackets delimit the object NP.

(729) *"ébe t'é-the thi^{n}k^{h}é {i-zhó^{n}ge thi^{n}k^{h}é} gthó^n te," á-biamá.*
who die-CAUS OBV.SIT.SG {POSS:3-daughter OBV.SIT.SG} marry IRR say=PL.REPORT
"whoever kills the bird can marry the chief's daughter." (587.5)

As shown in §8.4.1, bare nouns are often used by default in reference to indefinite or nonspecific objects, as in (715), repeated below.

(730) *shó^n {shó^{n}ge} wáthi^n=nó^n=bi thó^{n}zha, no^{n}péhi^n t'a=í égo^n*
and {horse} O3PL-have=HAB=PL although hungry die=PL as
wégthi^{n}wi^n=nó^n=biamá.
O3PL.sell=HAB=PL.REPORT
And although they usually have horses, it is said that as they are dying from hunger they are selling them. (Dorsey 1890: 676.3-4 / Duba-mo^{n}thi^n)

Sometimes, however, we see that nonspecific, animate and plural bare nouns do not trigger the realization of *wa-* O3PL on the verb, as shown in §8.4.2. In accordance with criterion 4 (§8.2.3), I assume this shows that the object has lost its syntactic status, and that this is a case of "NI by juxtaposition". This is illustrated in (731) for *té uné* 'to hunt buffalo'.

(731) *Gáxtho^n atha=í t^{h}e ha té uné.*
on.hunt go=PL EVID DECL.M buffalo seek
They migrated, and went on the buffalo hunt. (Dorsey 1890: 399.1 / Ó^{n}p^{h}o^n-To^{n}ga)

In §8.4.2 I provided examples of recoverable entities expressed as BNs, including highly individuated participants. This does not seem to be linked to the process of NI in Umó^{n}ho^n since, as shown throughout §8.3, Umó^{n}ho^n verbs typically incorporate nonspecific objects in reference to habitual and/or socially recognized activities such as "to marry", "to shake hands", "to fish", etc. (see Table 8.7). It is interesting to note that the absence of a determiner is found for nonspecific objects on the one hand, and for very specific objects at the center of the attention on the other hand. These are the same contexts as those for object omission in French exemplified in Chapter 1, in (11).

8.5 Possible NI relics

While a thorough historical study of NI is beyond the scope of this dissertation, some synchronic data seem to reveal the historical evolution of old NI verbs into opaque discontinuous stems. Three discontinuous stems present unexpected morphological behavior, which can be interpreted as relics of old incorporation processes and/or ongoing categorial changes.

The verb *wat^{h}ézugtho^n* 'to be pregnant (with {x}?)' is classified as a discontinuous stem because it is attested as such in Dorsey's works, as illustrated in (732a) and (732b). Dorsey presents it as an intransitive active verb in his dictionary, but it is used once as a transitive verb in his collection of texts. Interestingly, the person marker is not inserted at the same place in each case. In Dorsey's documentation, though there is no historical reconstruction available to support this analysis (nothing in Carter et al. 2006), it is possible to interpret it as an old instance of NI, where the incorporated element, *wát^{h}e-* or *wat^{h}ézu-*, would stand for the baby or fetus. Note that the root **gthó^n* is often attested in verbs of carrying or putting, specifically with curvilinear objects[32]. In Saunsoci & Eschenberg (2016), however, this verb is presented as an intransitive stative verb "to be pregnant". In this case, the possible original

[32] A few verbs are: (1) *ití_gtho^n* 'to carry {food / curvilinear ob.} in the blanket above the belt' (n°55 in App. E.6); (2) *zhé_gtho^n* 'to cook {x} by putting it on the fire; to bake {x}' (n°70 in App. E.6); (3) *tó^{n}wo^n_gígtho^n* 'to make a village for {x}, who is going to rule' (= to put {x} ahead of a nation; n°9 in App. E.6); (4) *ugthó^n* 'to put {x} into {y}'. In his dictionary, Dorsey defines three of these verbs as restricted to curvilinear objects (often food): (1) "to carry food, or a cv. ob., in his blanket above the belt"; (2) "to cook food by putting it on a fire, as *wató^n* (pumpkins), *tá* (dried meat), *wani^{n}de-gaske* (ash-cake); to heat as stones on a fire, for a sweat bath; (...)"; (4) "to put a cv. in. ob., etc, into a barrel or cv. box; to put a book, paper, piece of cloth, etc, into the pocket".

NI in *wat^{h}ézugtho^n* is no longer visible. Note that Saunsoci & Eschenberg (2016) also make a different segmentation.

(732) a. Forms in Dorsey (n.d.b), "to be pregnant"

wát^{h}e-á-zugtho^n	*wát^{h}e-thá-zugtho^n*
(1)-A1SG-pregnant(2)	(1)-A2-pregnant(2)
I am pregnant	You are pregnant

b. Form in Dorsey (1890: 209.19 / Páthi^n-no^{n}pázhi), "to be pregnant with {x}"

wat^{h}ézu-thí-gtho^n
(1)-P2-pregnant(2)
She was pregnant with you.

c. Forms in Saunsoci & Eschenberg (2016: 52), "to be pregnant"

o^n-wó^{n}tezugtho^n	*wa-thí-tezugtho^n*	*wa-wátezugtho^n*
P1SG-pregnant	(1)-P2-pregnant(2)	P1SG-pregnant
I am pregnant	You are pregnant	We are pregnant

Two intransitive stative verbs classified as discontinuous stems present unexpected morphology. The verbs *nó^n_ka* 'to be injured' and *sní_t^{h}e* 'to feel cold' are reported by Dorsey to take *wa-* O3PL when their subject is third person plural: *nó^n-wa-ka=i* 'they are injured' and *sni-wa-t^{h}a=i* 'they are/feel cold'. Once again, this is only attested in Dorsey's dictionary and not in textual corpora (and Saunsoci & Eschenberg 2016: 38 present *snít^{h}e* without third person plural form). This is very surprising considering that *wa-* is normally restricted to third-plural, animate objects of transitive verbs, which is the reason why it is glossed O3PL rather than P3PL (§2.5.2.3, §3.1.3). This behavior suggests that these verbs were once transitive, and perhaps that they were incorporating verbs. This particularity must be distinguished from the absence or presence of *wa-* commented on in §8.2.3 (criterion 4), which is relevant only when the incorporated nominal corresponds to the verb object. We have no means of knowing whether this was the case for *nó^n_ka* and *snít^{h}e*.

8.6 Summary

This chapter investigates the phenomenon of nominal incorporation (NI) in Umó^{n}ho^n, relying on a database of 86 verbs which are or could be NI verbs or discontinuous verbs. Discontinuous verbs are similar in form to NI, as shown in §8.2 and §8.3.1, and at least some of them are probably relics of NI (see §8.5). The database is thoroughly presented and commented on in two tables in App. E.6.

NI definitely exists in Umó^{n}ho^n (§8.1.2), but identifying NI verbs is complicated (§8.1.3). In an attempt to formally define NI verbs, in §8.2 I list nine criteria indicating that a nominal element and a verb have coalesced. Given the diversity of the data and the contradictions observed between one verb and another, none of these criteria can be identified as a necessary

feature of Umóⁿhoⁿ NI. For instance, while many N-V sequences satisfy criterion 6, "loss of primary accent in the N or the V" (21 out of 40 verbs from the "INC" category), the NI verb *míⁿ_gthóⁿ* 'to marry' retains two accents. The other features of the latter make it clear that it *is* a NI verb; it incorporates a bound form and it alternates with its non-incorporating counterpart in a meaningful way (see §8.3.4). As noted in §8.2.7, the research on NI and on wordhood in Umóⁿhoⁿ is not advanced enough to distinguish between NI produced by compounding and N-V lexical items resulting from syntactic adjunction (the latter not being NI according to Mithun's (1984) definition). As a consequence, I study every N-V sequence that shows some kind of coalescence. The systematic survey of diverse morphological, phonological and syntactic features in §8.2 can, I think, be a solid starting point for further research on this matter.

Section 8.3 is dedicated to the presentation of the morphosyntactic features of NI. I have shown that although verbs mainly incorporate nouns, there are also a few cases of incorporation of pronouns and clauses; this is why, following Graczyk (2007), I use the term "nominal incorporation" rather than "noun incorporation".

NI does not seem to be a productive discourse device in Umóⁿhoⁿ. Except for the *gthóⁿ* vs. *míⁿgthóⁿ* pair, most of the NI verbs attested appear once or a couple of times in the corpora, and many of them have no attested non-incorporating counterparts. The study of all the occurrences of *gthóⁿ* 'to marry $\{x\}$' and *míⁿ_gthóⁿ* 'to marry' (§8.3.4) shows that NI is systematically used to refer to a socially relevant state (being married), when the object is nonspecific or unimportant. Conversely, the non-incorporating verb is used to designate the act of marrying a particular woman. The few other attested incorporating vs. non-incorporating pairs are presented in Table 8.7, and suggest the same analysis. NI is a valency-reducing device in these contexts, since the incorporated verb object is not replaced.

In §8.3.3, I survey the syntactic functions that are incorporated. Most NI verbs incorporate (base) objects. Applicative objects, clausal complements, and intransitive subjects are also attested as incorporated arguments. All of these incorporations result in a reduction in the verb's valency. Additionally, there are examples of incorporated possessed objects (the possessor apparearing as a non-incorporated argument), subject or object modifiers, and adjuncts. All the examples correspond to Mithun's (1984) Type I of NI except for one, illustrated in §8.3.3.3, which can be analyzed either as Type I or Type II.

Bare nouns (BNs) are investigated in §8.4. I show that because there are no determiners for indefinite or nonspecific reference (except for *wíⁿ* 'one'), it is natural to find many BNs in the corpora. These cannot be straightforwardly interpreted as cases of NI, since no determiner is available to provide an alternative non-incorporated construction. Sometimes, however, it seems that the absence of determiner or any kind of specifier really does indicate a particular link between a verb and its object. This is visible when the object is semantically plural but the verb does not take the *wa-* O3PL prefix. I consider such examples to be cases of NI by

juxtaposition (§8.4.3). Additionally, some BNs refer to recoverable and definite entities, in which case the use of definite articles is possible. This does not seem to be linked to the process of NI as described in this chapter. Further research is needed on this topic.

Conclusion

The analysis and representation of argument structure and verb valency is at the core of any grammatical theory, and valency change is one of the key issues in producing an accurate representation of it. Since the second half of the twentieth century, grammatical theories have constantly progressed thanks to the continuous flow of research and the genetic and geographical diversification of the languages studied. This dissertation contributes to the field by providing a detailed analysis of the argument structure and valency changes of an understudied language.

As shown in §2.1, few linguistic publications exist on Umó^{n}ho^{n}, despite the availability of extensive text corpora, recordings, and recent didactic materials. Even fewer studies adopt a typological or theoretical perspective, and none focus on verb valency. This dissertation proposes a detailed investigation of Umó^{n}ho^{n} grammar, including on the one hand an overview of all valency-changing operations and case studies of several of them; and on the other hand, the necessary prerequisite for such an investigation, namely a grammatical sketch, and a detailed description of verb morphology and of morphophonological changes. In my opinion, it makes three main contributions:

A. It contributes to the description and the understanding of the Umó^{n}ho^{n} language. In particular, it contributes a methodology that is clear, making the dissertation easy to use as a starting point for future works;

B. It addresses in detail the difficult question of interpreting non-overt arguments in a language where some 3rd person arguments are never encoded;

C. It discusses the (difficult) distinction between constructions in the morphological or syntactic domain.

I will comment on each of these points below. All of them suggest avenues for future research in different directions.

A. Grammatography

My work contributes the first complete grammatical sketch of the language to be published (Chapter 2). It owes much to previous linguistic documentation and analyses, especially the

published texts, manuscript dictionary and manuscript grammar by Dorsey, Koontz's numerous manuscript papers, thesis and unfinished dissertation, and Rudin's recordings and transcriptions (see §2.1.1 for more detail). This dissertation goes beyond Dorsey's and Koontz's manuscript grammars, however, by combining the following characteristics: (1) using clearly defined, standardized, and modern categories and terminology; (2) systematically using text examples as illustrations of the analyses, while keeping tracks of the speakers; (3) explicitly displaying the methodology used; (4) providing several databases and raw documentation easily usable for future works; and (5) uncovering several previously undescribed aspects of Umóⁿhoⁿ grammar thanks to the detail of the analysis. Points (2) through (5) are commented upon in the following paragraphs.

(2) This work provides around 900 text examples with detailed glossing, especially on the verb. Additionally, each example is linked to the speaker who produced it, when known (see Index p. 651).

(3) I make explicit the methodology followed, especially the criteria used to include or exclude items from my databases, and the criteria used to identify different functional, semantic or formal categories. (See §5.2.2 for the instrumental prefixes; §7.6.1 for the prefix *wa-*; §8.1.4 and §8.2 for the Nominal Incorporation database.) In addition to this, I often go into detail when justifying my analyses, and regularly mention alternative analyses (e.g., for the noun-verb distinction in §2.4.8; for the nominalizing function of the prefix *wa-* in §7.3.3). As a consequence, my analyses are generally verifiable.

(4) The appendices provide a substantial amount of important documentation ready to be used for future studies. They include the databases mentioned in the previous point (App. E), 24 conjugation charts documenting the variations found in different sources (App. B), and the results of two exhaustive corpus studies, where all the items found are presented in tables and in glossed examples (App. C.2 and C.3).

(5) This dissertation brings to light previously undescribed facts of Umóⁿhoⁿ grammar. In addition to the theoretical and typological issues discussed below, several remarkable features stand out: Umóⁿhoⁿ verbs have a prefixal template that is much more complex than what is described for other Siouan languages (§3.4); the "instrumental prefixes" are far from only having a causative function, and enter into different kinds of semantic combinations with the bases to which they attach (§5.3.2); the applicative objects introduced by the oblique applicative prefixes can be postpositional phrases or clausal complements rather than the expected nominal phrases (§6.2.4 and §6.2.5).

B. The interpretation of non-realized arguments

The analysis of verb classes and valency-reducing operations in Umóⁿhoⁿ presents a specific challenge due to a combination of two features: (1) the majority of third person participants are not encoded on the verb, or receive ambiguous marking (the plural/proximate marker

=i~bi~b is common to first, second, and third persons, and applies only once); and (2) the analyses are text-based, and elicitation is impossible at present (and may never be again). These features make it particularly difficult to analyze verbs where one argument is not realized. Is it still a verb argument, possibly with semantic restrictions (a); is it part of the verb's lexical meaning, having lost its status of argument (b); is it completely removed from the verb's lexical semantic structure (c); or is there an indefinite argument (d)?

(a) *do^{n}be* 'to see/look at {*x*}', *thihí* 'to scare off {*animal, bird*}' (bivalent)
(b) *wathíhi* 'to scare off the game' (monovalent)
(c) *wadó^{n}be* 'to scout', *wabáxu* 'to (be able to) write' (monovalent)
(d) *wabáxu* 'to write {*something*}' (bivalent)

This is not a trivial issue, especially considering that it is not uncommon for the above features to be combined. Siewierska (2013c,b) shows that many languages throughout the world have no person marking at all, and many others do not encode some 3rd persons. (See also Mithun 2017 for zero third person marking in North American languages.) Extinct languages and many endangered languages can only be investigated by means of corpus studies. However, I have found few descriptions of particular languages explicitly discussing whether a non-realized argument corresponds to case (a), (b), (c), or (d) above, or justifying their analysis.

Chapter 7 provides a detailed analysis of the prefix *wa-* and its functions, taking into account these questions. The prefix *wa-* in Umó^{n}ho^{n} corresponds to at least two homophonous morphemes, the third person plural animate object marker (O3PL; §3.1.3, §7.1.1), and the "underspecified argument marker". The latter replaces the object most of the time, and has various subfunctions (§7.3). As an underspecified argument marker, the prefix *wa-* has previously been analyzed with different labels in the Siouanist literature, including "detransitivizer" and "indefinite object", which imply different analyses of its function with regarding verb valency. I show with various examples that the object replaced by *wa-* is sometimes generic/nonspecific, and sometimes specific. When it is generic/nonspecific (§7.3.1), it can ultimately be removed from the verb's lexical semantic structure, as in (c) above, in which case *wa-* fits the cross-linguistic definition of the antipassive construction proposed by Heaton (2017) (§7.4.3). When it is specific, it keeps its status of object, as in (d), in which case *wa-* only acts as an "indefinite object" marker (§7.3.2). This is shown in examples where this verb object, although indefinite, is the head of a relative clause or the object of another transitive verb in the sentence.

Thus, while my study initially attempted to investigate whether the prefix *wa-* was an antipassive marker as in (c), or rather an indefinite marker which does not reduce the valency, as in (d), I found a few unambiguous examples of each case (although most examples allow both interpretations). Moreover, a survey of ten Siouan languages (§7.7) shows that the reflexes of Proto-Siouan **wa-* have a similar array of functions, with referential statuses and

effects on the verb valency that are more complex than previously thought. This complexity could be explained in part by the likelihood of multiple etymons that were homophonous or whose results are homophonous. In Umóⁿhoⁿ, some examples show that both *wa-* as O3PL and *wa-* as an indefinite marker can be the source of an antipassive construction (§7.6.3).

More marginally, I also discuss the issues of the passive interpretation of transitive constructions with nonspecific subjects (§4.8) and the interpretation of some instrumental verbs that seem to be intransitive, but where a putative object is recoverable from the context (pp. 309–310). These questions result from the same problem as mentioned earlier.

C. Morphology vs. syntax

The third main contribution of this dissertation consists of discussions of the morphological or syntactic nature of some valency-changing operations, and also of the degree of interdependence between the components of syntactic constructions. Two types of operations are particularly interesting in this respect: the causative constructions using the causative stems and *gáxe* 'to make' (Chapter 5), and nominal incorporation (NI; Chapter 8).

The causative bound root *-the* described in §5.1 and its derived forms originally come from a verb. Accordingly, the causative constructions using them have features of syntactic causative constructions but also exhibit features of grammaticalization, especially the bare root *-the* (§5.1.5). Although complex predicates (CP) are presented in Chapter 1 as an intermediate step between multi-clausal (analytic) and morphological constructions, the fact that causative stems can recursively be applied in Umóⁿhoⁿ (§5.1.4) rules out the possibility of analyzing them as CPs. They must be analyzed either as morphological causative markers, or as multi-clausal causative markers. The causative bound stems include the bare root *-the*, which implies a direct causation, and the derived stem *-kʰithe*, which expresses an indirect causation. In addition, the verb *gáxe* 'to make $\{x\}$' creates causative constructions expressing a more direct causation than *-kʰithe*.

It is widely accepted that when languages possess several types of causative constructions, an analytic construction cannot express a more direct causation than a more synthetic construction, and vice versa. Dixon (2000: 74) calls this the "scale of compactness", which follows the ordering presented in §1.4: synthetic > morphological > CP > analytic. The semantic and formal comparison of *-the*, *-kʰithe*, and *gáxe* in §5.6 reveals that whatever analysis is chosen to describe these constructions, some features will stand out as typologically unusual (§5.6.3).

The question of whether nominal incorporation (NI) is a morphological or syntactic operation has been discussed for decades, especially in the debate between Mithun and Sadock (Mithun 1984, 1986; Sadock 1980, 1986), whose different analyses are partly due to their identifying different processes as being or not being NI. The chapter on nominal incorporation in

Umóⁿhoⁿ (Ch. 8) contributes to the discussion of two descriptive and theoretical problems. First, our restricted understanding of wordhood in Umóⁿhoⁿ and methodological limitations do not allow us to define NI as being a morphological or a syntactic process. On the contrary, NI must be more broadly defined as a sequence of a nominal element and a verb (N-V) functioning as a single lexical item. I show in §8.2 that the coalescence can be evidenced from very different criteria, none of which are verified in all N-V lexical items. This diversity strongly suggests that NI can be the result of two distinct processes: a compounding of two stems, or a syntactic adjunction resulting in the N-V coalescence.

My second contribution to the analysis of NI lies in the argumenthood of the incorporated nominal. Most NI examples involve the incorporation of an argument, and it is widely accepted that such an incorporated item loses its argument status, but remains as a participant in the lexical semantic structure of the verb, like in (c) as opposed to (a):

(a) *gthóⁿ* 'to marry {x}', *uthóⁿ* 'to hold {x}' (bivalent)
(c) *míⁿ_gthóⁿ* 'to marry a woman' (with *míⁿ-* 'female'), *noⁿb_útho*ⁿ 'to shake hands' (with *noⁿbé* 'hands'), *té uné* 'to go on buffalo hunt' (literally: 'to seek buffalo(es)', with *té* 'buffalo') (monovalent)

A particularly clear example supporting this analysis is the *gthóⁿ* vs. *míⁿgthóⁿ* opposition (§8.3.4, App. C.3). However, this analysis is contradicted by a few other examples that seem to be very rare but cannot be ignored: the presence of *wa-*, marker of O3PL, cross-referencing the incorporated object, *hu-wá-si* (fish(N)-O3PL-fish(V)) 'to catch fishes'. This is very similar to Sadock's (1980, 1986) syntactic account of NI, where he shows evidence that incorporated objects in Greenlandic are still subject to some syntactic operations such as modification (with modifiers outside the verb). In Umóⁿhoⁿ, the possibility for some incorporated nouns to be cross-referenced by the verb gives them the status of an actual argument. Moreover, I show in §3.1.3 that the O3PL marker is restricted to the objects of transitive verbs, so the incorporated object must be seen as the transitive object of the verb (i.e., it is not a 'P' marker). The possibility to overtly express the incorporated object's plurality also gives to it some referential autonomy, another feature put forward by Sadock.

The few incorporated objects cross-referenced with *wa-* are at odds with other kinds of constructions where it is essentially the absence of *wa-* that shows the N-V coalescence. A bare noun (BN) loses its object status when it is no longer cross-referenced by *wa-* on the verb, in which case I consider the N-V sequence to function as a single lexical unit (clearly the result of a syntactic adjunction here). More generally, BN constructions are midway between transitive and intransitive constructions, and could be interpreted as instances of either (a) or (c) verbs above. Although the absence of the *wa-* O3PL marker can be used, in some examples, to classify the sequence as (c), like *té uné*, the question of how to analyse the other BN constructions remains open.

My two conclusions on NI are probably linked, since both suggest that N-V lexical items

can be divided into at least two categories, arising from different operations and exhibiting contradictory features. In lexical items resulting from syntactic adjunction, the noun has lost its argument status (which is what identifies the sequence as a lexical item rather than a syntactic construction), while in the NI ***hugási***, the bound nominal element cannot be confused with a free object, and retains some object properties.

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Abbreviations

Table 8.8: Abbrevations and Symbols

Symbol, Abbreviation	**Meaning**
*	bound root (in gloss); unattested form; reconstructed form
†	form unattested in texts but supposed to exist (e.g., bare stem of verbs which are only attested with conjugation)
Σ	root or verb stem
_	separation between lexical elements where person markers are inserted (cf. §3.4).
{...}	constituent (most often: verb arguments and relative clauses)
(1)-…(2)	part 1 and 2 of a discontinuous stem
1	first person
2	second person
3	third person
A1, A2, A3	agentive (grammatical role; combines with persons)
I, II, III, …	class I, II, III, …
ABL	ablative
ABS	absolutive
ACC	accusative
ACCID	accidental
ACT	active
AD	adessive
ALL	allative
ANTIP	antipassive
AOR	aorist
A.OBJ	applicative object

Abbrevations and Symbols (continued)

Abbreviation	**Meaning**
AP	applicative
App.	Appendix
APP	apposition
ASP	aspect
AUX	auxiliary
B1, B2, B3	benefactive-possessive (grammatical role; combines with persons)
BEN	benefactive-possessive
bi-s	(**verb class**) bivalent stative
B.OBJ	base object
CAUS	causative
CL	clause
COLL	collective
COM	comitative
COMP	complementizer
CON	connector
CONT	continuative (Hoocąk)
COP	copula
CP	complex predicate
D1, D2, D3	dative (grammatical role; combines with persons)
DAT	dative
DD	(**Primary source**) Dorsey's dictionary (n.d.b)
DECL	declarative
DEF	definite
DEM	demonstrative
DERIV	derivational affix
DIR	directional prefix
DT	(**Primary source**) Dorsey's texts (1890, 1891)
dtr	(**verb class**) ditransitive
E	exclusive (Hoocąk)
EMPH	emphatic
ERG	ergative
EVID	evidential
F	feminine
FIN	verb final vowel

Abbrevations and Symbols (continued)

Abbreviation	**Meaning**
FOC	focus
FUT	future
GER	gerund
HA	(**Primary source**) Hahn (c. 1930s)
HAB	habitual
HORIZ	horizontal
HYP	hypothetical
IMP	imperative
imp	(**verb class**) impersonal
IMPF	imperfect
INAN	inanimate
IND	indicative
INDEF	indefinite object marker (in Umó^{n}ho^{n}); indefinite argument marker
INESS	inessive ("in")
INS	instrumental
INS:blade	instrumental prefix: with a blade
INS:force	instrumental prefix: by force
INS:foot	instrumental prefix: with the foot/feet
INS:mouth	instrumental prefix: by the mouth
INS:NEU	instrumental prefix; neuter causative
INS:press	instrumental prefix: by pressing
INS:pull	instrumental prefix: by pulling
INS:push	instrumental prefix: by pushing
INS:shoot	instrumental prefix: by shooting
INS:temp	instrumental prefix: by extreme temperature
INTENS	intensifier
INTERJ	interjection
intr-a	(**verb class**) intransitive active
intr-s	(**verb class**) intransitive stative
INV	inverse
IRR	irreal
LGR	level-pitch grade
LOC	locative
M	masculine
ME	multiple exponence
MOV	moving
N	"n registration"

Abbrevations and Symbols (continued)

Abbreviation	**Meaning**
NEG	negation
NEU	neuter
NI	nominal incorporation
NMLZ	nominalizer
NOM	nominative
O	object (grammatical role; combines with 3PL)
OBJ	object
OBL	oblique prefix (Umó^{n}ho^{n}); oblique case (Chapter 1)
OBV	obviative
OPQ	opaque
OPT	optative
P1, P2, P3	patientive (grammatical role; combines with persons)
PERIPH	peripheral argument
PL	plural
PASS	passive
PFV	perfective
POS	positional ? (Chapter 7; Mandan)
POSS	possessive
POST	postposition
PP	plural/proximate (see p. 149)
PRS	present
PRTV	partitive
PST	past
PTCP	participle
PX	proximate
Q	question marker
RC	relative clause
RE	(**Primary source**) recipes booklet
RECP	reciprocal
REDUP~	reduplication
REFL	reflexive
REL	relativizer
REPORT	reportative (evidential marker)
RES	resultative
RND	round
S	Sole argument of an intransitive predicate

Abbrevations and Symbols (continued)

Abbreviation	**Meaning**
SAP	Speech Act Participants
SBJ	subject
SCT	scattered
SE	(**Primary source**) Saunsoci & Eschenberg (2016)
SG	singular
SIM	simultaneity
...-SIM ...-SIM	simultaneous actions
SIT	sitting
SOC	sociative
ST	(**Primary source**) Stabler & Swetland (1991)
STD	standing
SUPESS	superessive ("on", "on top of")
SV	stem vowel (Chapter 7; Mandan)
TA	(**Primary source**) Tapes (Rudin et al. 1989-92)
TOP	topic
tr	(**verb class**) transitive
TR	transitive
TROP	tropative
TRZR	transtivizer
U	(**Primary source**) OLIT-UNL (2018)
V	verb
VERT	vertical
VOC	vocative
XCLM	exclamative

Appendices

Appendix A

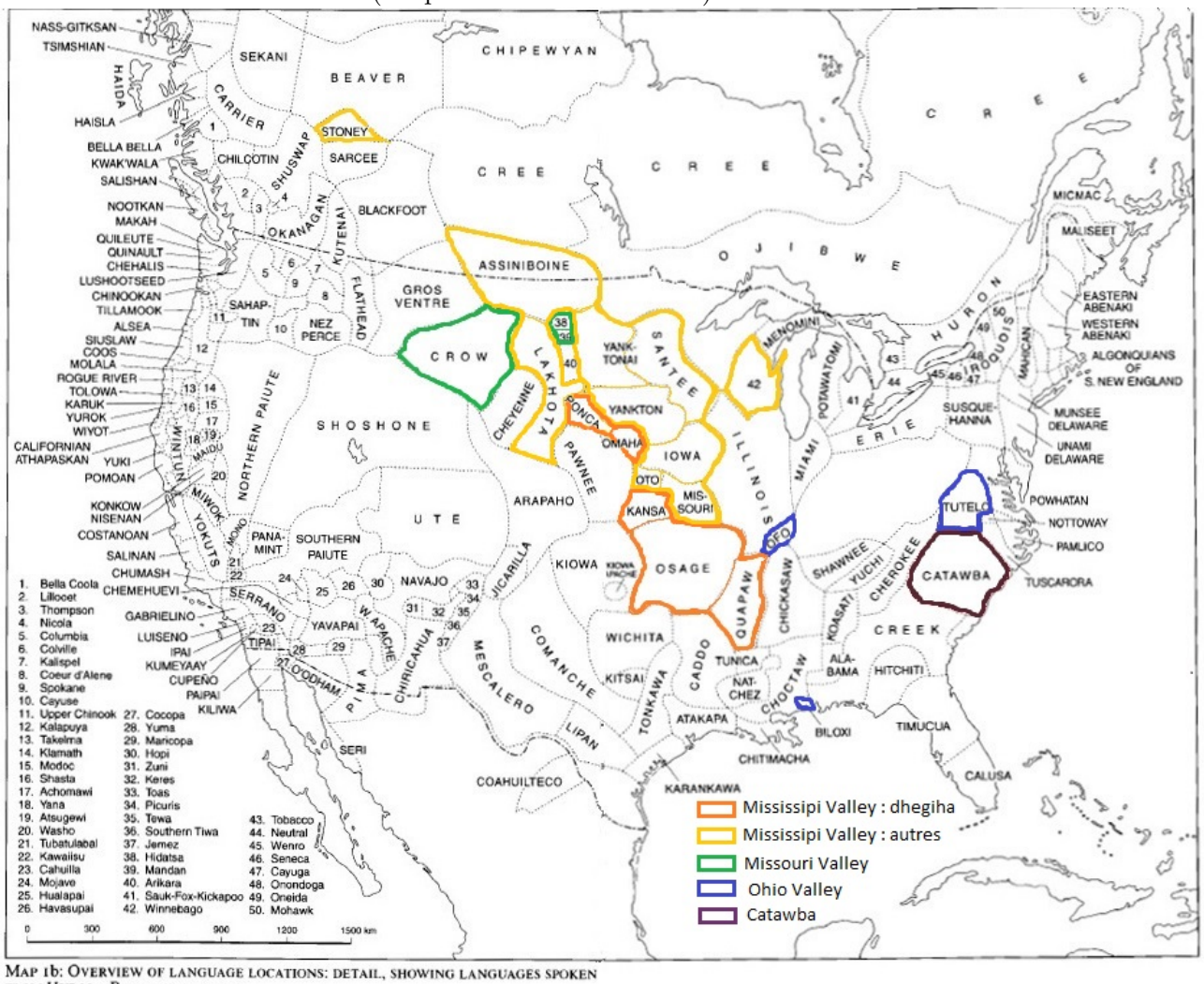
Language family and homeland

Figure A.1 p. 510 shows the traditional territories of the tribes speaking Siouan languages, adapted from Mithun (1999). The different colors reflect the different groups and subgroups of the family: green for Missouri Valley and Mandan; blue for Ohio Valley; violet for Catawba; and orange and yellow for Mississippi Valley. The five Dhegiha Tribes are in orange, and the other Tribes speaking Mississippi Valley Siouan are in yellow.

Figure A.2 p. 511 shows in more detail the extension of Umóⁿhoⁿ tribal land at different times, and especially the extent of their tribal land in the middle of the 19th century compared to their current reservation. Taken from Swetland (1994: 204).

Figure A.3 p. 512 shows the genealogical tree of the Siouan languages, according to Parks & Rankin (2001). The autonyms are preferably used (from Gordon 2016, Greer 2016), and the English equivalent names are in parentheses.

Figure A.1: Traditional territories of the tribes speaking Siouan languages (adapted from Mithun 1999)



MAP 1b: OVERVIEW OF LANGUAGE LOCATIONS: DETAIL, SHOWING LANGUAGES SPOKEN FROM HUDSON BAY SOUTHWARD.

Figure A.2: Umóⁿhoⁿ Reservations lands (Swetland 1994: 204)
Umóⁿhoⁿ lands in Nebraska before and after the 1854 treaty. Adapted from Fletcher & La Flesche (1911: plate 21). Map by Swetland and Archer.

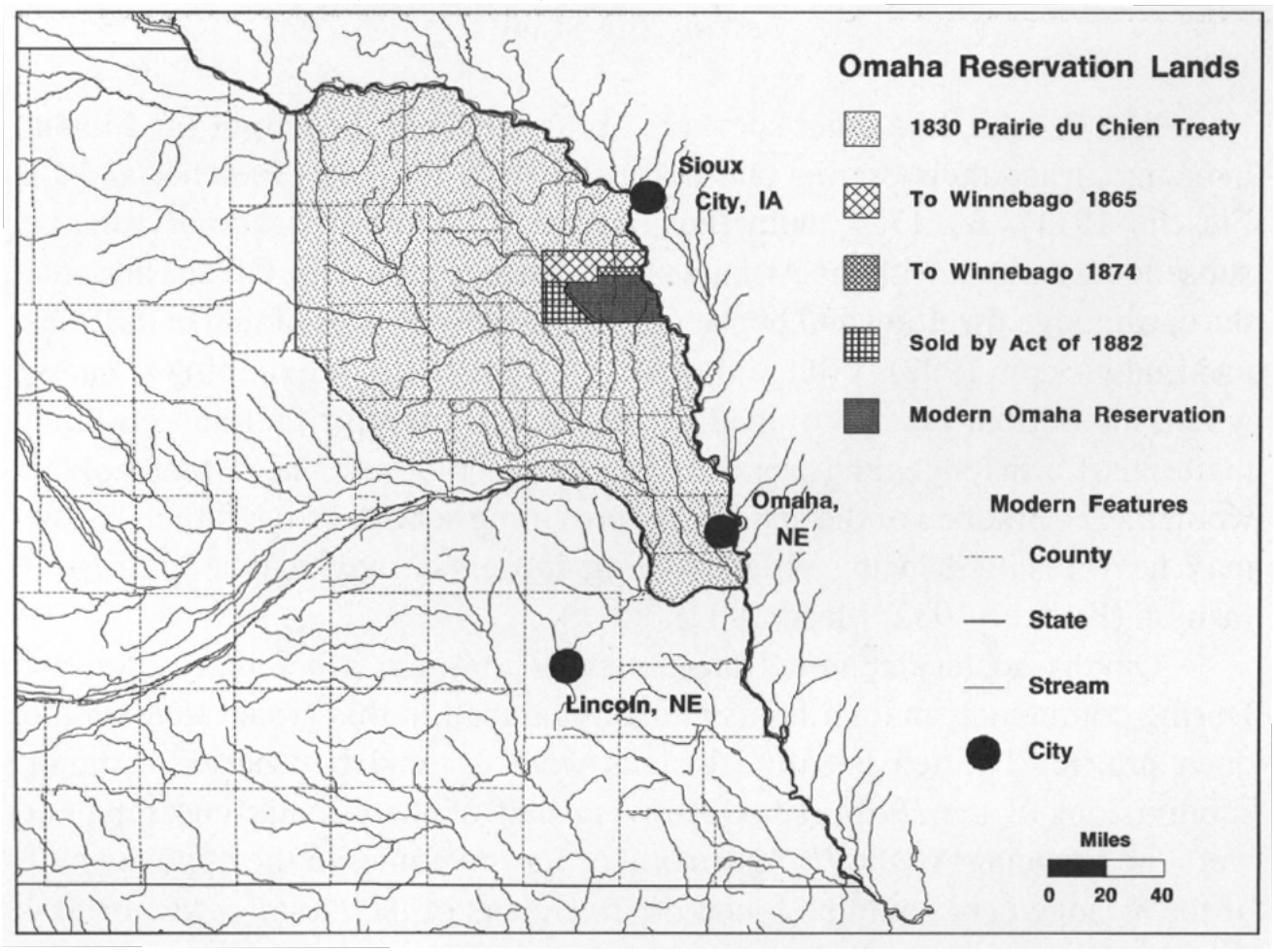
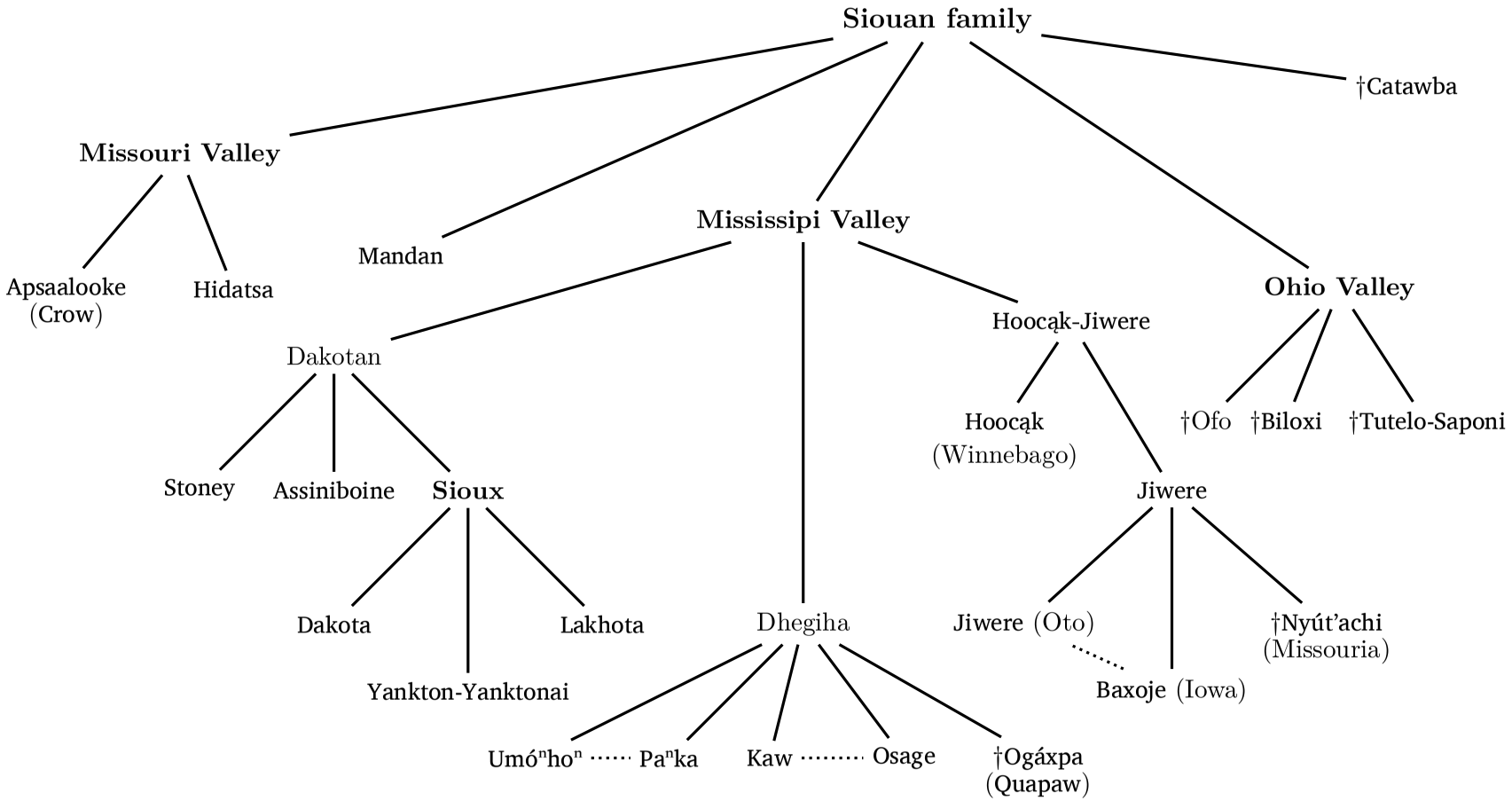


Figure A.3: Family of Siouan languages
(adapted from Parks & Rankin 2001)



Appendix B

Verb paradigms

The characteristics of Umóⁿhoⁿ conjugational paradigms are presented in Chapter 3, §3.7. As mentioned in that section, conjugational paradigms vary according to (1) the oblique prefix(es) present, if any, (2) to the initial consonant of the stem, which may alternate to encode A1SG and A2, and (3) to the dative prefix, if any. In this appendix, I present in §**B.1** the paradigm of verbs that do not have the dative prefix (they encode A/P arguments) nor initial consonant alternation. Table B.1 presents the regular paradigm (no oblique prefixes, no dative prefix, no initial consonant transformation), and the following ones present the conjugational paradigms with oblique prefix(es). In §**B.2** I present the conjugational paradigms with initial consonant transformation and no dative prefix. In §**B.3** and §**B.4**, I present the dative counterparts of the conjugational paradigms in §**B.1** and §**B.2**, respectively. In §**B.5** I present the paradigm of verbs with the benefactive-possessive prefix *ígi-*, and show that it is the same as the paradigm combining the *í-* oblique prefix with the dative prefix *gí-*.

This section does not provide an exhaustive list of all possible conjugational paradigms in Umóⁿhoⁿ. Minor athematic paradigms are omitted, and not all prefix combinations are presented. The combination of athematic paradigms with both dative and oblique prefixes are not presented, but their forms are predictable (it is the addition of the initial consonant alternation to the forms presented in B.3). See Koontz (2001b) for conjugation charts of other athematic paradigms such as the athematic "h1-stem paradigm" (movement verbs) and the "w2-stem paradigm" (verb *ímoⁿxe* 'to question'). See Table 3.9 for a basic presentation of the paradigms with initial consonant transformation, including the athematic ʼ-stem paradigm (initial glottal stop), which only concerns a few intransitive verbs. See ULCC (2015) for 136 different verb charts, corresponding to many combinations of prefixes that are not presented here. See Saunsoci & Eschenberg (2016) for the conjugation charts of more than 500 verbs.

B.1 A/P paradigms: basic paradigm and oblique prefixes

The prefixal sequences in **Table B.1** are taken from Koontz (2001b: 4) and Saunsoci & Eschenberg (2016). Since they are rather simple, there are very few variations attested.

Comment:
[1]: There is a variation between *o^{n}wó^n-* (with vowel assimilation) and *o^{n}wá-* (without vowel assimilation) in the A1PL/O3PL combination. Saunsoci & Eschenberg (2016) alternate these forms, and provide both with the verb *thixí* 'to wake {x} up' (p. 203)[1].

Table B.1: A/P paradigm (no oblique prefix, no initial consonant alternation)

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wi-*	*a-*	*a-wá-*
A1PL			*o^n-thí-*	*o^n-*	*o^n-wó^n-* [1] *o^n-wá-* [1]
A2	*o^n-thá-*	*wa-thá*		*tha-*	*wa-thá-*
A3	*o^n-*	*wa-*	*thi-*	*Ø*	*wa-*

The prefix sequences in **Table B.2** are taken from Koontz (2001b: 12) and ULCC (2015: 10). Glossed examples for all person combinations of this paradigm are provided in Marsault (2016: 139-142).

Table B.2: A/P paradigm with *í-* oblique

	P1SG	P1PL	P2	P3SG	O3PL
A1SG			*íwi-*	*ithá-*	*weá-*
A1PL			*o^{n}thó^{n}thi-*	*o^{n}thó^n-*	*weó^n-*
A2	*o^{n}thó^{n}tha-*	*weátha-*		*ítha-*	*wétha-*
A3	*o^{n}thó^n-*	*weá-*	*íthi-*	*í-*	*wé-*

The prefix sequences in **Table B.3** are taken from Koontz (2001b: 7) and ULCC (2015: 11, 12). Glossed examples for all person combinations of this paradigm are provided in Marsault (2016: 146-148). **Comment:**
[1]: Koontz (2001b) provides forms accented on the first syllable, while ULCC (2015) provides forms accented on the second syllable. The forms attested in Dorsey's texts conform with Koontz's table. The only prefixal sequences *o^{n}gáthi-* and *o^{n}gá-* attested in Dorsey correspond to *athí^n* 'to have {x}' and movement verbs, which all take the non-accented *a-* prefix.

The prefix sequences in **Table B.4** are taken from Koontz (2001b: 9-10), ULCC (2015: 17; only with O3PL′ forms)[2], and six different verbs from Saunsoci & Eschenberg (2016). Glossed

[1]The verb *thixí* follows the *th*-stem initial consonant alternation, but initial consonant alternation only affects A1SG and A2 persons. Thus, the paradigms presented in section B.2 show the same A1PL and A3 forms as those in Table B.1.

[2]See §3.4.4 for a presentation of O3PL′.

Table B.3: A/P paradigm with *á-* oblique

	P1SG	P1PL	P2	P3	O3PL
A1SG			*áwi-*	*áa-*	*wáa-*
A1PL			*ó^{n}gathi-* [1] *o^{n}gáthi-* [1]	*ó^{n}ga-* [1] *o^{n}gá-* [1]	*wó^{n}ga-*
A2	*ó^{n}tha-*	*wátha-*		*átha-*	*wátha-*
A3	*ó^n-*	*wá-*	*áthi-*	*á-*	*wá-*

examples for all person combinations of this paradigm are provided in Marsault (2016: 152-156). I write the epenthetic *-w-* between /u/ and /a/, following Dorsey, but the same forms are sometimes written without the epenthesis (e.g. Saunsoci & Eschenberg 2016: 210). This can be considered to be a variation in spelling, not a variation in pronunciation, so it is not taken into account here. **Comments:**
[1]: In one instance, Saunsoci & Eschenberg (2016: 134) propose *uwá-* for the A1SG/O3PL combination.
[2]: ULCC (2015) proposes *o^{n}guo^{n}wó^n-* for the A1PL/O3PL′ combination, with the verb *uk^{h}íe* 'to talk to {x}'.
[3]: The form *u-w-áwa-* underlyingly has **a-wa-* for P1PL, and an epenthetic */w/*, while the form *u-wá-* has an underlying **wa-* for P1PL. Both variants are attested. Koontz (2001b) acknowledges both forms for the A3/P1PL combination, and Saunsoci & Eschenberg (2016) provide different variants with different verbs and acknowledge both forms for the A2/P1PL combination of *uhí* 'to beat {x}'.
[4] Saunsoci & Eschenberg (2016: 79, 134) propose twice the form *úu-* for the A3/O3PL combination.

Table B.4: A/P paradigm with *u-* oblique

	P1SG	P1PL [3]	P2	P3	O3PL	O3PL′
A1SG			*uwí-*	*uwá-*	*úwa-* *uwá-* [1]	*uwáwa-*
A1PL			*o^{n}gúthi-*	*o^{n}gú-*	*ó^{n}gu-*	*ó^{n}guwa-* [2] *o^{n}guo^{n}wó^n-* [2]
A2	*o^{n}wó^{n}tha-*	*uwátha-* *uwáwatha*		*uthá-*	*útha-*	*úwatha-*
A3	*o^{n}wó^n-*	*uwá-* *uwáwa-*	*uthí-*	*u-* ´	*ú-* [4] *úu-* [4]	*úwa-*

The prefix sequences in **Table B.5** are taken from Koontz (2001b: 14), ULCC (2015: 14), and Saunsoci & Eschenberg (2016: 202). All take the verb *ithápe* 'to wait for {x}' as

an example. Glossed examples for all person combinations of *ithá-* verbs attested in Dorsey's texts are provided in Marsault (2016: 159-161). **Comments:**
[1]: *o^{n}thó^{n}thi-* is attested in Saunsoci & Eschenberg (2016), *o^{n}thó^{n}gathi-* is attested elsewhere.
[2]: ULCC (2015) has *weáa-* for A1SG/O3PL and *weátha-* for A2/O3PL, while other sources have *weá* and *wétha-*, respectively.
[3]: ULCC (2015) has *weá* for A3/O3PL, with an accent shift to the right, while other sources have *wé-* or *wéa* without accent shift. (Koontz mentions both possibilities, and Saunsoci & Eschenberg give *wéa-*.)

Table B.5: A/P paradigm with *itha-* oblique

	P1SG	P1PL	P2	P3	O3PL
A1SG			*itháwi-*	*itháa-*	*weá(a)-* [2]
A1PL			*o^{n}thó^{n}gathi-* [1] *o^{n}thó^{n}thi-* [1]	*o^{n}thó^{n}ga-*	*weo$^{\acute{n}}$ga-*
A2	*o^{n}thó^{n}atha-*	*weátha-*		*ithátha-*	*wétha-* [2] *weátha-* [2]
A3	*o^{n}tho^{n}á-*	*wéa-*	*íthą́thi-*	*ithá-*	*wé(a)-* [3] *weá-* [3]

The prefix sequences in **Table B.6** are taken from Koontz (2001b: 16), with various verbs including *uthúhe* 'to follow {x}', *uthúk^{h}ie* 'to speak to {x} about {y}', and *uthúno^{n}zhi^n* 'to depend on {x}', ULCC (2015: 20), , with the verb *uthúdo^{n}be* 'to consider {x}', 'to judge {x}', and Saunsoci & Eschenberg (2016: 186), only for the A person markers, with the verb *uthúgahi* 'to stir {x}, shake {x} in a circular motion'. Glossed examples for all person combinations of *uthú-* verbs attested in Dorsey's texts are provided in Marsault (2016: 164-7). **Comments:**
[1]: Koontz (2001b) gives *wiúwatha-*, from the form *wíuwathágihná* 'you tell us about your own' (Dorsey 1890: 506.1), and ULCC (2015) provides the form *wiútha-* (full form: *wiúthashto^{n}be* 'you consider/judge on us').
[2]: Koontz and ULCC give *o^{n}thó^{n}gu-*, and Saunsoci & Eschenberg give *o^{n}gúthu-* (full form: *o^{n}gúthugahi* 'we shook it'), which is very interesting; it corresponds to a reanalysis of *uthú-* as a single, unbreakable morpheme.

B.2 A/P paradigms: initial consonant alternations

The prefix sequences in **Table B.7** are taken from Koontz (2001b: 17)[3], Saunsoci & Eschenberg (2016: 176) and ULCC (2015: 35). The forms include the stem-initial *ga-*. So, the form *wá-* in A3/O3PL means that the initial *ga-* of the stem disappears in this form. **Comments:**
[1]: A1PL/P2 is attested in the following sources: *o^{n}thí-chaki* 'we slapped you' (Saunsoci &

[3]Koontz (2001b: 17) provides a verb chart without taking into account the vowel reduction from **aá-* to *á-* (Rule 5, cf. §3.5.1). He takes Dorsey as a source, but adds an /a/ to the conjugated forms. In Table B.7, I reproduce the forms as they are spelled by Dorsey, Saunsoci & Eschenberg and ULCC.

Table B.6: A/P paradigm with *uthu-* oblique

	P1SG	P1PL	P2	P3	O3PL
A1SG			*uthúwi-*	*uthúwa-*	*wiúwa-*
A1PL			*o^{n}thó^{n}guthi-*	*o^{n}thó^{n}gu-* [2] *o^{n}gúthu-* [2]	*wió^{n}gu-*
A2	*o^{n}thó^{n}wo^{n}tha-*	*wiúwatha-* [1] *wiútha-* [1]		*uthútha-*	*wiútha-*
A3	*o^{n}thó^{n}wo^n-*	*wiúwa-*	*uthúthi-*	*uthú-*	*wiú-*

Eschenberg 2016); *o^{n}thi-áni* 'we fan you off' (ULCC 2015); *o^{n}thí-gasa=i* 'we cut you' (Koontz 2001b: 17, citing Dorsey n.d.a)
[2]: A1PL/O3PL is attested in the following sources: *wó^n-gachaki* 'we slapped them' (Saunsoci & Eschenberg 2016); *o^n-wó^n-ni* 'we fan them off' (ULCC 2015); *o^n-wó^n-gaxthí ta=í* 'let us kill them' (Dorsey 1890: 368.6 / Nudó^n-axa)

Table B.7: A/P, leniting *ga-* paradigm (only verbs with *ga-* instrumental)

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wi-á-*	*á-*	*a-wá-*
A1PL			*o^{n}thí-ga-* [1] *o^{n}thi-á-/o^{n}thí-* [1]	*o^n-gá-*	*o^{n}wó^n-ga-* [2] *o^{n}wó^n-/wó^n-ga-* [2]
A2	*o^{n}thá-*	*wathá-*		*thá-*	*wathá-*
A3	*ó^n(a-)* *ó^n-*	*wá-*	*thi-á-*	*ga-*	*wá-*

The prefix sequences in **Table B.8** are taken from Koontz (2001b: 29-31), ULCC (2015: 49) and Saunsoci & Eschenberg (2016). This is a very common paradigm which presents few variations. In Dorsey's texts, there is a free variation between *shn-*, *hn-*, and *n-* for A2 persons. Koontz refers to them as the old (*shn-*) and modern (*n-*) forms of this paradigm (*hn-* can be classified as an old form, too). ULCC and Saunsoci & Eschenberg only provide forms with *n-*. Generally speaking, the patientive indexation prefixes are accented, and the forms that only involve initial consonant alternation (A1SG/P3SG and A2/P3SG) are accented on the first syllable. **Comments:**
[1]: ULCC (2015) provides two variants for the O3PL forms: with the accent on the first syllable, and with the accent on the second syllable. However, their Charts do not distinguish *wa-* as an O3PL marker from *wa-* as an antipassive marker. As mentioned in §7.2.2, the athematic *th*-stem paradigm seems to be the only one where the homonymous prefixes *wa-* O3PL and *wa-* ANTIP differ in accentuation. I assume, then, that the forms accented on the second syllable in ULCC (2015: 49) correspond to the antipassive function of *wa-*.

[2]: The combination of A1PL *o^n-* and O3PL *wa-* is the same as in the regular A/P paradigm presented in Table B.1. As a consequence, the same variation is likely to apply; for instance, Saunsoci & Eschenberg (2016: 203) note a non-assimilated variant *o^{n}wáthixi* for 'we woke them up'.

Table B.8: A/P, athematic th-stem paradigm

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wí-bth-*	*bth-´*	*wá-bth-* [1]
A1PL			*o^{n}thí-th-*	*o^n-th-*	*o^{n}wó^n-th-* [2]
A2	*ó^n-(sh)n-*	*wá-(sh)n-*		*(sh)n-´*	*wá-(sh)n-* [1]
A3	*ó^n-th-*	*wá-th-*	*thí-th-*	*th-*	*wá-th-* [1]

The prefix sequences in **Table B.9** are taken from Koontz (2001b: 21-2), ULCC (2015: 24) and Saunsoci & Eschenberg (2016: 168), the latter only providing one transitive verb of this class: *báaze* 'to scare {x}', which has the particularity of being accented on the first syllable (unlike most other verbs of this class, which are built with the instrumental prefixes *ba-* 'by pushing' and *bi-* 'by pressing, blowing'. **Comments:**
[1]: While in Dorsey's documentation and Saunsoci & Eschenberg, A1SG and A2 are only encoded with initial consonant alternation, ULCC reports a free variation between these older forms and forms where the A1SG and A2 person markers from the regular paradigm are realized in addition to initial consonant alternation, resulting in multiple exponence (see §3.4.5). It only gives *a-wá-p-* as a possible form for the A1SG/O3PL combination.
[2]: The ULCC (2015) verb forms involving person marker prefixes are systematically accented on the second syllable. In other words, these prefixes do not attract the accent in ULCC, while they do in most cases in Koontz's conjugation table. (Koontz notes an accent on the second syllable for the A2/O3PL combination, and he notes both variants for the A3/O3PL combination. All of his forms are linked to a reference in Dorsey's texts or various manuscript documentation works.)

Table B.9: A/P, athematic b-stem paradigm

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wí-p-* *wi-p´-* [2]	*p-´* *a-p´-* [1]	*wá-p-* *awá-p-* [1]
A1PL			*o^{n}thí-b-*	*o^n-b-´*	*o^{n}wó^n-b*
A2	*ó^n-shp-* *o^{n}thá-shp-* [1] *o^n-shp-´* [2]	*wá-shp-* *wathá-shp-* [1] *wa-shp-´* [2]		*shp-* *tha-shp-* [1]	*wa-shp-´* *wathá-shp-* [1]
A3	*ó^n-b-* *o^n-b-´* [2]	*wá-b-* *wa-b-´* [2]	*thí-b-* *thi-b-´* [2]	*b-*	*wá-b-* *wa-b-´* [2]

Table B.10 shows the athematic d-stem paradigm, which has only one member, *dóⁿbe* 'to see {x}; to look at {x}'. The forms involving A1SG and A2 present two variants, which Koontz (2001b: 23-24) calls the "old pattern" and the "modern pattern". In the "old pattern", the A1SG and A2 persons are only marked by the initial consonant alternation. In the "modern pattern", these persons are realized both with the initial consonant alternation and with the regular prefixes *a-* and *tha-*. Dorsey only presents the old pattern in his texts, except for two examples (Dorsey 1890:720.3 and 1891a:108.4). Saunsoci & Eschenberg (2016: 169) only present the modern pattern. Note that, since the verb is fully written, this table also shows the verb-final proximate and plural marking. In Dorsey's time, the proximate/plural was encoded with the *=i* enclitic, while in the modern pattern *=i* has disappeared, but the Ablaut alternation it triggers remains. The proximate/plural marking is obligatory with A1PL, and very frequent with A3. Note, however, that it is not always directly encoded on the verb (it can be encoded on the second verb of a verb series, for instance). See §3.1.2 and §3.2.3.

Table B.10: A/P, athematic d-stem (only *dóⁿbe*))

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wi-tóⁿbe*	*tóⁿbe*	*wa-tóⁿbe*
				a-tóⁿbe	*awá-toⁿbe*
A1PL			*oⁿthí-doⁿba(=i)*	*oⁿ-dóⁿba(=i)*	*oⁿwóⁿ-doⁿba(=i)*
A2	*oⁿ-shtóⁿbe*	*wa-shtóⁿbe*		*shtóⁿbe*	*wa-shtóⁿbe*
	oⁿthá-shtoⁿbe	*wathá-shtoⁿbe*		*tha-shtóⁿbe*	*wathá-shtoⁿbe*
A3	*óⁿ-doⁿba(=i)*	*wa-dóⁿba(=i)*	*thi-dóⁿba(=i)*	*dóⁿba(=i)*	*wa-dóⁿba(=i)*

The prefix sequences in **Table B.11** are taken from Koontz (2001b: 26). The athematic g1- stem paradigm has very few members: *gáxe* 'to make {x}'; *góⁿzhiⁿga* 'not to know how to {V}"; *gáthe* 'to give away {x}'; *góⁿze* 'to show {x}' are attested members of this paradigm. Among these, only *gáxe* is frequently used transitively and with patientive person markers, so the patientive P1SG, P1PL, P2 and even O3PL are only based on attestations of the verb *gáxe*. **Comment:**
[1]: The P1PL form and the O3PL form are only attested with the verb *gáxe*, and they take the form *wáxe* or *wáxai*. It is not possible to know if the transitive verb *góⁿze* 'to show {x}' takes the form *w-óⁿze* or *wa-óⁿze*. That is: is the underlying vowel sequence *a-V* always reducing, or only when the stem vowel is also /a/?

Table B.11: A/P, athematic g1-stem paradigm

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wí-p-*	*p-´*	*wa-p-*
A1PL			†*o^{n}thí-g-*	*o^n-g-´*	†*o^{n}wó^n-g-*
A2	*o^n-shk-´*	*wa-shk-´*		*shk-´*	*wa-shk-´*
A3	*ó^n-*	*wá-* [1]	*thi-´*	*g-*	*wá-* [1]

Table B.12 shows the athematic g2-stem paradigm, which has only one member, *gó^{n}tha* 'to desire {x}'. This is a double stem verb, composed of the stem *gó^n-* which follows the g2-stem conjugation, and the stem *-tha* which encodes A1SG and A2 with initial consonant alternation, following the th-stem paradigm[4]. This verb is presented in Koontz (2001b: 27) and in Saunsoci & Eschenberg (2016: 204). (Koontz does not provide examples for all person combinations, presumably because they are not all attested in Dorsey's texts.) The final *=i* for proximate/plural is not included in the table. **Comments:**
[1]: The A2 forms are attested only in Saunsoci & Eschenberg (2016), except for the A2/P3SG combination. Saunsoci & Eschenberg write two variants: the shorter forms are presented as questions ("Do you want me?", etc.), while the longer ones as affirmations. Note that the shorter ones correspond to what would be expected of an old pattern (without the repetition of the A2 person with *tha-*; see Table B.10).
[2]: This form is unexpected. Either a vowel assimilation has occurred across the approximant /th/, either it contains an applicative prefix *í-* (see A3/P1SG form of Table B.2).

Table B.12: A/P, athematic g2-stem (only *gó^{n}tha*)

	P1SG	P1PL	P2	P3	O3PL
A1SG			*wi-kó^n-btha*	*kó^n-btha*	*wa-kó^n-btha*
A1PL			*o^{n}thí-go^n-tha*	*o^n-gó^n-tha*	*o^{n}wó^n-go^n-tha*
A2	*o^n-shkó^n-na* [1]	*wa-shkó^n-na* [1]		*shkó^n-na*	*wa-shkó^n-na* [1]
	o^{n}thó^n-shko^n-na [1,2]	*wathá-shko^n-na* [1]			*wathá-shko^n-na* [1]
A3	*o^n-gó^n-tha*	*wa-gó^n-tha*	*thi-gó^n-tha*	*gó^n-tha*	*wa-gó^n-tha*

B.3 A/D paradigms: basic paradigm and oblique prefixes

The prefix sequences in **Table B.13** are taken from Koontz (2001b: 40, without accents), ULCC (2015: 8), Saunsoci & Eschenberg (2016). **Comment:**
[1]: The verb forms for A1PL/D3PL ('we ... for them') are varied in Saunsoci & Eschenberg (2016): on pages 175 and 205, the authors provide the prefix sequence *i^{n}wí^n-* (like Koontz and

[4] As shown in Table B.8, the A2 form of the athematic *th*-stem paradigm varies between *shn-*, *hn-* and *n-* in Dorsey's texts, and is only realized *n-* in contemporary Umó^{n}ho^n. For reasons of space, only the contemporary *n-* is reproduced for the second stem of *gó^{n}tha* 'to desire {x}' in Table B.12.

ULCC). But they also propose *i^{n}wé-* on p. 108; *i^{n}wí-* on p. 77, and even *ewé-* on p. 123 (not reported in the table).

Table B.13: A/D paradigm (no oblique prefix, no initial consonant alternation)

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*wí-*	*é-*	*ewé-*
A1PL			*i^{n}thí-*	*í^n-*	*i^{n}wí^n-* [1] (also *i^{n}wé-*, *i^{n}wí-*) [1]
A2	*i^{n}thé-*	*wethé-*		*thé-*	*wethé-*
A3	*í^n-*	*wé-*	*thí-*	*gí-*	*wé-*

The prefix sequences in **Table B.14** are presented in Koontz (2001b: 41), with only two forms. Given the scarcity of attested conjugated verbs from this paradigm (I have found only the verb *ígik^{h}u* 'to invite {x} to {y}' as a combination of the dative prefix and the oblique *í-* prefix), a precise reference for each accented form is provided[5]. Otherwise, the forms are reproduced as Koontz gives them. As far as I can tell, verbs containing the *í-* oblique prefix and dative *gí-* conjugate exactly the same as verbs beginning with the benefactive-possessive prefix *ígi-*. The latter are presented in Table B.24.

Table B.14: A/D paradigm with *í-* oblique

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*iwi-*	*ithe-*	*weagi-*
A1PL			*i^{n}thi^{n}thi-*	*i^{n}thi^n*	*weo^{n}gi*
A2	*i^{n}thi^{n}the-*	*weathagi-*		*ítha-*	*wethagi-*
A3	*i^{n}thi^n-*	*weagi-*	*íthi-*	*igi-*	*wégi-*

The prefix sequences in **Table B.15** are presented in Koontz (2001b: 40) and ULCC (2015: 12). The latter source illustrates the paradigm with the verb *épe* 'to wait for {x} as s/he approaches or delays in sight'. Additionally, the following verbs were found in Dorsey's texts: *ét^{h}o^n* 'to tread on {x} accidentally', *éne(†)* 'to climb {*a tree*} for {y}' (only attested in the following form: *í^{n}ne* 'climb for me'), *ébashibe(†)* 'to leave {x} for {y}' (only attested in the following form: *éwibashibe* 'I left him for you'), *éthade* 'to read {x} for {y}' (only attested as a bare stem, in an imperative form). **Comment:**
[1]: The A2/D1PL form and A3/D1PL form are presented in Koontz (2001b) as *wetha-* and *we-*, respectively. Conversely, ULCC (2015) provides the forms *weátha-pa* and *weá-pa*. The verb *éthi^n* 'to have/keep {x} for {y}' is attested once in Dorsey's texts as *wéthashni^n* 'you have it for us' (Dorsey 1890: 494.9). This verb, however, is derived from *athí^n* 'to have {x}' and

[5]**Table B.14**: A1SG is given as *ithé-* by Koontz; A2 is given as *ítha-* by Koontz; D2 is attested in DT:294.7, as illustrated in (341) p. 237; D3PL is attested in DD, in an example for the headword *á-ta*.

does not have an accented oblique prefix *á-*, but the unaccented variant.

Table B.15: A/D paradigm with *á-* oblique

	D1SG	D1PL	D2	D3SG	D3PL
D1SG			*éwi-*	*éa-*	*wéa-*
A1PL			*í^{n}gathi-*	*í^{n}ga-*	*wí^{n}ga-*
A2	*í^{n}tha-*	*we(á)tha-* [1]		*étha-*	*wétha-*
A3	*í^n-*	*we(á)-* [1]	*éthi-*	*é-*	*wé-*

The prefix sequences in **Table B.16** are taken from Koontz (2001b: 40-41, without accents), ULCC (2015: 18, verb *uíko^n* 'to help $\{x\}$'), Saunsoci & Eschenberg (2016: 118, verb *uíko^n*). Differences in spelling such as *uá-* vs. *uwá-* are not taken into account. The verb forms with D3PL are only found in Koontz, with neither accents nor examples, and I have not found any example thus far. Koontz provides several forms with variants[6], but I have only kept the variants attested elsewhere. **Comments:**
[1]: Koontz (2001b), ULCC (2015), and Saunsoci & Eschenberg (2016) provide *i^{n}wí^n-*. Dorsey also provides this form various times, but he provides at least once the simpler form *í^n-*: see (355) p. 241, and the dictionary entries of the same verb in question: *uíbixpathe* 'to cause $\{x\}$ to fall on $\{y\}$'.
[2]: Variants with and without the dative prefix seem to be used for D1PL and D3PL′ persons. Koontz provides only forms with the dative, Saunsoci & Eschenberg (2016) provides only forms without the dative, and ULCC (2015) provides both variants.
[3]: Dorsey (1890: 40.2), Koontz (2001b), and Saunsoci & Eschenberg (2016) provide *o^{n}guíthi-*; ULCC (2015) provides *o^{n}guí^{n}thi-*. See [5].
[4]: ULCC (2015) provides *uthí-*; Saunsoci & Eschenberg (2016) provides *uthí^n-*.
[5]: Koontz (2001b) provides *o^{n}gui-*; ULCC (2015) provides *o^{n}guí^n-*; Dorsey (n.d.b) provides several times *o^{n}gu í^n-* (with full personal pronoun *o^{n}gú* 'we' followed by the dative paradigm without the oblique prefix *u-*) and the simpler form *í^n-*; Saunsoci & Eschenberg (2016) provide *o^{n}gúwe-* (= *o^{n}gúe-*)
[6]: Koontz (2001b) provides *uwagi-*; (Saunsoci & Eschenberg 2016) provides *uwé-*

The prefix sequences in **Table B.17** are taken from Koontz (2001b: 40-41, without accents). It is completed with the accented forms provided in ULCC (2015: 13) for the verb *ithék^{h}ihide* 'to take care of $\{y$*'s relative*$\}$ for $\{y\}$'. Note that the verb in ULCC is not a combination of the *ithá-* prefix and a dative verb, but a combination of the benefactive-possessive prefix with a verb containing the oblique prefix *á-*. This confirms that the benefactive-possessive prefix *ígi-* is a combination of the oblique *í-* and the dative *gí-* which has acquired a specific semantic value. **Comments:**
[1]: In ULCC, there is no *gi-*.

[6]Koontz (2001b) writes *u(a)wathagi-* for A2/D1PL, *u(a)wagi-* for A3/D1PL, and *u(i)thi-* for A3/D2.

Table B.16: A/D paradigm with *u-* oblique

	D1SG	D1PL [2]	D2	D3SG	D3PL	D3PL′ [2]
A1SG			*uwí-*	*uwé-*	†*uwagi-* [6] *uwé-* [6]	*uwáwa(gi)-*
A1PL			*o^{n}guíthi-* [3] (also *o^{n}guí^{n}thi-*)	*o^{n}gui-*; *o^{n}guí^n-*; *o^{n}gúwe-*; *í^n-* [5]	†*o^{n}gugi-*	*o^{n}guwa(gi)-*
A2	*i^{n}wí^{n}tha-*	*uáwatha(gi)-*		*uthé-*	†*uthagi-*	*uwatha(gi)-*
A3	*i^{n}wí^n-* [1] (also *í^n-*)[1]	*uáwa(gi)-*	*uthí-* [4] (also *uthí^n-*)[4]	*uí-*	†*ugi-*	*úwa(gi)-*

[2]: The first forms are from Koontz, with no accent, and the second forms are from ULCC. In ULCC the dative prefix *gi-* is absent, but there is an extra /a/ which corresponds to the oblique prefix *á-*. (This prefix sometimes disappears, following Rule 5 in §3.5.1.)

Table B.17: A/D paradigm with *itha-* oblique

	D1SG	D1PL [1]	D2	D3SG	D3PL [2]
A1SG			*ithéwi-*	*ithéa-*	*weagi-*/*weáa-*
A1PL			*i^{n}thí^{n}gathi-*	*i^{n}thí^{n}ga-*	*weo^{n}gi-*/*weó^{n}ga-*
A2	*i^{n}thí^{n}tha-*	*weátha(gi)-*		*ithétha-*	*wethagi-*/*weátha-*
A3	*i^{n}thí^n-*	*weá(gi)-*	*ithéthi-*	*ithé-*	*wegi-*/*weá-*

The prefix sequences in **Table B.18** are taken from Koontz (2001b: 41), without accents. It is completed with the accented forms provided in ULCC (2015: 19) for the verb *uthído^{n}be* 'to choose {x}'; 'to consider {*what x says*}'; 'to look at {*y's things*} for {y}'. Note that the verb in ULCC is not a combination of the *uthú-* prefix and a dative verb, but a combination of the benefactive-possessive prefix with a verb containing the oblique prefix *u-*. This confirms that the benefactive-possessive prefix *ígi-* is a combination of the oblique *í-* and the dative *gí-* which has acquired a specific semantic value. In Dorsey texts, only two conjugated forms are attested, on the transitive stative verb *uthípi(†)* 'to be good for {x}': *i^{n}thí^{n}wo^{n}píxti* 'it was good for me' (Dorsey 1891a: 79.4), and *wíuwagipí* 'to was pleasant to us' (Dorsey 1890: 502.11).
Comment:
[1]: ULCC shows verb forms without the sequence /wa/, which means that it underlyingly takes **wa-* rather than the discontinuous form **wa-a-* as the P1PL marker. Moreover, there is the underlying person marker for P1PL.

B.4 A/D paradigms: initial consonant alternation

The prefix sequences in **Table B.19** are taken from Koontz (2001b: 41), ULCC (2015: 18), for the verb *giáni* 'to fan {x}', Saunsoci & Eschenberg (2016: 69, 96), for the verb s*giázo^{n}de*

Table B.18: A/D paradigm with *uthu-* oblique

	D1SG	D1PL [1]	D2	D3SG	D3PL
A1SG			*uthíwi-*	*uthíwa-*	*wiúwagi-*
A1PL			*i^{n}thí^{n}guthi-*	*i^{n}thí^{n}gu-*	*wió^{n}gugi-*
A2	*i^{n}thí^{n}wo^{n}tha-*	*wiu(wa)thagi-*		*uthítha-*	*wiúthagi-*
A3	*i^{n}thí^{n}wo^n-*	*wíuwagi-* / *wiúgi-*	*uthíthi-*	*uthí*	*wiúgi-*

'to braid {*someone*}' and *giáni*. As Koontz notes, the forms are identical to the simple dative paradigm, except for the A3/D3SG where the stem-initial /g/ undergoes lenition. In all the other forms, the lenition is blocked. Saunsoci & Eschenberg (2016: 172) also presents the verb *giáskibe* 'to shave {x}', which is highly irregular in this respect: the prefix *ga-* disappears in most verb forms except for a few. These forms are not reproduced here. Furthermore, the comparison between the different sources shows accent variation. **Comments:**
[1]: Koontz consistently notes the accent on the first syllable, except when there is a combination of two person markers. Conversely, Saunsoci & Eschenberg regularly note the accent on the second vowel, as does ULCC in D3SG forms. The variation is only included in the table when both Saunsoci & Eschenberg and ULCC write the accent on the second syllable.
[2]: The verb forms *i^{n}thígazo^{n}de* 'you braided my [hair]' and *i^{n}thí^{n}gani* 'you fan me' are attested in Saunsoci & Eschenberg (2016: 69, 96).
[3]: The verb form *o^{n}wégani* 'we fan them' is attested in Saunsoci & Eschenberg (2016: 96). Interestingly, it corresponds to the expected form if the dative markers and person markers were not reanalyzed as simple morphemes (see §3.6).

Table B.19: A/D, leniting *ga-* paradigm (only verbs with *ga-* instrumental)

	D1SG	D1PL	D2	D3SG [1]	D3PL
A1SG			*wí-ga-* [1]	*é-ga-*/*e-gá-*	*ewé-ga-*
A1PL			*i^{n}thí-ga-*	*í^n-ga-*/ *i^n-gá-*	*i^{n}wí^n-ga-* (also *o^n-wé-ga-*) [3]
A2	*i^{n}thé-ga-* (also *i^{n}thí-ga-*, *i^{n}thí^n-ga-*) [2]	*wethé-ga-*		*thé-ga-*/ *the-gá-*	*wethé-ga-*
A3	*í^n-ga-* [1] *we-gá-* [1]	*wé-ga-*/	*thí-ga-*[1]	*gi-á-*	*wé-ga-*/ *we-gá-* [1]

The prefix sequences in **Table B.20** are taken from Koontz (2001b: 43) and ULCC (2015: 50), for the verb *gíthaho^n* 'to make a formal request to {x} for {y}'. It is also attested on verbs in Dorsey's texts, such as *gíthasni^n* 'to swallow {*food*} belonging to or intended for {y}', *gíthaho^n* 'to pray {x} for {y}', *githíto^n* 'to work {x} for {y}', and many others. **Comments:**
[1]: In the late 19th century, the initial consonant for A2 were *shn-*, *hn-*, or *n-*, according to

Dorsey's documentation. Nowadays, only the initial *n-* is used.
[2]: For the A1SG/D3PL form, Koontz proposes the form *we-bth-*. However, this form is not attested in texts, except for the verb *wéthi^{n}wi^n* 'to sell {x}', which presents other irregularities. The form *ewé-bth-* is attested in ULCC, and once in Dorsey's texts (*ewébthi'a* 'I fail for them', Dorsey 1890: 673.8).

Table B.20: A/D, athematic *th*-stem paradigm

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*wí-bth-*	*é-bth-*	*ewé-bth-* [2]
A1PL			*i^{n}thí-th-*	*í^n-th-*	*i^{n}wí^n-th*
A2 [1]	*i^{n}thé-(sh)n-*	*wethé-(sh)n-*		*thé-(sh)n-*	*wethé-(sh)n-*
A3	*í^n-th-*	*wé-th-*	*thí-th-*	*gí-th-*	*wé-th-*

The prefix sequences in **Table B.21** are taken from ULCC (2015: 22, verb *gíbaxu* 'to write {x} to {y}')[7] and Koontz (2001b: 43, without accents). **Comments:**
[1]: This form is attested in ULCC and in Dorsey (1891a: 44.1), contrary to the form provided by Koontz (*we-p-*) which I could not find.

Table B.21: A/D, athematic *b*-stem paradigm

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*wí-p-*	*í-p-*	*ewé-p-* [1]
A1PL			*i^{n}thí-b-*	*í^n-b-*	*i^{n}wí^n-b-*
A2	*i^{n}thé-shp-*	*wethé-shp-*		*thé-shp-*	*wethé-shp-*
A3	*í^n-b-*	*wé-b-*	*thí-b-*	*gí-b-*	*wé-b-*

The prefix sequences in **Table B.22** are presented without accent in Koontz (2001b: 42). Among the few verbs from the *g1-* stem paradigm, only two are derived with the dative prefix: *giáxe* 'to make {x} for {y}' and *gió^{n}ze* 'to teach {x} to {y}'. The accentuation of the inflected forms have been added following examples of these verbs attested in Dorsey's text and Dorsey's dictionary[8]. Additionally, the inflected forms of *gó^{n}ze* 'to teach {x} to {y}' from Saunsoci & Eschenberg (2016: 191), which present a modern, regularized paradigm, are added. **Comments:**
[1]: These forms are only attested in Saunsoci & Eschenberg (2016) with the verb "to teach".

[7] ULCC translates this form as 'write to her', but see App. C.2.

[8] A1SG is attested in DD; A2 is attested in DD; D1SG is attested in DT:118.2 for *gió^{n}ze*; D1PL is attested in DT:89.3; D2 is attested in DT:669.10; D3PL is attested in DT:87.2; A1SG/D2 is attested in DD; A1SG/D3PL is attested in DT:672.4; A1PL/D2 is attested as *o^{n}thígaxe* in DT:649.5; A1PL/D3PL is attested in DT:89.3; A2/D1SG is attested in DD; A2/D1PL is attested in DT:764.2; A2/D3PL is attested in DT:758.5. All these forms concern the verb *giáxe* unless otherwise noted.

They show different accent patterns and no initial consonant alternation. (Note that almost all the forms from Dorsey concern the verb "to make", while Saunsoci & Eschenberg present the verb "to teach", which is less frequently used.) Two forms involving A1PL are only illustrated with the Saunsoci & Eschenberg's conjugation table.
[2]: This form is attested in Dorsey (1890: 649.5), contrary to the form provided by Koontz.

Table B.22: A/D, athematic *g*1-stem paradigm

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*wí-p-* *wi-g-´* [1]	*é-p-* *é-g-* [1]	*wé-p-* *ewé-g-* [1]
A1PL			*i^{n}thí-g-* [1] *o^{n}thí-g-* [2]	*i^n-g-´* [1]	*i^{n}wí^n-g-*
A2	*i^{n}thé-shk-* *i^{n}thí^n-g-* [1]	*wethé-shk-* *wethé-g-* [1]		*thé-shk-* *the-g-´* [1]	*wethé-shk-* *wethé-g-* [1]
A3	*i^n-g-´*	*we-g-´*	*thí-g-* *thi-g-´* [1]	*gi-´*	*wé-g-* *we-g-´* [1]

The prefix sequences in **Table B.23** are presented in Saunsoci & Eschenberg (2016: 205) and without accent in Koontz (2001b: 42-3). The only verb of this paradigm is *gígo^{n}tha* 'to want {x} to {CL}', 'to desire {x} for {y}'. This is a doubly conjugated verb, with two stems, and only the first one corresponds to the athematic *g*2-stem paradigm. The full verbs are reproduced here as they are found in Dorsey's texts (the accent at the end of the word and the presence or absence of the final *=i* may vary). **Comments:**
[1]: This form is attested four times in Dorsey's texts (e.g., Dorsey 1890: 663.8), while Koontz provides the prefix sequence *we-k-*, which I have not found in texts.
[2]: Saunsoci & Eschenberg (2016) provide the following unexpected forms: *i^{n}thíshko^{n}na* 'you want me to', *thigó^{n}tha* 'she wants you to', *i^{n}thí^{n}go^{n}tha* 'we want you to'.

Table B.23: A/D, athematic *g*2-stem paradigm (only *gígo^{n}tha*)

	D1SG	D1PL	D2	D3SG	D3PL
A1SG			*wí-ko^n-btha*	*é-ko^n-btha*	*ewé-ko^n-btha* [1]
A1PL			*i^n-thí-go^{n}thai* [2]	*í^n-go^n-thai*	*i^{n}wí^n-go^{n}thaí*
A2	*i^{n}thé-shko^n-ná* [2]	*wethé-shko^n-ná*		*thé-shko^n-na*	*wethé-shko^n-na*
A3	*í^n-go^n-thaí*	*wé-go^n-thái*	*thí-go^n-thai* [2]	*gí-go^n-tha*	*wé-go^n-thai*

B.5 Basic A/B paradigm

The prefix sequences corresponding to the benefactive-possessive *ígi-* paradigm are presented in **Table B.24**. They are taken from all the conjugated forms found in Dorsey's texts (see glossed examples in §4.4.2 p. 242), and from ULCC (2015: 9, verb *ígio^n_tha* 'to give {*y's things*} away for {*y*}'). This Table shows exactly the same forms as Table B.14 which presents the paradigms of verbs combining the oblique prefix *í-* with the dative prefix *gí-*. Moreover, the examples of of benefactive-possessive derivation on base verbs including the oblique prefix *á-* or *u-* (ULCC 2015: 13, 19) display the same forms as verbs of the dative prefix and *ithá-* and *uthú-* prefixes as they are presented in Koontz (2001b) and attested in Dorsey's texts.
Comments:
[1]: These forms were not found in Dorsey's texts, and are only presented in ULCC (2015: 9).
[2]: Both forms are attested in Dorsey's texts, as illustrated in (357) p. 242. ULCC provides *íwi-*.

Table B.24: A/B paradigm

	B1SG	B1PL	B2	B3SG	B3PL
A1SG			*íwi- / ithéwi-* [2]	*ithé-*	*weági-* [1]
A1PL			*i^{n}thi^{n}thí-* [1]	*i^{n}thí^n-*	*weó^{n}gi-* [1]
A2	*i^{n}thí^{n}tha-*	*weáthagi-* [1]		*ítha-*	*wéthagi-* [1]
A3	*i^{n}thí^n-*	*wéagi-*	*íthi-*	*ígi-*	*wégi-*

Appendix C

In-depth corpus studies

C.1 Integrally glossed texts from Dorsey 1890

C.1.1 "My first buffalo hunt", Frank La Flesche

Personal story told by Frank La Flesche, published in Dorsey (1890: 466).

(733) *Thábthi^{n}ó^{n} p^{h}í ha.*
three.times A1SG.arrive DECL.M
I went three times on the buffalo hunt.

(734) *pahó^{n}ga p^{h}í t^{h}e o^{n}-zhí^{n}ga, ádo^{n} té a-wá-kida=mázhi thó^{n}zha,*
first.time A1SG.arrive when P1SG-small therefore buffalo A1SG-O3PL-shoot=1SG.NEG although
When I was there the first time, I was small; therefore I did not shoot at the buffaloes.

(735) *shó^{n}ge wa-'í^{n}-k^{h}ithé* Ø *wébthi^{n}=hno^{n}=mó^{n}wa-náse amá.*
horse ANTIP-carry-CAUS REL D3PL.have=HAB=1SG.AUX ANTIP-surround REL:PX.PL
But I used to take care of the packhorses for those who surrounded the herd.

(736) *pahó^{n}ga-xchi wa-násа=i t^{h}édi, té a-wá-kide 'i-á-the.*
first.time-INTENS ANTIP-surround=PL when buffalo A1SG-O3PL-shoot give?-A1SG-CAUS?
When they surrounded the herd at the very first, I spoke of shooting at the buffaloes.

(737) *"shó^{n}ge dó^{n}shte thi-ó^{n}tha thé-tha=i ki, té dó^{n}shte zhá-thi-the ta=í", a=í.*
horse perhaps(?) P2-abandon go-CAUS=PX if buffalo perhaps(?) (1)-P2-gore(2) IRR=PX say=PX
But my father said, "Perhaps the horse might throw you suddenly, and then the buffalo might gore you."

(738) *ki a-wázhi^{n}shte.*
and A1SG-bad.humor

And I was in a bad humor.

(739) *i^{n}dádi ak^{h}á páhe-áta zhu-ó^n-gthe a-tha=í.*
POSS:1SG.father PX.SG hill-ALL (1)-P1sg-be.with(2) PX-go=PX
My father went with me to the hill.

(740) *té-ma wénaxítha=i t^{h}e o^n-wó^n-do^{n}be o^n-gthí^n=i.*
buffalo-OBV.PL P3PL.attack=PL COMP A1PL-O3PL-look.at A1SPL-sit=PL
We sat and looked on them when they attacked the buffaloes.

(741) *ki i^{n}dádi ak^{h}á o^{n}w<ó^n>k^{h}ie shtewó^n,*
and POSS:1SG.father PX.SG <P1SG>talk despite
u<á>k^{h}ia=mázhi=hno^n=mó^n.
<A1SG>talk=1SG.NEG=HAB=1SG.AUX
And notwithstanding my father talked to me, I continued there without talking to him.

(742) *égithe te-núga wí^n tí-atathishó^n-xti athí^n a-gí=i ní^{n}kashi^{n}ga ak^{h}á*
finally buffalo-male one lodge-ALL-INTENS have PX-come.back=PX person PX.SG
wi^n-áxchi ak^{h}á.
one-INTENS PX.SG
At length one man was coming directly towards the tents in pursuit of a buffalo bull.

(743) *ki te-núga amá wazhi^n-pi=bázhi.*
and buffalo-male PX.MOV temper-good=PX.NEG
And the buffalo bull was savage.

(744) *Ní^{n}kashi^{n}ga thi^{n}k^{h}é iénaxítha=hnó^n=i.*
person PX.SIT.SG attack=HAB=PX
He attacked the man now and then.

(745) *"K^{h}é! édi mo^{n}thí^n=ga", a=í i^{n}dádi ak^{h}á.*
come! there walk=IMP.M say=PX POSS:1SG.father PX.SG
"Come! go thither," said my father.

(746) *shó^{n}ge mi^{n}gá to^{n}gá zhíde, mó^{n}shiadi-xti éde, a-k^{h}ó^{n}to^n.*
horse female big red tr-INTENS but A1SG-tie
I tied a lariat on a large red mare that was very tall.

(747) *ki i^{n}dádi ak^{h}á wahúto^{n}thi^n háhadó^n-xti éde-go^n athí^n=i.*
and POSS:1SG.father PX.SG gun light-INTENS but-thus have=PX
And taking a very light gun which my father had, ...

(748) *Bthíze gó^n édi bthé.*
A1SG.take as there A1SG.go
... I went thither.

(749) *édi pʰí kízhi te-núga akʰá shkóⁿ=azhi nazhíⁿ akʰá.*
there A1SG.arrive when buffalo-male PX.SG move=NEG stand PX.SG
When I arrived there the buffalo bull was standing motionless.

(750) *ki níⁿkashiⁿga akʰá édi pʰí ki, gíthe-xti=óⁿ=bi a=í.*
and person SG.PX there A1SG.arrive when glad-INTENS=AUX=PX say=PX
The man said that he was very glad that I had come.

(751) *Wazhiⁿ-pi=bázhi te-núga akʰá.*
temper-good=PX.NEG buffalo-male PX.SG
The buffalo bull was savage.

(752) *Nú akʰá móⁿ í-kide thé-tha=i, ki nóⁿka kʰédi ú=i.*
man PX.SG arrow AP:INS-shoot go-CAUS=PX and back HORIZ-LOC to.wound=PX
The man shot suddenly at him with a bow and wounded him on the back.

(753) *Góⁿki weánaxítha=i.*
and P1PL.attack=PX
And then he attacked us.

(754) *shóⁿge wá-a-gthiⁿ akʰá dúboⁿ u-óⁿsi-xti áiáthai, góⁿki*
horse INDEF(?).AP:SUPESS-A1SG-sit REL:PX.SG four.times AP-leap-INTENS go.away and
óⁿ-oⁿth ithétha=i.
P1SG-abandon send=PX
The horse on which I was seated leaped very far four times, and had gone off, throwing me suddenly.

(755) *te-núga akʰá uhíashká-xchi a-tʰí=i ki, kig-thípashoⁿ a-tha=í.*
buffalo-male PX.SG short.distance-INTENS PX-arrive=PX when REFL-band PX-go=PX
When the buffalo bull had come very close he wheeled around and departed.

(756) *Wá-kide bthí'a áiátha=i.*
(?)-shoot A1SG.fail go.away=PX
So I failed to shoot at him before he went.

(757) *A-kʰí ki, íⁿnoⁿha akʰá iⁿdádi íhusa akʰá ki*
A1SG-arrive.back when POSS:1.mother PX.SG scold POSS:1.father PX.SG when
a-kʰí.
A1SG-arrive.back
I reached home just as my mother was scolding my father about me.

(758) *shóⁿge tʰóⁿ móⁿze-tháhe utháha kʰí tʰédi, íbahoⁿ=i tʰe*
horse OBV.STD metal-INS:mouth-*hold go.with arrive back when know=PX EVID
óⁿ-oⁿth ithétha=i tʰe.
P1SG-abandon send=PX COMPL
When the horse reached home with the bridle sticking to it, she knew that I had been thrown.

(759) *i^{n}dádi ak^{h}á ía=bazhí-xti íxa gthí^n=i.*
POSS:1.father PX.SG talk=PX.NEG-INTENS laugh sit=PX
My father said nothing at all, but sat laughing.

(760) *"te-núga thi^n t'é-tha-the a", a=i.*
buffalo-male OBV.MOV die-A2-CAUS Q say=PX
Addressing me, he said, "Did you kill the buffalo bull?"

(761) *Gó^{n}ki ith<á>a=mázhi.*
and <A1SG>talk=1SG.NEG
And I did not speak.

C.1.2 "Address to the young men", unknown speaker

Published in Dorsey (1890: 628-629). Dorsey notes: "According to George Miller, an Omaha, the old men of his tribe often make such an address to the young men."

(762) *Níashi^{n}ga-máshe, wa-thá-kig-thíto^n=i núde taxúx u<thí>zhi-xti ki=no^n,*
person-VOC.PL ANTIP-A2-REFL-work=PL throat foam <P2>full.of when=HAB
edádo^n wi^n tha-kí-shkaxe ta=i ha.
what one A2-REFL-A2.make IRR=PL DECL.M
O ye people, if you ever accomplish anything for yourselves it will be only when you work so hard for yourselves that you pant incessantly thereafter.

(763) *Washko^n=i=ga.*
persevere=PL=IMP.M
Do your best!

(764) *Ébe uthú-nazhi^n=bazhi^n=i=ga.*
who DERIV-stand=PL.NEG=PL=IMP.M
Do not depend on any one else.

(765) *Níkashi^{n}ga uk^{h}éthi^n ó^{n}gathi^n bthúga-xti Wakó^{n}da ak^{h}é-go^n wáxa=i t^{h}e*
person normal 1PL.OBV.MOV all-INTENS W. PX.SG-thus P1PL.make=PX EVID
ha, mazhó^n thó^n-di, thó^{n}zha,
DECL.M land RND-LOC although
The Mysterious Power made us all Indians in this country, ...[1]

(766) *... edádo^n weági-údo^n o^n-mo^{n}thi^n wegáxa=i ge bthúga-xti thi^{n}gé ha.*
what B1PL-good A1PL-walk D1PL-make=PX SCT all-INTENS to.lack DECL.M
... but all those things which he made for our constant good have disappeared.

[1]The linking word *thó^{n}zha* 'although' is not separated from the following clause in Dorsey's original, and appear as a clause introducer. Given that this word is placed clause-finally in all other occurrences, I have placed it clause-finally, too. I have kept the comma between *thó^n-di* and *thó^{n}zha*.

(767) *Mazhó^n thé-tho^n bthúga-xti wáxe-ma ugípi égo^n*
land this-RND all-INTENS White-OBV.PL be.full as
The entire country is full of white people, ...

(768) *... waníta weági-údo^n wakó^{n}da thi^{n}k^{h}é we-gáxa=i thó^{n}zha, bthúga-xti*
animal B1PL-good W. OBV.SIT D1PL-make=PX though all-INTENS
mú-thi^{n}ga=í.
INS:shoot-lack=PL
... so the quadrupeds which had been made by the Mysterious Power for our advantage have been exterminated, they have been shot.

(769) *Pahó^{n}ga t^{h}édi waníta thi^n etá thi^{n}gé-xti go^n t'e-ó^n-the o^n-mó^{n}thi^n=i,*
before when animal OBV.MOV POSS:3 lack-INTENS as die-A1PL-CAUS A1PL-walk=PL
In the former days we went about killing the quadrupeds who had no owners, ...

(770) *... o^{n}tho^n-kig-thígtho^n-xti o^n-mó^{n}thi^n-i, nú é go^n-xti o^n-mó^{n}thi^n=i.*
(1)-REFL-to.rule(2)-INTENS A1PL-walk=PL man that thus-INTENS A1PL-walk=PL
... we governed ourselves, going wherever we pleased, we went about just as men should do.

(771) *Ki í^{n}ch^{h}o^n t^{h}édi úshko^n ge e=nó^n o^n-gí-sithé-xti o^n-mó^{n}thi^n*
and now when deed SCT that=HAB A1PL-POSS-remember-INTENS A1PL-walk
ta<i>té thi^{n}gé.
<PL>IRR to.lack
But now it is impossible for us to think any longer about those deeds of the past.

(772) *Wáxe-ma úshko^n etá-i k^{h}e o^{n}thó^{n}baho^n=bázhi shté~shte-wo^n, shó^n*
White-OBV.PL deed POSS=PL HORIZ A1PL.know=PL.NEG REDUP~even-(?) CON:now
etáthisho^n wi-ó^n-thixe ta=í.
towards.there ANTIP.AP(?)-A1PL-pursue IRR=PL
Although we are ignorant of the customs of the white people, let us shape our course in that direction.[2]

(773) *Edí ki wé-udo^n o^n-mó^{n}thi^n ta=í.*
there when D1PL-good A1PL-walk IRR=PL
In that case we shall prosper.

[2]The form *wi-ó^n-thixe* is very strange. The sequence *wió^{n}thixe taí* is glossed "let us shape our course" by Dorsey. The best analysis I can propose is that *wió^n-* is a variant form of *weó^n-* (a variation acccounted for in ULCC (2015)), with the initial *wé-* being composed of the antipassive *wa-* and of the applicative prefix *í-* which would have a locative or comitative meaning. (See the morphophonological rules in §3.5.1 and conjugation charts in App. B).

C.2 Exhaustive survey of *baxú* 'to write {x}' and its derived forms

C.2.1 Basic verb: *baxú* 'to write {x}'

All the examples of *baxú* 'to write {x}' attested in Dorsey (1890, 1891a) are reproduced in (774) through (782) and two examples from OLIT-UNL (2018) are reproduced in (783) and (784). The latter source provides 16 more occurrences of this verb which are not included here. In all examples, the verb object refers to the content written, like words, letter, or information. The object can also be a whole clause, as in (780) and (781b). In some cases, such as (779), the object is not expressed, and is absent from Dorsey's translation, but there is a definite antecedent available (information mentioned earlier).

(774) *shi* {*íe* *t^{h}e* *shéna*} *páxu* *ha.*
again {word VERT enough} A1SG.write DECL.M
Now I have written enough on this subject. (Dorsey 1890: 488.7 / Joseph La Flesche)

(775) *shó^n* {*ní^{n}kashí^{n}ga the-thi^{n}k^{h}e* *i-zházhe* *t^{h}e*} *shpáxu* *et^{h}é-go^n.*
and {person this-OBV.SG.SIT POSS:3-name VERT} A2.write HYP-thus
You may write the name of this Indian sitting here. (Dorsey 1890: 643.5 / Homna)

(776) *(Mo^{n}ch^{h}ú-No^{n}ba) i-só^{n}ga* *zhú-gi-gthe* {*Ø*} *baxú=i,*
M. POSS:3-younger.brother (1)-POSS-be.with(1) {OBJ} write=PX
Mich^{h}áxpe-zhí^{n}ga i-zházhe *athí^n.*
star-small POSS:3-name have
(Mo ch u no ba's) younger brother, Little Star, writes with him. (Dorsey 1890: 654.8 / Mo^{n}ch^{h}ú-No^{n}ba)
(Dorsey comments after the letter: "The name *Mo^{n}ch^{h}ú-No^{n}ba* is supplied by the author in order to complete the sense. It was understood by the senders of the letter.")
(Despite Dorsey's free translation using "write" intransitively, I consider that there is an implicit object referring to what was said previously. This sentence is at the end of the letter)

(777) *ágahá-di* *shi* *ána* *tha-t'a=í* *t^{h}e* {*shé* *wá-thawa*} *baxú* *o^n-'í*
outside-LOC agin how.many A2-die=PL EVID {THAT O3PL-count} write P1SG-give
i-thá=i=ga.
arrive-CAUS=PX=IMP.M
I wish you to count those who have died in addition (to the first) and write me an account. (Dorsey 1890: 709.5 / Unázhi^n-ska)

(778) *Ní^{n}kashí^{n}ga 'ó^n* *ak^{h}á* *wa-báxu-k^{h}ith* *áthi^n=i* *ak^{h}á* {*é*} *baxú=i* *t^{h}e,*
person how(?) PX.SG ANTIP-write-DAT.CAUS have=PP PX.SG {that} write=PP when
wí^n bthíze=no^n=mó^n.
one A1SG.take=HAB=1SG.AUX

When Indians of any tribe have someone to write letters, stating how the people are, and he sends a letter, I usually receive it. (Dorsey 1890: 716.7 / Ishtáthabi)
(*wabáxuk^{h}itháthi^{n}i* is written as one word in the original.)

(779) a. *ki gag-égo^n ge wé-t^{h}exi ge Itígo^{n}thaí no^n'ó^n í^{n}go^{n}tha=i égo^n,*
and that-thus SCT D1PL-difficult SCT President hear A1PL.DAT-want=PL as
ithádithaí amá {Ø} baxú o^n-wó^n-shi=nó^n=i.
agent PX.PL {OBJ} write A1PL-O3PL-employ=HAB=PL
And as we desire the President to hear about our troubles such as these, we employ the agents to write.

b. *Ithádithaí amá baxú o^n-wó^n-shi shtewó^n égithe*
agent PX.PL write A1PL-O3PL-employ despite finally
wé-baxu=bázhi=nó^n=i;
D1PL-write=PL.NEG=HAB=PL
Though we employ the agents to write (to the President about these things), behold, they do not write for us! (Dorsey 1891a: 27.5-8 / Kaxé-Tho^{n}ba)

(780) {*Umó^{n}thi^{n}ka wi^{n}ó^{n}wa t^{h}édi wanáshe hí éi^{n}te,*} *baxú te há.*
{year which when soldier arrive maybe} write IRR DECL.M
Let him write in what year he enlisted as a soldier. (Dorsey 1891a: 188.11 / George Miller)
(In this excerpt, as in the following ones from the same letter (example (781)), Dorsey writes *baxú t^{h}e ha*. Given that the speaker is making a request, I have corrected *t^{h}e* into *te*, an irrealis marker.)

In (781b), the verb takes an embedded clause as an object rather than an NP.

(781) a. *Umó^{n}thi^{n}ka dádo^n t^{h}édi t'é i^{n}te, Múda,* {*é-shti*} *baxú te há, shó^n mí^n*
year what when die maybe M. {that-too} write IRR DECL.M and moon
dádo^n t^{h}édi t'é i^{n}te.
what when die maybe
In what year did Muda die, and what was the month and day? Let George write this too.

b. {*Múda úshko^n etá k^{h}e pahó^{n}ga e'ó^n íbaho^n k^{h}e*} *baxú te há.*
{M. deed POSS:3 HORIZ first how know COMP} write IRR DECL.M
But let him write first what he knows about Muda's affairs.

c. *ki shi* {*úshko^n takó^{n}ha-uí^n etá k^{h}e*} *shi ukó^{n}ha baxú te há.*
and again {deed deer.sinew-earring POSS:3 HORIZ} again apart write IRR DECL.M
And then let George write on a separate paper about his own affairs.
(Dorsey 1891a: 188.16-18 / George Miller)
(See comment on previous example)

(782) *Umó^{n}thi^{n}ka dádo^n t^{h}édi shó^n shkáxa=i t^{h}e* {*é-shti*} *baxú=ga, gó^n*
year what when enough A2.make=PX? EVID {that-too} write=IMP.M and
u-g-thá=ga há.
(1)-POSS-tell(2)=IMP.M DECL.M

Write in what year you left the Army, and tell how the paper got lost. (Dorsey 1891a: 122.7 / George Miller)

(In the original, *shó^n* 'enough' is written as a free form, but it is glossed "you finished" together with the following word. Thus, it could be seen as a variant of *sho^{n}gáxe* 'to finish')

(783) *Wó^{n}gíthe* {*Ø*} *baxú=biama.*
all {OBJ} write=PP.REPORT
Everyone wrote it, they say. (OLIT-UNL 2018: 525)

(784) {*Izházhe thithíta t^{h}e*} *shpáxu (a)?*
{POSS:3name POSS:2 VERT} A2.write Q
Are you writing/did you write your name? (OLIT-UNL 2018: 527)

C.2.2 Passive interpretation: *baxú* 'it is written'

In two instances in Dorsey's texts, *baxú* is used with a passive interpretation (see §4.8), as shown below.

(785) *Waxí^{n}ha wi^n, dadíha, Hexága-mó^{n}thi^n t^{h}í-the thó^n o^{n}thó^{n}baho^n=bázhi, níashí^{n}ga*
paper one father.VOC H. arrive-CAUS RND A1PL.know=PL.NEG person
uk^{h}éthi^n baxú=i tho^n égo^n.
common write=PP RND as
Father, we do not understand the letter which Hehaka-mani [Walking Elk] has sent, as it is written in the Indian language. (Dorsey 1890: 657.9-658.1 / Gahige)

(Dorsey comments that Walking Elk has sent a letter written in Umó^{n}ho^n)

(786) *Waxí^{n}ha shu-hí t^{h}édi, waxí^{n}ha-gáwa baxú-de shó^n mazhó^n bthúga uthí'a=i*
paper DIR-arrive when paper-flap.open write-as(?) and land all scatter=PP
t^{h}e, gó^{n}ki wí^n i-ó^n-k^{h}ithá=ga.
when then one arriveP1SG-DAT.CAUS=IMP.M
When this letter reaches you, and it is put in a newspaper and scattered over the whole country, send me a paper. (Dorsey 1890: 736.6 / Hupetha)

C.2.3 Possessive derivation: *gipáxu*

The verb *baxú* is derived once in Dorsey's texts with the possessive prefix, yielding *gipáxu* 'to write {*one's own x*}'[3], as reproduced below.

(787) *shéna* {*izházhe*} *o^n-gí-paxu shu-thé-o^n-tha=i.*
enough POSS:3-name A1PL-POSS-write DIR-go-A1PL-CAUS=PL
Only we write our names and send to you. (Dorsey 1890: 687.10 / To^{n}wo^n-gaxe-zhi^{n}ga or Hupetha)

[3]The possessive prefix *gi-* turns the stem-initial /b/ into a voiceless /p/.

Moreover, *gipáxu* is attested twice in OLIT-UNL (2018) in the idiomatic expression *wanóⁿshe gipáxu* 'to enlist in the military' (literally: "army write-one's-own"). I assume that in these cases, "one's own name" is an implicit object.

(788) *Thi-tínu* *akʰa* *wanóⁿshe* *gi-páxu* *tʰe* *tha-gí-sithe?*
POSS:2-elder.borther PX.SG army POSS-write when A2-POSS-remember
Do you remember when your older brother enlisted in the military? (OLIT-UNL 2018: 574)

(789) *Wanóⁿshe* *gi-páxu* *ta* *akʰa,* *wi-nísi* *akʰa.*
army POSS-write IRR EVID POSS:1SG-child PX.SG
My son will enlist in the army. (OLIT-UNL 2018: 575)

C.2.4 Derivations with the antipassive/indefinite prefix *wa-*: *wabáxu*

In (790), the prefix *wa-* has an antipassive function, since the verb *wabáxu* refers to the ability to write. No object is implied.

(790) *íe* *thapí,* *wa-báxu* *shteóⁿ=i.*
language INS:mouth-*good ANTIP-write even(?)=PL
They speak English, and they even write letters. (Dorsey 1891a: 35.8 / Kaxé-Thoⁿba)
(This refers to children going to boarding schools.)

In (791), the antipassive verb *wabáxu* is converted into an agent noun, 'writer'.

(791) *shóⁿ* *wabágtheze* *uxthé-xchi* *thé,* *wa-báxu* *théthu* *thiⁿkʰé,* *éskana* *tha-'í*
now letter quickly-INTENS go ANTIP-write here OBV.SIT.SG OPT A2-give
gthí-tha-the *koⁿbthégoⁿ.*
arrive.back-A2-CAUS A1SG.hope
I hope that, as this letter goes very soon, you will give one and send it to the writer who is here. (Dorsey 1890: 509.2-3 / Dúba-moⁿthiⁿ)

In (792), the prefix *wa-* acts as an indefinite object marker, and does not reduce the verb's valency (see §7.3.2).

(792) *Wa-shpáxu* *tʰí-tha-the* *thoⁿ* *a-nóⁿ'oⁿ* *éde* *u'óⁿthiⁿgé.*
INDEF-A2.write arrive.here-A2-CAUS RND.REL A1SG-hear but in.vain
I have heard what you wrote and sent hither, but it is in vain. (Dorsey 1891:64.1 / Gahige)

C.2.5 Causative derivations: *baxú-kʰithe* and *wabáxu-kʰithe*

Since both *baxú* and *wabáxu* denote agentive actions, the dative causative *-kʰithe* is the only one which can be used (see §5.1.1 and §5.6)[4]. It is attested twice as a causative marker on

[4]The causative derivation with *-the* could be expected if *baxú* were used with a passive reading (denoting the state of being written), as is the case for *unóⁿ'oⁿ_the* 'to make {x} be heard of'. The causative *-the* can also derive agentive verbs when they denote an action done accidentally (no control). See §5.1.

the verb *baxú* 'to write {x}', and once on the antipassive verb *wabáxu* 'to write', as shown in the three examples below.

(793) *úshko^n í^n-t^{h}exi ge baxú-a-k^{h}ithé=no^n=mó^n tá mi^{n}k^{h}e.*
deed D1SG-hard SCT write-A1SG-DAT.CAUS=HAB=1SG.AUX IRR 1SG.AUX
From time to time I will get him to write about those things [the things which are difficult for me to endure]. (Dorsey 1890: 630.13-4 / Tenuga nazhi^n)

(794) *shi {wi-k^{h}ágе} {thé} baxú-o^n-k^{h}ithé, k^{h}agé-ha.*
again POSS:1SG-friend this write-A1PL-DAT.CAUS friend-VOC
We have caused one of our friends to write this. (Dorsey 1890: 762.3 / Te-zhe-bate)

(795) *{Ní^{n}kashí^{n}ga 'ó^n ak^{h}á} wa-báxu-k^{h}ith áthi^n=i ak^{h}á é baxú=i t^{h}e,*
{person use(?) PX.SG} ANTIP-write-DAT.CAUS have=PP PX.SG that write=PP when
wí^n bthíze=no^n=mó^n.
one A1SG.take=HAB=1SG.AUX
When Indians of any tribe have someone to write letters, stating how the people are, and he sends a letter, I usually receive it. (Dorsey 1890: 716.7 / Ishtáthabi)
("*wabáxuk^{h}itháthi^{n}í*" is written as one word in the original text.)

C.2.6 Oblique applicative derivation: *ábaxu*

The derived form *ábaxu* is only attested in OLIT-UNL (2018). The prefix *á-* can act as an applicative marker adding an object, as in (796). In this case, the first object is what is written (head of the RC), and the second object is the paper.

(796) *{Wagthábaze} á-paxu thé-k^{h}e í^n-do^{n}ba=ga!*
letter AP:SUPESS-write this-HORIZ D1SG-look=IMP.M
Look over what I've written down on this paper for me! (OLIT-UNL 2018: 579)

In all other occurrences, *á-* does not have an applicative function, and the derived form *ábaxu* means 'to write down {x}', as in (797). Three other examples of *ábaxu* 'to write down {x}' can be found in OLIT-UNL (2018).

(797) *{Wa-báxu k^{h}e} á-shpaxu shkó^{n}zhi^{n}ga=bazhi.*
NMLZ-write HORIZ AP:SUPESS-A2.write A2.ignore=PL.NEG
You (plural) don't not know how to write the letters/word. (OLIT-UNL 2018: 531)

C.2.7 Dative applicative derivation: *gíbaxu*

C.2.7.1 Adding a recipient

(798) a. *K^{h}agé-ha, ó^{n}bathé wi-síthe-gó^n, {wabágtheze} wí-paxu, íe*
friend-VOC today A1SG/P2-remember letter A1SG/D2-A1SG.write word
júba. (...)
few

My friend, as I think of you today, I write you a letter of a few words.

b. *ki* *o^n-ní^{n}ta* *o^n-gó^{n}tha=i* *ádo^n* {*wabágtheze thé*} *wí-paxu*
and A1PL-alive A1PL-want=PL therefore letter this A1SG/D2-A1SG.write
ha.
DECL.M

But we wish to live, therefore I write a letter to you. (Dorsey 1890: 677.5 and 678.5 / Joseph La Flesche)

(799) *ki* {*wabágtheze thétho^n*} *i^n-thí-baxú=i* *t^{h}e* *wakó^{n}da ak^{h}á*
and letter this-RND A1PL-D2-write=PL when God PX.SG
zhu-áwa-gthé-xti *gthí^n égo^n=i,*
(1)- P1PL-be.with(2)-INTENS sit thus=PX

And when we write this letter to you God is, as it were, sitting with us, ... (Dorsey 1890: 680.14 / Joseph La Flesche)

(800) *tigó^n-ha,* {*íe* *júba-xchi*} *wí-paxu* *ha.*
grandfatherVOC word few-INTENS A1SG/D2-A1SG.write DECL.M

Grandfather, I write a very few words to you. (Dorsey 1890: 725.8 / Richard Rush)

(801) *Edádo^n íutha thi^{n}gé.* *í^n-udó^n-xti* *a-názhi^n,* *wí-shti.* *ki* {*shéna,*} *k^{h}agé-ha,*
what news to.lack D1SG-good-INTENS A1SG-stand 1SG-again and enough friend-VOC
wí-paxu *ó^{n}bathé.*
A1SG/D2-A1SG.write today

There is no news. I, too, am very well. My friend, I have written enough to you today. (Dorsey 1891a: 14.10 / Fred Merrick)

(802) *shó^n wabágtheze thé-tho^n* *shtó^{n}ba=i* *ki,* *tha'e-áwa-thá-tha=i* *o^n-gó^{n}tha=i*
and letter this-RND A2.look=PL? when pity=P1PL-A2-CAUS=PL? A1PL-want
égo^n, {*Ø*} *i^n-thí-baxú=i* *ha.*
as obj A1PL-D2-write=PL DECL.M

We write to you because we wish you to pity us when you see this letter. (Dorsey 1891a: 24.10 / Joseph La Flesche)

(In this letter there is no explicit object, but a definite object is retrievable from the context. There is an available antecedent in the preceding sentence.)

(803) *ó^{n}bathé* {*íe* *júba-xchi*} *wí-paxu* *tá=mi^{n}k^{h}e,* *k^{h}agé-ha.*
today word few-INTENS A1SG/D2-A1SG.write IRR=1SG.AUX friend-VOC

0 friend, I will write to you to-day about a very few matters. (Dorsey 1891a: 114.1 / George Miller)

(804) {*shéna*} *wí-paxu* *ha.*
enough A1SG/D2-A1SG.write DECL.M

I have written enough to you. (Dorsey 1891a: 116.17 / George Miller)

(805) a. *tahó^n-ha, ó^{n}bathé {íe júba-xchi} wí-paxu tá mi^{n}k^{h}e.*
brother.in.law-VOC today word few-INTENS A1SG/D2-A1SG.write IRR 1SG.AUX
Brother-in-law, I will write you a few lines to-day. (Dorsey 1891a: 118.1)

b. *shéna, tahó^{n}ha, {íe k^{h}e} wí-paxu.*
enough brother.in.law-VOC word HORIZ A1SG/D2-A1SG.write
Brother-in-law, I have written you enough. (Dorsey 1891a: 118.1 and 118.7, beginning and middle of the letter / George Miller)

(806) *K^{h}agé-ha, {íe júba-xchi} ó^{n}bathé wí-paxu.*
friend-VOC word few-INTENS today A1SG/D2-A1SG.write
O friend, I write you a few lines to-day. (Dorsey 1891a: 122.1 / George Miller)

(807) *..., ki {Páthi^n wépaho^n amá ána t'a=í} í^n-baxu*
and Pawnees A1SG.O3PL.know PX.PL how.many die=PL D1SG-write
í-tha=ga.
come-CAUS=IMP.M
..., send me word how many have died of the Pawnees whom I know.

shi {{i^{n}dádo^n} i^n-thé-shpaxu thkó^{n}hna} í^n-baxú=ga.
again what D1SG-A2-A2.write A2.want D1SG-write=IMP-M

And write whatever you wish to write to me.

{shó^{n}ge shti ána wáshni^n éi^{n}te} í^n-baxú=ga.
horse too how.many O3PL.have maybe D1SG-write=IMP-M

Write to me how many horses you have. (Dorsey 1890: 488.8-9 / Joseph La Flesche)
(This extract is directly following (774). It is the end of the letter)

(808) *ki wagáxe tha-gí-to^n t^{h}edí-hi ó^{n}p^{h}o^n-ha o^{n}thá'i 'i-thá-the*
and debt A2-POSS-have when-arrive elk-skin P1SG-A2-give (1)-A2-promise(2)
{wabágtheze} i^n-thé-shpaxu t^{h}i-ó^n-tha-k^{h}ithé t^{h}édi.
letter D1SG-A2-A2.write arrive-P1SG-A2-DAT.CAUS when
When you sent the letter to me, you said in it [that] you promised to give me an elk hide by the time that you received [the] money owing to you. (Dorsey 1890: 55.5 / No^{n}zadazhi)

(809) *í^{n}t^{h}o^n {waxí^{n}ha tho^n} wágazú-xti wí-paxu shu-thé-a-the.*
now paper RND straight-INTENS A1SG/D2-A1SG.write DIR-go.there-A1SG-CAUS
I have now written a straightforward letter to you. (Dorsey 1890: 78.3 / Giházhi)

The following example shows a rare case where three arguments are encoded by the verb: the agentive A (second person), the recipient D (first person singular), and the patient/theme O (the information written, corresponding here to the persons whose names the speaker is asking for).

(810) *Edádo^n íutha {ní^{n}kashi^{n}ga=ma t'e=má zaní-xti izházhe}*
what news person=OBV.PL die=OBV.PL all-INTENS poss:3-name
wá-i^n-thé-shpaxú gí-tha-the ko^{n}bthégo^n
O3PL-D1SG-A2-A2.write come.back-A2-CAUS A1SG.hope
I hope that you will send back what news there is, and write for me the names of all the people who have died. (Dorsey 1890: 513.3 / Waníta-wáxe)

C.2.7.2 Adding a beneficiary

(811) *í^n-baxu gthí^n ak^{h}á, ithádithaí shti, wáxe ushté amá shti, shó^{n}ge t^{h}o^n*
D1SG-write sit PX.SG agent too White remaining PX.PL too horse OBV.STD
íbahó^n=i.
know=PL
He who is writing this for me, the agent, and the other white people, know the horse. (Dorsey 1890: 693.13 / Sho^{n}to^n-zhi^{n}ga)
(Sho^{n}to^n-zhi^{n}ga is speaking of a stolen horse.)

C.2.7.3 Meaning 'to charge {x} with {y}'

(812) *Wa'ú wiwíta commissary t^{h}édi edádo^n gó^{n}tha=i ki, tha-'í ko^{n}bthégo^n,*
woman POSS:1SG when whatever want=PX when A2-give A1SG.hope
i^n-thé-shpaxu ko^{n}bthégo^n, wí.
D1SG-A2-A2.write A1SG.hope I
When my wife desires any article from the commissary, I hope that you will give it to her and charge it to my account. (Dorsey 1891a: 98.8 / Shahietha)

C.2.7.4 Changing P into B (valency-rearranging)

In five occurrences, the dative prefix adds a recipient, but the base object is apparently removed. These examples are at odds with examples in C.2.8, where the prefix *wa-* is used when the object is absent, nonspecific or indefinite.

(813) *Gátho^n shtó^{n}be ki uxthé-xchi ék^{h}ito^n í^n-baxú=i=ga.*
that A2.see when quickly-INTENS immediately D1SG-write=PL=IMP.M
When you see this letter, do not let any time pass before you write to me. (Dorsey 1890: 690.4-5 / Ishtathabi)

(814) *"A-gthí te", eshé. Wé-baxú=ga!*
A1SG-arrive.back IRR A2.say P1PL-write=IMP.M
You said, "I will return". Write to us. (Dorsey 1891a: 637.3 / Hexaga)

(815) *úshko^n thé shkó^{n}na t^{h}e téxi hégа=zhi.*
deed this A2.want VERT difficult little=NEG
This course of action which you desire is a very difficult one.

Table C.1: Other examples of *gíbaxu* 'to write {x} to {y}' adding a recipient

Umó^{n}ho^{n} sentence and translation	Speaker and source
shó^{n} mazhó^{n} thagthí^{n} thó^{n} thúto^{n}xti í^{n}baxu gítha-ga, zhi^{n}théha. Send me in writing, O elder brother, a very accurate account of the land in which you dwell.	Ishtáthabi Dorsey 1890, 496.2
K^{h}agéha, íe júbaxchi wípaxu shuthéathe. My friend, I send you a very few words in writing.	Spafford Woodhull Dorsey 1890, 655.1
Edádo^{n} wi^{n} máthadi uwíbtha ha. Wípaxu bthíshto^{n} máthadi, íe k^{h}e shó^{n}sho^{n} shi uwíbtha ha. Last winter I told you about one thing. I continue to tell you the words which I succeeded in writing to you last winter.	Joseph La Flesche Dorsey 1890, 677.6
Gó^{n}ki íutha ázhi thi^{n}géxtio^{n} ádo^{n} uwíbtha-mázhi. shéna gó^{n} wípaxu shuthéathe. Now, there is no other news at all, therefore I do not tell you anything. I have written enough to you.	Mo^{n}ch^{h}ú-No^{n}ba Dorsey 1890, 721.6-7
shó^{n} uxthéxchi í^{n}baxu ítha-ga. Write and send a letter to me very soon.	Edward Esau Dorsey 1890, 723.11
zhi^{n}théha, ó^{n}bathé edádo^{n} wíka tá mi^{n}k^{h}e, ádo^{n} wabágtheze wípaxu shuthéathe. Elder brother, I ask something of you as a favor to day, therefore I write you a letter.	Dúba-mo^{n}thi^{n} Dorsey 1890, 750.10-11
K^{h}agéha, shó^{n} wabágtheze íe júbaxchi wípaxu shuthéathe. My friend, I write you a letter of a very few words, and send it to you.	No^{n}zadazhi Dorsey 1891, 15.1
Wabágtheze wípaxu shuthéathe, tó^{n}wo^{n}gtho^{n} thó^{n}di mo^{n}ní^{n} éi^{n}te. I send you a letter, wherever you are in the city.	No^{n}zadazhi Dorsey 1891, 15.4
shó^{n} wabágtheze wípaxu shuthéathe. I write a letter and send it to ask you some questions.	No^{n}zadazhi Dorsey 1891, 16.5
údo^{n}xti o^{n}thí^{n}-bi é gíbaxu théthe-nó^{n}i ha. They report to him that we are doing very well.	*Kaxé-Tho^{n}be* Dorsey 1891, 26.17
shó^{n} wabágtheze íe júba wípaxu shútheathe. I write you a few words.	No^{n}zadazhi Dorsey 1891, 43.1

Wí=no^{n} e-wé-paxú=no^{n}=mó^{n} éde gí-texi ha.
I=HAB(?) A1SG-D3PL-A1SG.write=HAB=1SG.AUX DAT-difficult DECL.M

I have generally written for them, but (this) is (a) difficult thing for (one to undertake).

(Dorsey 1890: 44.1 / Gahige)

(816) *Ithádithaí amá baxú o^n-wó^n-shi shtewó^n égithe wé-baxu=bázhi=nó^n=i;*
agent PX.PL write A1PL-O3PL-employ despite finally D1PL-write=PL.NEG=HAB=PL
Though we employ the agents to write (to the President about these things), behold, they do not write for us!

wé-baxú=bi a=í shtewó^n, wí^{n}k^{h}a=bázhi=nó^n=i ha iathádiathaí amá.
D1PL-write=PL say=PL despite tell.the.truth=PL.NEG=HAB=PL DECL.M agent PX.PL

Notwithstanding they say that they have written for us, the agents do not speak the truth. (Dorsey 1891a: 27.5-8 / Kaxé-Tho^{n}ba)

C.2.8 Combination of dative and antipassive/indefinite: *wagíbaxu*

The verb *wagíbaxu* enters in several types of constructions, as shown in the following sections.

C.2.8.1 *Wa-* combined with an overt object: *wagíbaxu* 'to write {x} to {y}

(817) {*Waxí^{n}ha gá-tho^n*} *wa-wí-paxú shu-thé-a-the.*
paper this-RND ?-A1SG/D2-A1SG.write DIR-go.there-A1SG-CAUS
I have written that letter to send to you (Dorsey 1890, 483.1 / Wazhí^n-ska)

(818) *ó^{n}bathé-go^n* {*waxí^{n}ha*} *wa-wí-paxú.*
today-as paper ?-A1SG/D2-A1SG.write
As it is to day, I write you a letter. (Dorsey 1890: 478.7 / Kishké)

(819) *shó^n ó^{n}bathé, zhi^{n}théha,* {*íe wi^n-áxchi*} *wa-wí-paxu*
well today elder.brother word one-INTENS ?-A1SG/D2-A1SG.write
shu-thé-a-the.
DIR-go.thereA1SG-CAUS
O elder brother, I write to you to-day about one subject. (Dorsey 1891a: 99.1 / Tato^{n}ga-Nazhi^n Zhi^{n}ga)
(First sentence of the letter. See other extracts of the same letter in Table C.2)

Example (820) is very interesting because the bare noun *wabágtheze* 'letter' could be interpreted as an object, but according to the translation proposed by Dorsey, it could also be interpreted as an adjunct. As shown in C.2.8.4, Dorsey regularly proposes three translations for verbs with *wa-* and no overt object: "to write", "to write (about) something", and "to write (about) things", but there are no differences in the Umó^{n}ho^n sentence structures.

(820) *Shó^n ó^{n}bathé wi-síthe-xti, wabágtheze wa-wí-paxú=i.*
and today A1SG/P2-remember-INTENS letter INDEF?-A1SG/D2-A1SG.write=PP
As I am thinking much about you to-day, I write to you a letter on different subjects. (Dorsey 1890: 742.9 / Homna)

C.2.8.2 Prefix *wa-* as INDEF: *wagíbaxu* 'to write {*something*} to {*y*}'

In the following examples, the prefix *wa-* stands for the verb object, which is not expressed as an NP. This object is indefinite but specific: "something". Many examples show the sequence *wawípaxu shuthéathe* without any overt object, meaning "I write something and send it to you". This expression is typically found at the beginning of letters. A few examples are glossed in (821) through (823), and all of the others are shown in Table C.2. Example (824) shows the same verb sequence with a 3rd person subject.

(821) *ó^{n}bathé* *wa-wí-paxu* *shu-thé-a-the.*
today INDEF-A1SG/D2-A1SG.write DIR-go.thereA1SG-CAUS
I write something to you and send it to you today. (Dorsey 1890: 775.1 / Te-úko^{n}ha)

(822) *Wí í^{n}tha=mázhi=no^n* *shó^{n}sho^n bthí^n.*
I D1SG.GLAD=1SG.NEG=HAB always 1SG.OBV.MOV
But I was ever sorrowful.

í^{n}ch^{h}o^n-xchi *í^{n}the* *ha,* *ádo^n* *wa-wí-paxu*
now-INTENS D1SG.GLAD DECL.M therefore INDEF-A1SG/D2-A1SG.write
shu-thé-a-the.
DIR-go.thereA1SG-CAUS

Now I am glad, therefore I write to you about several matters. (Dorsey 1890: 735.9-10 / Hupetha)

(823) *Pahó^{n}ga-di* *wa-wí-paxu* *shu-thé-a-the* *thó^{n}zha,* *wabágtheze*
before-LOC INDEF-A1SG/D2-A1SG.write DIR-go.thereA1SG-CAUS although letter
xátha *gthí-tha-thá=zhi.*
back.again arrive.back-A2-CAUS=NEG
I wrote about several matters to you formerly, but you have not sent a letter back again. (Dorsey 1890: 723.1 / Edward Esau)

(824) *Gó^{n}ki Itígo^{n}thaí a-thi^{n}k^{h}é* *wa-gí-baxu* *a-thé-a-tha=i* *t^{h}édi,*
then President ?-OBV.SIT.SG INDEF-DAT-write PL?-go-?-CAUS=PL when
And when the agents send to the President a report, ...

údo^n-xti *o^n-thí^n=bi* *é* *gí-baxu* *thé-the=nó^n=i* *ha.*
good-INTENS A1SG-OBV.MOV=PL this DAT-write go-CAUS=HAB=PL DECL.M

... they report to him that we are doing very well. (Dorsey 1890: 26.16 / Kaxé-Tho^{n}ba)

C.2.8.3 Unclear function of *wa-*

In (825) and (826), which I initially classified as instances of the indefinite function of *wa-*, an NP introduced by *égo^n* 'as', 'so it is', follows the verb sequence, and could be interpreted as an object of the verb *wagíbaxu*, an object of the verb "to send" only, or an adjunct. Note that both examples are from the same speaker. Further investigation is required.

Table C.2: Other examples of *wagíbaxu* 'to write {*something*} to {*y*}'

Umó^{n}ho^{n} sentence and translation	Speaker and source
ó^{n}bathé wabthíto^{n}-xti-mó^{n} tá mi^{n}k^{h}e. ki wisíthego^{n} wawípaxu shuthéathe. I shall work very hard to-day. And as I think of you, I write about some things and send the letter to you.	Húpetho^{n} Dorsey 1890, 523.1
shéna wawípaxu shuthéathe ha. shó^{n} uxthéxchi gthió^{n}thak^{h}ithe waxí^{n}ha. I have sent you enough in writing. You (will please) send a letter back very quickly.	Spafford Woodhull Dorsey 1890, 656.5-6
ó^{n}bathé wawípaxu shuthéathe ha. I write to you to-day about several matters and send to you.	Fred Merrick Dorsey 1890, 741.1
shó^{n} e'ó^{n} ki, uxthéxchi i^{n}wí^{n}tha t^{h}ítha-ga. ó^{n}bathé wawípaxu shuthéathe. Send very soon to tell me whether my request can be granted. I write something to you and send it to you to day.	Te-uko^{n}ha Dorsey 1890, 775.7
K^{h}agéha, ó^{n}bathéxchi wawípaxu shuthéathe. Friend, I write to you this very day upon different subjects.	Páthi^{n}-no^{n}pázhi Dorsey 1891, 52.5
ó^{n}bathé wawípaxu shuthéathe. So I write to you to-day.	Tato^{n}ga-Nazhi^{n} Zhi^{n}ga Dorsey 1891, 99.3
shó^{n} ó^{n}bathé gó^{n}, wisíthe go^{n}, wawípaxu shuthéathe. I send you a letter to-day because I remember you.	Tato^{n}ga-Nazhi^{n} Zhi^{n}ga Dorsey 1891, 100.3

(825) *shó^{n} wa-wí-paxu shu-thé-a-the íe júba-xchi égo^{n}.*
and ?-A1SG/D2-A1SG.write DIR-go.thereA1SG-CAUS word some-INTENS as
I write to you about several matters, sending you a very few words. (Dorsey 1891a: 18.1 / No^{n}zadazhi)

(826) *shó^{n}, k^{h}agé-ha, ó^{n}bathé wisíthe wa-wí-paxu*
and friend-VOC today A1SG/P2-remember ?-A1SG/D2-A1SG.write
shu-thé-a-the, íe júbaxchi égo^{n}.
DIR-go.thereA1SG-CAUS word some-INTENS as
My friend, I remember you to day, and I write to you about various matters, sending you a very few words. (Dorsey 1890: 744.1 / No^{n}zadazhi)

In (827) through (830), the verb *wagíbaxu* is used without any overt object, but there is a definite antecedent, and Dorsey proposes a translation with a definite object. In such cases, two analyses are possible: (1) *wa-* is an antipassive marker (the subject one writes about being understood from the context, but not implied in the verb), (2) there is a definite object which is not overt in these sentences but which could be expressed, in which cases these examples are similar to those in C.2.8.1.

(827) *Kaxé-gíoⁿ eátʰoⁿ xátha kʰí=i a. Edádoⁿ éwoⁿ tʰe wágazu*
Crow-fly why back.agin reach.back=PX EMPH.M what to.cause VERT straight
a-nóⁿ'oⁿ kóⁿbtha.
A1SG-hear A1SG.wish
Why did Flying Crow return home ? I wish to hear a true account of the cause.

shtóⁿbe ki, wa-íⁿ-baxu ágazhi=ga.
A2.see if ANTIP?-D1SG-write command=IMP.M

Should you see him, tell him to write to me about it." (Dorsey 1891a: 112.17-8 / George Miller)

(828) *ki shóⁿ íe kʰe shu-thé kʰe bthúga, Óⁿpʰoⁿ-tóⁿga, thí shti tha-nóⁿ'oⁿ té=oⁿ.*
and in.fact word HORIZ DIR-go HORIZ all O. you too A2-hear IRR=AUX
wa-wí-paxú.
ANTIP?-A1SG/D2-A1SG.write
And, in fact, I have written to you all the words that I send to your land, that you, too, Óⁿpʰoⁿ-tóⁿga, may hear them. (Dorsey 1890: 483.7-8 / Wazhíⁿ-ska)
(Towards the middle of the letter.)

(829) *Uxthé wa-íⁿ-baxú=ga.*
soon ANTIP?-D1SG-write=IMP.M
Write to me soon about these things. (Dorsey 1890: 726.4 / Richard Rush)
(Last sentence of the letter.)

(830) *Itígoⁿthaí wagáxthoⁿ etá amá noⁿ'óⁿ íⁿ-goⁿtha=i égoⁿ,*
President servant POSS:3 PX.PL hear A1PL.DAT-want=PL as
wá-iⁿ-thí-baxú=i ha.
ANTIP?-A1PL-D2-write=PL DECL.M
As we wish the President to hear about his servants, we write to you about these things. (Dorsey 1891a: 27.9 / Kaxé-Thoⁿba)
(Last sentence of Kaxé-Thoⁿba's speech.)

C.2.8.4 Ambiguous examples: *wagíbaxu* 'to write ({*something*}?) to {*y*}'

In many examples, the verb *wagíbaxu* is used without any overt object, and without any antecedent. Such examples are regularly translated by Dorsey as "to write", "to write (about) something" or "to write (about) things"[5], but but there are no differences in the Umóⁿhoⁿ sentence structures. Five examples are glossed in (831) through (835), and five others are shown in Table C.3.

(831) *Kʰagé-ha, wa-wí-paxu.*
friend-VOC ANTIP?-A1SG/D2-A1SG.write

[5]In his original publication, Dorsey sometimes translates "to write about something" in the interlinear gloss, and "to write" in the free translation, or vice-versa. Here, only his free translation is reproduced.

O friend, I write to you about something. (Dorsey 1891a: 55.1 / Noⁿzadazhi)
(First sentence of the letter.)

(832) *Máshoⁿ Hexága-sábe ethóⁿba, akʰíwa wa-wí-paxú=i.*
Feather Elk-black him.too both ANTIP?-A1SG/D2-A1SG.write=PL
Feather and Black Elk, I write to you both. (Dorsey 1891a: 79.1 / Ishtathabi)
(First sentence of the letter.)

(833) *Kʰagé-ha, níⁿkashíⁿga u-áwa-thá-kʰie né tháthiⁿ-shethóⁿ, níⁿkashíⁿga*
friend-VOC person (1)-P1PL-A2-talk(2) A2.go you.go-in.past(?) person
thé-ama oⁿbathé thi-sítha=i égoⁿ, wá-iⁿ-thí-baxú=i ha,
that-PX.PL today P2-remember=PL as ANTIP?-A1PL-D2-write=PL DECL.M
My friend, you who were going after talking to us, as these men remember you to-day, we have written to you about several things. (Dorsey 1891a: 25.18 / Kaxé-Thoⁿba)
(Introductory sentence of Kaxé-Thoⁿba.)

(834) *ki shé-thoⁿ thé shu-hí tʰe shtóⁿbe tʰe ékʰitoⁿhá wa-íⁿ-baxú=ga.*
and that-RND this DIR-arrive when A2.see when immediately ANTIP?-D1SG-write=IMP.M
And when this letter reaches you, and you see it, write to me in return one of equal length and about several topics.

shóⁿ e'óⁿ tha-názhiⁿ ki, wá-iⁿ-thé-shpaxú kóⁿbtha. iⁿwíⁿth
now how A2-stand if ANTIP?-D1SG-A2-A2.write A1SG.wish D1SG.tell
í-tha=ga.
arrive-CAUS=IMP.M

I wish you to write to me how you are progressing. Send hither to tell me. (Dorsey 1890: 662.7-8 / Ishtathabi)

(835) *Kagé-ha, óⁿbathé níⁿkashíⁿga thé-ama wa-thí-baxu tá ama ha;*
friend-VOC today person this-PX.PL ANTIP?-D2-write IRR EVID DECL.M
My friend, these Indians write to you to-day.

ki wi-zhíⁿthe íe wíⁿ oⁿ-'í gthé ethégoⁿ égoⁿ thi-síthe égoⁿ
and POSS:1SG-elder.brother word one P1SG-give go.back think as P2-remember as
waiⁿthíbaxu t-óⁿgatʰoⁿ.
ANTIP?-A1PL-D2-write IRR-1PL.EVID?

We write to you because we remember how you, our elder brother, gave us some advice before you started home. (Dorsey 1890: 751.11 / Te-úkoⁿha)

C.2.9 Nominalizing prefixes: *wabáxu* and *wébaxu*

The nominalization with the prefix *wa-* is often translated as "a letter" in Dorsey's texts (16 occurrences). One example is reproduced in (836). Since the nouns and NPs are not the primary focus of this work, and an exhaustive search of the form *wabáxu* is easily done, the other examples are not reproduced. See also C.2.4 for an example of *wabáxu* 'writer'.

Table C.3: Other examples of *wagíbaxu* 'to write ({*something*}?) to {*y*}'

Umó^{n}ho^n sentence and translation	Speaker and source
shó^n e'ó^n thanázhi^n the winó^n'o^{n}i kó^{n}btha, ádo^n wawípaxúi. I wish to hear how you are, therefore I write to you.	Ishtáthabi Dorsey 1891, 79.7
Ní^{n}kashí^{n}ga thábthi^n shéna wawípaxúi ha. I write to you three men on various matters.	Homna Dorsey 1890, 742.1
K^{h}agéha, wái^{n}thíbaxúi ha. O friend, we write to you on various matters.	Kaxé-Tho^{n}ba(?) Dorsey 1891, 34.1
ó^{n}bathé, k^{h}agéha, wawípaxu. My friend, I write to you about various things to-day.	Fred Merrick Dorsey 1891, 54.1
o^{n}ní^{n}ta ki, wisíthe ha, ádo^n wawípaxú. As we live, I remember you, therefore I write several things to you.	Ishtathabi Dorsey 1890, 662.3

(836) *Wa-báxu wí^n shu-thé-wi-k^{h}íthe.*
NMLZ-write one DIR-go-A1SG/D2-CAUS
I cause someone to send you a letter. (Dorsey 1890: 507.5 / Te-úko^{n}ha)

OLIT-UNL (2018) does not use *wabáxu* in reference to a letter posted by mail, but uses it as "(alphabet) letter, word". Ten occurrences of this kind are attested, two of which are reproduced below.

(837) *Shiko^n-há! Izházhe thithíta t^{h}e wa-báxu k^{h}e á-thada!*
sister.in.law-VOC.F name your VERT NMLZ-write HORIZ AP:SUPESS-pronounce
Sister-in-law! Spell your name! (woman speaking) (OLIT-UNL 2018: 553)

(838) *Íe t^{h}e wa-báxu k^{h}e íbaho^n.*
speak COMP NMLZ-write HORIZ know
She knows how to spell the word. (OLIT-UNL 2018: 523)

The prefix *wé-* results from the fusion of the nominalizing *wa-* with the instrumental applicative préfix *í-*. As mentioned in §7.3.3, the prefix *wé-* can be considered to be reanalyzed as a single nominalizing prefix deriving nouns that denote instruments, because the verbal counterparts are generally not attested. The verb **íbaxu* 'to write {*x*} with {*y*}' is not attested. Conversely, the noun *wébaxu* is attested and means 'pencil, pen' (Dorsey n.d.b). It is not attested in Dorsey's texts, but 35 occurrences were found in (OLIT-UNL 2018), one of which is reproduced below.

(839) *Wé-baxu k^{h}e aní^n a?*
NMLZ.AP:INS-write HORIZ A2.have Q
Do you have a pencil? (OLIT-UNL 2018: 527)

C.2.10 Irregular forms or indeterminate uses

The research results comprise three irregular forms or irregular constructions. In (840), the verb *baxú* is used intransitively.

(840) *Baxú.*
S/he is writing. (OLIT-UNL 2018: 530)

In (841) we see the verb *gipáxu*, with a possessive derivation like in C.2.3, with two objects: the thing written and the recipient. This verb does not have the dative prefix, however, and the recipient is encoded with the P person marker. This is probably due to the fact that the dative and possessive prefixes are etymologically related, and cannot occur on the same verb (§3.4.1).

(841) {*íe dádo^n shtéshtewo^n*} *éskana, nisí-ha,* *o^n-thá-gi-shpáxu* *i-tha-tha=i*
word what soever OPT shild-VOC P1SG-A2-POSS-A2.write come-A2-CAUS=PP
ko^{n}bthégo^n.
A1SG.hope
My child, I hope that you will write and send me some word or other. (Dorsey 1890: 41.11 / To^{n}wo^{n}gaxe-zhi^{n}ga)

Example (842) is very intriguing, displaying the verb form *i^n-wí^n-shpaxu* translated "You write to me". First, it seems to express a command, but the verb is not conjugated with an imperative form (A2 is encoded, and there is no *=ga* IMP.M). Secondly, the prefixal sequence *i^n-wí^n-* does not correspond to the persons involved here, as Dorsey comments. Since the object written is not mentioned, *wí^n-* could stand for the indefinite/antipassive prefix *wa-*, with a vowel assimilation across /w/ (§3.5.1). The indefinite/antipassive *wa-* does not seem to be generally submitted to morphophonological changes (§7.2.2). The sequence *i^{n}wí^n-* corresponds to the A1PL/O3PL combination of the dative paradigm (see Table B.13 on p. 521).

(842) *shó^n shu-hí* *t^{h}édi* *uxthé-xchi* *i^n-wí^n-shpaxu,* *zhi^{n}thé-ha.*
now DIR-arrive quickly-INTENS D1SG-INDEF?-A2.write elder.brother-VOC
When the letter reaches you, elder brother, write to me very quickly. (Dorsey 1890: 496.1 / Ishtáthabi)
(Comment by Dorsey (p. 496) on the form *i^{n}wí^{n}shpaxu*: a case of *hapax legomenon*. The regular form is, *i^{n}théshpaxu*, "You write to me".)

C.3 *Gthó^n* vs. *mí^{n}gtho^n*: exhaustive list of occurrences in (Dorsey 1890, 1891a)

The distinction between the non-incorporating verb *gthó^n* 'to marry {*her*}' and the incorporating equivalent *mí^n_gthó^n* 'to take a wife', 'to marry' is described and analysed in §8.3.4. In this appendix, all occurrences of verbs with *gthó^n* as a root are listed in Table C.4. The column "Mark." indicates if there is an overt object, and of which kind (bare noun, noun and definite marker, etc.). The column "Ref." indicates the object's referential status (nonspecific, indefinite, definite).

References in bold font in the column "Source" correspond to the examples glossed in the next sections.

Comments [1] (line 4): there is a relative clause. The object is indefinite at the RC level, but definite in the matrix clause.
Comment [2] (line 6): the bare noun *thizhó^{n}ge* includes the possessive *thi-* 'your', which is a marker of definiteness.

Table C.4: All occurrences of verbs with the root *gthó^n*

Umó^{n}ho^n clause	**Source**	**Verb**	**Mark.**	**Ref.**
{*ní^{n}kagahi izhó^{n}ge wi^n*} *gthó^n-biamá.*	**51.08**	*gthó^n*	*wi^n*	indef.
{*Wa'ú wi^n*} *agthó^n kó^{n}btha, páthi^n wa'ú wi^n.*	**645.14**	*gthó^n*	*wi^n*	indef.
Sam ak^{h}á {*wa'ú wi^n*} *údo^{n}xti gthó^{n}i*	**(91) 91.4**	*gthó^n*	*wi^n*	indef.
{*Wa'ú wi^n*} *agthó^n ehé thi^{n}k^{h}é, ó^{n}p^{h}o^n-tó^{n}ga igáxtho^n zhi^{n}gá thi^{n}k^{h}é,*	**(91) 92.16**	*gthó^n*	*wi^n*	indef. [1]
thak^{h}íbanó^{n}i thagío^{n}shna thagthí ki, {*wa'ú*} *thagthó^n tai*	**331.13**	*gthó^n*	bare noun	def.
ní^{n}kagahi izhí^{n}ge ak^{h}á {*thizhó^{n}ge*} *gthó^n gó^{n}thai, á-biamá.*	**200.15**	*gthó^n*	bare noun	def. [2]
égithe {*wa'ú*} *gthó^n-biamá Íshibázhi ak^{h}á.*	**387.16**	*gthó^n*	bare noun	indef.
Wáxe-hébe ak^{h}á {*pó^{n}ka wa'ú*} *wagthó^{n}i.*	**409.01**	*gthó^n (+ wa-)*	bare noun	indef.
Nisíha, {*wa'ú*} *wagthó^n ki, zhó^{n}wa'ó^{n}he-hnó^{n}i ha.*	**387.19**	*gthó^n*	bare noun	nonsp.
Hau! thí t'éthathe kízhi {*shí^{n}gazhi^{n}ga wiwíta*} *thagthó^n tat^{h}é*	**124.18**	*gthó^n*	def. (other)	def.
{*shí^{n}gazhí^{n}ga wiwíta*} *wáxe-sábe gthó^n te eshaí ki gthó^n tat^{h}é ha.*	**125.011**	*gthó^n*	def. (other)	def.
Gó^n {*nó^{n}ba*} *wagthó^n-biamá.*	**148.12**	*gthó^n*	def. (other)	def.
ó^{n}p^{h}o^n-tó^{n}ga igáxtho^n zhi^{n}gá thi^{n}k^{h}é, {*é*} *agthó^n,*	(91) 92.16	*gthó^n*	def. (other)	def.
ki é ak^{h}íwaha ki'í-bi egó^n wagtho^n-biamá.	**86.07**	*gthó^n*	def. (other)	def.
ó^{n}ho^n, k^{h}agéha, {*wa'ú*} *pahó^{n}ga agthó^n thi^{n}k^{h}é í^n-nashaí égo^n (...)*	**70.07**	*gthó^n*	def. art.	def.
Wi^{n}ó^{n}wa {*ní^{n}kagahi izhó^{n}ge thi^{n}k^{h}é*} *gíthik^{h}ith éi^{n}te gthó^n t^{h}e aí átha,*	112.02	*gthó^n*	def. art.	def.
Wahó^{n}thishige ak^{h}á {*ní^{n}kagahi izhó^{n}ge thi^{n}k^{h}e*} *gó^n gthó^n*	113.13	*gthó^n*	def. art.	def.
wáxe-sábe {*wa'ú thi^{n}k^{h}é*} *gthó^n tat^{h}é*	**125.04**	*gthó^n*	def. art.	def.
{*Mí^{n}zhi^{n}ga thi^n*} *gthó^n-biamá Hi^{n}xpé-ágthe, edíhi ki.*	170.01	*gthó^n*	def. art.	def.
Gó^n, to^{n}déha, {*théthi^{n}k^{h}é mí^{n}zhi^{n}ga thi^{n}k^{h}é*} *thagthó^n t^{h}e ha.*	221.05	*gthó^n*	def. art.	def.
{*ní^{n}kagahi izhó^{n}ge thi^{n}k^{h}é*} *gthó^n-biamá ha*	223.07	*gthó^n*	def. art.	def.
{*Wa'ú thi^{n}k^{h}é*} *gthó^n-bi ki, ...*	296.18	*gthó^n*	def. art.	def.
{*Wa'ú thi^{n}k^{h}é*} *thagthó^n shkó^{n}hnai ki, ...*	330.19	*gthó^n*	def. art.	def.
Gó^n {*wa'ú thi^{n}k^{h}é*} *gthó^n-biamá nú ak^{h}á.*	332.11	*gthó^n*	def. art.	def.
{*Wa'ú*} *agthó^n thi^{n}k^{h}é ó^{n}thina t'áthi^n.*	497.14	*gthó^n*	def. art.	def.
ébe t'éthe thi^{n}k^{h}é {*izhó^{n}ge thi^{n}k^{h}é*} *gthó^n te*	**587.05**	*gthó^n*	def. art.	def.

Umó^{n}ho^n clause	**Source**	**Verb**	**Mark.**	**Ref.**
Izhó^{n}ge tho^{n}k^{h}á no^{n}bá éi^{n}ge {nó^n thi^{n}k^{h}é} Ishtínik^{h}e ak^{h}á gthó^n-biamá.	**589.05**	*gthó^n*	def. art.	def.
{zhi^{n}gá thi^{n}k^{h}é} gthó^n-biamá.	**591.15**	*gthó^n*	def. art.	def.
{wa'ú gát^{h}edi (wáthixázhi) thi^{n}k^{h}é} agthó^n kó^{n}btha	613.02	*gthó^n*	def. art.	def.
{Wa'ú} gthó^n thi^{n}k^{h}é aná'o^n kó^{n}btha,	698.09	*gthó^n*	def. art.	def.
thíegtho^{n}ge o^{n}gthó^n t^{h}e he, á-biamá.	171.08	*gthó^n*	pers. mark.	def.
Gó^n nú thi^{n}k^{h}é thigthó^n tat^{h}é, á-biamá.	**171.1**	*gthó^n*	pers. mark.	def.
Gá-biamá: Wígthó^n tá mi^{n}k^{h}e.	**193.05**	*gthó^n*	pers. mark.	def.
ní^{n}kagahi izhí^{n}ge ak^{h}á o^{n}gthó^n 'íthai, á-biamá.	**193.08**	*gthó^n*	pers. mark.	def.
Wigthó^n thó^{n}zha wagásho^n bthée ha.	**221.09**	*gthó^n*	pers. mark.	def.
shí^{n}gazhí^{n}ga wiwíta wáxe-sábe gthó^n te eshaí ki gthó^n tat^{h}é ha.	**125.012**	*gthó^n*	Ø	def.
tó^{n}wo^{n}gtho^n bthúga níawathaí ha, ádo^n gthó^n te eshaí ki gthó^n te ha, á-biamá.	**125.031**	*gthó^n*	Ø	def.
tó^{n}wo^{n}gtho^n bthúga níawathaí ha, ádo^n gthó^n te eshaí ki gthó^n te ha, á-biamá.	**125.032**	*gthó^n*	Ø	def.
Go^n gthó^n-biamá.	**200.18**	*gthó^n*	Ø	def.
... mazhó^n wédazhiata gashíbe théthathai ki, thagthó^n tai.	330.19	*gthó^n*	Ø	def.
Ahní^n thagthí ki thagthó^n tat^{h}é, á-biamá.	**346.15**	*gthó^n*	Ø	def.
gthó^n-bi ki, ...	**387.17**	*gthó^n*	Ø	def.
ó^{n}bathé ní^{n}kashí^{n}ga wí^n gthó^n gó^{n}thai égo^n, ...	613.1	*gthó^n*	Ø	def.
"ebé a níashí^{n}ga gthó^n gó^{n}tha thí^{n}ké," á-biamá.	613.12	*gthó^n*	Ø	def.
shó^n níashi^{n}ga wí^n {wa'ú wí^n} mí^{n}gthó^n ki	**384.01**	*mí^{n}gthó^n*	*wi^n*	indef.
Frank {wa'ú} mí^{n}gthó^n éde t'ée ha, núgeadi.	**487.11**	*mí^{n}gthó^n*	bare noun	indef.
Gó^n mí^{n}gtho^{n}i égo^n, gó^n gthí^n-biamá Ishtínik^{h}e ak^{h}á.	**589.06**	*mí^{n}gthó^n*	Ø	nonsp.
Gó^n gthi^n-biamá, mí^{n}gtho^n-bi egó^n.	**591.15**	*mí^{n}gthó^n*	Ø	nonsp.
Gó^n gthí^{n}i t^{h}e, mí^{n}gtho^{n}i égo^n.	**592.02**	*mí^{n}gthó^n*	Ø	nonsp.
Mí^{n}gthó^n t^{h}égo^n úho^n-biamá ki tó^{n}wo^{n}gtho^n tho^n bthúga wék^{h}u-biamá.	112.1	*mí^{n}gthó^n*	Ø	nonsp.
Ní^{n}kashi^{n}ga bthúgaxti mí^{n}gthó^n t^{h}égo^n wék^{h}u-biamá.	**124.19**	*mí^{n}gthó^n*	Ø	nonsp.
Mí^{n}gthó^n t^{h}égo^n úho^{n}i t^{h}e ús'u wí^n thahé gí-ga, á-biamá.	**125.06**	*mí^{n}gthó^n*	Ø	nonsp.
ó^{n}ho^n, shínudo^n mí^{n}gthó^n t^{h}égo^n úho^{n}i t^{h}e wathát^{h}e thahé gí t^{h}e dó^{n}be t^{h}íawak^{h}ithaí, á-biamá.	**125.15**	*mí^{n}gthó^n*	Ø	nonsp.
t'étha-biamá núzhi^{n}ga í^{n}cho^n mí^{n}gthó^n ak^{h}á.	**200.2**	*mí^{n}gthó^n*	Ø	nonsp.
Gó^n é nugé the wó^{n}githe nó^{n}i égo^n mí^{n}gtho^n-biamá,	**86.08**	*mí^{n}gthó^n*	Ø	nonsp.

Umó^{n}ho^n clause	**Source**	**Verb**	**Mark.**	**Ref.**
Níashi^{n}ga mí^{n}gthó^n amá wó^{n}githe té wak^{h}ída-biamá.	**86.15**	*mí^{n}gthó^n*	Ø	nonsp.
ki wa'ú shti úwak^{h}iá-do^n mí^{n}gthó^{n}shteó^n-ga, á-biamá.	176.05	*mí^{n}gthó^n*	Ø	nonsp.
Hau! mí^n-thagthó^n te, nisíha.	**200.11**	*mí^{n}gthó^n*	Ø	nonsp.
ádo^n wó^{n}githe mí^{n}gthó^n-biamá ha	223.09	*mí^{n}gthó^n*	Ø	nonsp.
Mí^{n}agthó^n tá mi^{n}k^{h}e, á-biamá.	**262.02**	*mí^{n}gthó^n*	Ø	nonsp.
izhí^{n}ge ak^{h}á shti mí^{n}gthó^n-bázhi t^{h}e.	345.02	*mí^{n}gthó^n*	Ø	nonsp.
ki níashi^{n}ga mí^{n}gthó^{n}zhi éi^{n}te wa'ú thi^{n}k^{h}é shti 'í-biamá níashi^{n}ga wáspe ak^{h}á.	**365.16**	*mí^{n}gthó^n*	Ø	nonsp.
ki ithádi ak^{h}á mí^{n}gthó^n ágazhí-biamá.	**387.15**	*mí^{n}gthó^n*	Ø	nonsp.
Nisíha, mí^{n}gthó^n égo^n-ga.	**387.15**	*mí^{n}gthó^n*	Ø	nonsp.
Athá-biamá ki, tígtha-biamá, mí^{n}gthó^n-bi egó^n.	**552.01**	*mí^{n}gthó^n*	Ø	nonsp.
"Mi^{n}ágtho^n tá mi^{n}k^{h}e," ethégo^n égo^n, …	626.02	*mí^{n}gthó^n*	Ø	nonsp.
Hi^{n}dá, gó^n mi^{n}ágtho^n gó^n o^{n}wó^{n}xpani gó^n witó^{n}be ko^{n}bthá-xti-mó^n ha.	719.4	*mí^{n}gthó^n*	Ø	nonsp.
K^{h}agéha, na! uwágtha o^{n}thí^{n}i t^{h}e. o^{n}kígtho^n taí, á-biamá.	**86.5**	*kigtho^n*	–	-
shi thé {ushté amá} kigthó^{n}wak^{h}ithá-biamá.	**86.08**	*kigtho^n_k^{h}ithe*		-
Gó^{n}ki shi é máthe the {wó^{n}githe} kigthó^{n}wakithá-biamá shi.	**86.18**	*kigtho^n_k^{h}ithe*		-

C.3.1 Excerpts of "Ishtinik^{h}e and the deserted children" (p. 83-92)

Story told by Nudó^n-axa, published in Dorsey (1890: 83-92)

(843) a. *K^{h}agé-ha, na! uwágtha o^{n}thí^{n}i t^{h}e. o^n-kí-gtho^n ta=í,*
friend-VOC alas! P1PL.suffer(?) A1SG.AUX EVID A1PL-RECP?-marry IRR=PL
á=biamá.
say=PL.REPORT
"Friend, alas! we are sufferers. Let us marry." (86.5)

b. *Gó^n thé núzhi^{n}ga nó^{n}ba pahó^{n}ga ak^{h}á wa'ú nó^{n}ba i-tó^{n}ge-wa-thá.*
and this boy two before PX.SG woman two POSS:3-sister-O3PL-CAUS
And these two leading boys had two sisters. (86.6)

c. *ki é ak^{h}íwaha ki-'í=bi egó^n wa-gtho^n=biamá.*
and that both RECP-give=PL as O3PL-marry=PP.REPORT
And each boy having given his sister to the other boy, they married them. (86.7)

d. *Shi thé ushté amá ki-gthó^n-wa-k^{h}ithá=biamá.*
and this remaning PX.PL RECP-marry-O3PL-CAUS=PX.REPORT
And they caused the rest to marry one another. (86.8)

e. *Gó^n é nugé t^{h}e wó^{n}githe nó^n=i égo^n mí^n-gtho^n=biamá, gthéba nó^{n}ba át^{h}a=biamá.*
and that summer VERT all grown=PL as female-marry=PL.REPORT ten two beyond=PL.REPORT
And that summer, all who were somewhat grown took wives, twenty-odd. (86.8-9)

(844) a. *Máthe ki shi té wa-k^{h}ída=biamá.*
winter when again buffalo O3PL-shoot=PL.REPORT
When it was winter, they shot at the buffaloes. (86.15)

b. *Níashi^{n}ga mí^n-gthó^n amá wó^{n}githe té wak^{h}ída=biamá.*
person female-marry PX.PL all deer O3PL-shoot=PL.REPORT
All of the persons who had taken wives shot at them. (86.15-6)

c. *(...)*

d. *Gó^{n}ki shi é máthe t^{h}e wó^{n}githe ki-gthó^n-wa-k^{h}ithá=biamá shi.*
and again that winter VERT all RECP-marry-O3PL-DAT.CAUS=PL.REPORT again
And that winter they caused all the rest to marry one another. (86.18)

C.3.2 Excerpts of "Waho^{n}thishige and Wako^{n}dagi" II (p. 116-126)

Story told by Joseph La Flesche, published in Dorsey (1890: 116-126)

(845) a. *Hau! thí t'é-tha-the kízhi shí^{n}gazhi^{n}ga wiwíta tha-gthó^{n} tat^{h}é, á=biamá*
ho! you die-A2-CAUS if child POSS:1SG A2-marry IRR say=PX.REPORT
ní^{n}kagahi ak^{h}á.
chief PX.SG
"Well, if you killed him, you shall marry my daughter." (124.18)

b. *Gó^{n} úho^{n}=biamá, wathát^{h}e gaxá=biamá. Ní^{n}kashi^{n}ga bthúga-xti*
and ANTIP.cook=PL.REPORT food make=PL.REPORT person all-INTENS
mí^{n}-gthó^{n} t^{h}égo^{n} wék^{h}u-biamá.
female-marry for D3PL-invite=PL.REPORT
And they cooked; they prepared food. All the people were invited to the marriage feast. (124.19)

c. *"Shí^{n}gazhí^{n}ga wiwíta wáxe-sábe gthó^{n} te esha=í ki gthó^{n} tat^{h}é ha."*
child POSS:1SG White-black marry IRR A2.say=PL if marry IRR DECL.M
And the chief said to the people, "If you say that the black man may marry my child, he shall surely marry her." (125.1)
(This example shows that *Wáxe*, commonly translated as "White", designates in fact non-Indian people. So, a black man is a "black White".)

d. *ki ní^{n}kashi^{n}ga amá gá=biamá:*
and person PX.PL say=PL.REPORT
And the people said as follows: (125.2)

e. *ó^{n}ho^{n}, tó^{n}wo^{n}gtho^{n} bthúga ní-awa-tha=í ha, ádo^{n} gthó^{n} te*
yes nation all alive-P1PL-CAUS=PX DECL.M therefore marry IRR
esha=í ki gthó^{n} te ha, á=biamá.
A2.say=PL if marry IRR DECL.M say=PX.REPORT
"Yes, he has saved us, the whole tribe, therefore if you say that he may marry her, let him marry her."

f. *ki núzhi^{n}ga ak^{h}á íbaho^{n} gthí^{n}=biamá, wáxe-sábe wa'ú thi^{n}k^{h}é gthó^{n}*
and boy PX,SG know sit=PX.REPORT White-black woman OBV.SIT.SG marry
tat^{h}é; gítha=bázhi gthí^{n}=biamá.
IRR glad=PX.NEG sit=PX.REPORT
And the boy sat knowing it. He sat sorrowful, because the black man was to marry the woman. (125.4-5)

g. *Gá=biamá núzhi^{n}ga ak^{h}á: "Mó^{n}ze-tháxo^{n}-á, édi mo^{n}thí^{n}=ga ha.*
say=PX.REPORT boy PX.SG M.-VOC there walk=IMP.M DECL.M
The boy said as follows: "O Mó ze-Tháxo , go thither.

h. *Mí^{n}-gthó^{n} t^{h}égo^{n} úho^{n}=i t^{h}e ús'u wí^{n} thahé*
female-marry in.order.that cook=PL RELAT piece one carry.in.mouth
gí=ga", á=biamá.
come.back=IMP.M say=PL.REPORT
Bring back in your mouth a slice of the meat that is cooked for the marriage-feast". (125.6)

(846) *shínudo^n mí^n-gthó^n t^{h}égo^n úho^n=i t^{h}e wathát^{h}e thahé gí t^{h}e*
The dog which came back with a slice of meat in his mouth, taken from the marriage-feast (125.15-6)
(Same clause as in (845h))

C.3.3 Excerpts of "The Chief's son, the snake-woman, and the thunders" (p. 189-200)

Story told by Sho^{n}ge-ska, published in Dorsey (1890: 189-200)

(847) a. *Athá=biamá ki égithe wa'ú údo^n-xti wí^n ítha=biamá.*
go.PX.REPORT when finally woman good-INTENS one find=PX.REPORT
At length the man (i.e., her husband) departed. He found a very beautiful woman, ... (193.5)

b. *Gá=biamá: "Wí-gthó^n tá mi^{n}k^{h}e."*
say=PX.REPORT A1SG/P2-MARRY IRR 1SG.AUX
"I will marry you. (...)" (193.5-6)

c. *(...)*

d. *Gá=biamá: "Dadihá, í^{n}no^{n}ha mégo^n, ní^{n}kagahi i-zhí^{n}ge ak^{h}á o^n-gthó^n 'ítha=i", á=biamá.*
say=PX.REPORT father.VOC mother.VOC likewise chief POSS:3-son PX.SG P1SG-marry promise=PX say=PL.REPORT
She said, "O father and mother, the chief's son has promised to marry me." (193.7-8)

(848) *Hau! mí^n-tha-gthó^n te, nisí-ha. Wa'ú wí^n ahní^n te, á=biamá.*
ho! female-A2-marry IRR child-VOC woman one A2.have IRR say=PX.REPORT
"Ho! You shall take a wife. You shall have a woman," said he. (200.11)

(849) a. *ní^{n}kagahi i-zhí^{n}ge ak^{h}á thi-zhó^{n}ge gthó^n gó^{n}tha=i, á=biamá.*
Chief POSS:3-son PX.SG POSS:2-daughter marry want=PX say=PL.REPORT
"The chief's son wishes to marry your daughter," said they. (200.15)

b. *(...)*

c. *Gó^n 'í=biamá wa'ú thi^{n}k^{h}é nú thi^{n}k^{h}é.*
and give=PL.REPORT woman OBV.SIT.SG man OBV.SIT.SG
And he [the father] gave the woman [his daughter] to the man. (200.17)

d. *Gó^n gthó^n=biamá.*
and marry=PX.REPORT
And he married her. (200.18)

e. *Wa'ú shti tó^n=biamá, tí tó^n=biamá núzhi^{n}gá ak^{h}á.*
woman too have=PX.REPORT lodge have=PX.REPORT boy PX.SG
The boy had a woman, and he had a lodge. (200.18)

f. *Gó^{n}ki níashi^{n}ga ázhi-atát^{h}o^n wénaxithá=biamá.*
and person different-ABL O3PL.attack=PL.REPORT
And people from a different place rushed on them [the tribe]. (200.19)

g. *(...)*

h. *ki édi t'é-tha=biamá núzhi^{n}ga í^{n}ch^{h}o^n mí^n-gthó^n ak^{h}á.*
and there die-CAUS=PL.REPORT boy now female-marry PX.SG
And the boy who had just married was killed there. (200.20)

C.3.4 Excerpts of "History of Ishibazhi" (p. 384-389).

Story told by Joseph La Flesche, published in Dorsey (1890: 384-389)

(850) *shó^n níashi^{n}ga wí^n wa'ú wí^n mí^n-gthó^n ki,...*
and person one woman one female-marry when
A man took a wife and had one child. (384.1)
(Introductory clause for a new story; the Umó^{n}ho^n sentence is divided into two sentences in Dorsey's translation.)

(851) a. *ki ithádi ak^{h}á mí^n-gthó^n ágazhí=biamá.*
and POSS:3.father PX.SG female-marry command=PX.REPORT
And his father commanded him to marry. (387.15)

b. *Nisí-ha, mí^n-gthó^n égo^n=ga.*
child-VOC female-marry like.it=IMP.M
"My child, do take a wife." (387.15)

c. *ki uthí'age=hnó^n=biamá Íshibázhi ak^{h}á.*
and want.not=HAB=PX.REPORT I. PX.SG
And Ishibazhi was unwilling for some time. (387.16)

d. *égithe wa'ú gthó^n=biamá Íshibázhi ak^{h}á.*
finally woman marry-PX.REPORT Ishibazhi PX.SG
At length Ishibazhi took a woman. (387.16)

e. *gthó^n=bi ki, Íshibázhi ak^{h}á wa'ú thi^{n}k^{h}é zhó^n'o^{n}ha=bázhi=hno^n sho^{n}shó^n=biamá.*
marry=PX when I. PX.SG woman OBV.SIT.SG lay.on=PX.NEG=HAB continually=PX.REPORT
When he married her, Ishibazhi never lay with the woman. (387.17)

f. *(...) ki ithádi ak^{h}á gá=biamá:*
and POSS:3.father PX.SG say=PX.REPORT
(...) And his father said as follows: (387.18)

g. *Nisí-ha, wa'ú wa-gthó^n ki, zhó^n-wa-'ó^{n}he=hnó^n=i ha.*
child-VOC woman O3PL-marry when lie-O3PL-lay=HAB=PL DECL.M
"My child, when they marry women, they usually lie with them.(...)" (387.19)

C.3.5 Excerpts of "Adventures of the Orphan" (p. 586-603).

Story told by George Miller, published in Dorsey (1890: 586-603)

(852) *"ébe t'é-the thi^{n}k^{h}é izhó^{n}ge thi^{n}k^{h}é gthó^n te," á-biamá.*
who die-CAUS OBV.SIT.SG POSS:3-daughter OBV.SIT.SG marry IRR say=PL.REPORT
"Whoever kills the bird can marry the chiefs daughter." (587.5)

(853) a. *I-zhó^{n}ge tho^{n}k^{h}á no^{n}bá éi^{n}te nó^n thi^{n}k^{h}é Ishtínik^{h}e ak^{h}á gthó^n=biamá.*
POSS:3-daughter OBV.SIT.PLP two maybe grown OBV.SIT.SG I. PX.SG marry=PX.REPORT

b. *Gó^n mí^n-gtho^n=i égo^n, gó^n gthí^n=biamá Ishtínik^{h}e ak^{h}á.*
(See ex. (854), same sentence structure)
And Ishtinik^{h}e married the elder daughter of the chief, making his abode in the chief's lodge. (589.5-6)

(854) a. *... zhi^{n}gá thi^{n}k^{h}é gthó^n=biamá.*
small OBV.SIT.SG marry=PX.REPORT

b. *Gó^n gthi^n=biamá, mí^n-gtho^n=bi egó^n.*
and sit=PX.REPORT female-marry=PX as
"...he (the Orphan) married the younger daughter of the chief, making his abode in the chief's lodge." (591.15)

(855) a. *Wa'ú ak^{h}á giáhe 'ítha=bi ki, uthí'age=nó^n=biamá Wahó^{n}thishíge ak^{h}á.*
woman PX.SG DAT.comb promise=PX when want.not=HAB=PP.REPORT W. PX.SG
When the wife wished to comb his hair, the Orphan was unwilling.

b. *Gó^n gthí^n=i t^{h}e, mí^n-gtho^n=i égo^n.*
(See ex. (854), same sentence structure)
(Not translated. Could be translated literally as: "Thus the Orphan sat (= stayed), having married")

C.3.6 Excerpts of diverse tales and letters

(856) *tó^{n}wo^{n}gtho^n wi^n édi ahí=bi egó^n ní^{n}kagahi izhó^{n}ge wi^n gthó^n=biamá.*
nation one there PX-arrive=PX as chief POSS:3-daughter one marry=PX.REPORT
Ishtinik e went to a village, and married one ofthe chief's daughters. (Dorsey 1890: 51.8 / Nudó^n-axa)

(857) *ó^{n}ho^n, k^{h}agé-ha, wa'ú pahó^{n}ga a-gthó^n thi^{n}k^{h}é í^{n}nasha=í égo^n (...)*
yes friend-VOC woman before A1SG-marry OBV.SIT.SG D1SG.take.from=PP as

"Yes, my friend, the woman whom I married formerly having been taken from me, (...) (Dorsey 1890: 70.7)

(858) *Gó^n nó^{n}ba wa-gthó^n=biamá.*
and two O3PL-marry=PP.REPORT
And he married the two. (Dorsey 1890: 148.12 / Nudó^n-axa)

(859) *Gó^n nú thi^{n}k^{h}é thi-gthó^n tat^{h}é, á=biamá.*
and man OBV.SIT.SG P2-marry IRR say=PL.REPORT
The man shall surely marry you. (Dorsey 1890: 171.10 / Joseph La Flesche)

(860) *Wi-gthó^n thó^{n}zha wagásho^n bthée ha.*
A1SG/P2-marry though travel A1SG.go DECL.M
"though I have taken you as my wife, I go traveling." (Dorsey 1890: 221.9)
(It is not clear to me what the second "e" of the word *bthée* stands for.)

(861) *"Mí^n-a-gthó^n tá mi^{n}k^{h}e", á=biamá.*
female-A1SG-marry IRR 1SG.AUX say=PX.REPORT
"I will take a female." (Dorsey 1890: 262.2 / Te-úko^{n}ha)

(862) *tha-kí-banó^n=i tha-gí-o^{n}shna tha-gthí ki, wa'ú tha-gthó^n ta=i,*
A2-REFL-run=PL A2-POSS(?)-A2.leave A2-arrive.back if woman A2-marry IRR=PX(?)
á=biamá.
say=PX.REPORT
If you run a race together, and you come back ahead of her, you can marry the other woman. (Dorsey 1890: 331.13 / Joseph La Flesche)

(863) *ki níashi^{n}ga mí^n-gthó^n=zhi éi^{n}te wa'ú thi^{n}k^{h}é shti 'í=biamá*
and person female-marry=NEG maybe woman OBV.SIT.SG too give=PX.REPORT
níashi^{n}ga wáspe ak^{h}á.
person gentle
And the sedate man gave a woman, too, to a man who, perhaps, had not married. (Dorsey 1890: 365.16 / Joseph La Flesche)

(864) *Ahní^n tha-gthí ki tha-gthó^n tat^{h}é, á=biamá.*
A2.have A2-arrive.back when A2-marry IRR say=PL.REPORT
"If you bring him back, you shall marry her," said he. (Dorsey 1890: 346.15 / Ó^{n}p^{h}o^n-To^{n}ga)

(865) *Wáxe-hébe ak^{h}á pó^{n}ka wa'ú wa-gthó^n=i.*
White-part PX.SG Pa^{n}ka woman ANTIP?-marry=PX
A half-caste married a Ponka woman. (Dorsey 1890: 409.1 / Ó^{n}p^{h}o^n-To^{n}ga)

(866) *Frank wa'ú mí^n-gthó^n éde t'ée ha, núge-adi.*
F. woman female-marry but die DECL.M summer-LOC

By the by, Frank took a wife last summer, but she is dead. (Dorsey 1890: 487.11 / Joseph La Flesche)
(It is not clear to me what the second "e" of the word *t'ée* stands for.)

(867) *Athá=biamá ki, tí-gtha=biamá, mí^n-gthó^n=bi egó^n.*
PX-go=PX.REPORT when lodge-*stay=PX.REPORT female-marry=PX as
Ishtinik e married and dwelt in a lodge. (Dorsey 1890: 552.1 / Frank La Flesche)
(First sentence of a tale)

(868) *Wa'ú wi^n a-gthó^n kó^{n}btha, páthi^n wa'ú wi^n.*
woman one A1SG-marry A1SG.wnant Pawnee woman one
I desire to marry a Pawnee woman. (Dorsey 1890: 645.14 / Maxpíya-xága)

(869) *Sam ak^{h}á wa'ú wi^n údo^n-xti gthó^n=i.*
S. PX.SG woman one good-INTENS marry=PX
Sam has married a fine woman. (Dorsey 1891a: 91.4 / Mo^{n}shu-nita)

(870) *Wa'ú wi^n a-gthó^n ehé thi^{n}k^{h}é, Ó^{n}p^{h}o^n-tó^{n}ga i-gáxtho^n zhi^{n}gá thi^{n}k^{h}é, (...)*
woman one A1SG-marry A1SG.say OBV.SIT.SG Elk-big POSS:3-wife young OBV.SIT.SG
The woman whom I said that I have married is the younger wife of (the late) Big Elk. (Dorsey 1891a: 92.17 / Masho^n-ska)

Appendix D

Recordings made

D.1 Umó^{n}ho^{n} sentences for the class

This recording was made in May 2017 at Octa Keen's house. I submitted a list of sentences in English to Háwatay thi^{n}ge, and I recorded her while she translated them into Umó^{n}ho^{n}. Then, the recording was edited in order to leave out repetitions and gaps. Below is the transcription of the recording. The transcription was checked with Háwatay thi^{n}ge and Octa. The parsing and gloss is mine.

(871) **1.** *Umó^{n}ho^{n} íye nípi a?*
Umó^{n}ho^{n} language A2.do.good Q
Do you speak Umó^{n}ho^{n}? Are you good at speaking Umó^{n}ho^{n}?

(872) **2.** *I^{n}dádo^{n} shpáxu a?*
what A2.write Q
What did you write ?

(873) **3.** *K^{h}é, áthada i^{n}dádo^{n} shpáxu t^{h}e.*
come! read what A2.write VERT
Read what you have written.

(874) **4.** *íye t^{h}e íshpaho^{n} a?*
language/words VERT A2.know Q
Do you understand ?

(875) **5.** *Wáxe íye t^{h}e nípi a?*
White language VERT A2.do.good Q
Do you speak English?
(The original English sentence was: "What does '...' mean in English?")

(876) **6.** *Tízhebe t^{h}e ánasa*
door VERT close[IMP.F]
Close the door.

(877) **7.** *Tha-nóⁿshtoⁿ shkóⁿna?*
A2-stop A2want[Q]
Do you want to stop for a while ?

(878) **8.** *Kʰé, shénoⁿ! shi thé-wa-the*
come! enough again go-P1PL-CAUS
That's enough, let's start again.

(879) **9.** *kʰe thé-wa-the*
come! go-P1PL-CAUS
Come here, let's start again.

(880) **10.** *shénoⁿ!*
enough
That's enough.

(881) **11.** *kʰe gí a*
come! come IMP.F
Come here.

(882) **12.** *Umóⁿhoⁿ íye-wa-the*
Umóⁿhoⁿ speak-P1PL-CAUS
Let's speak.

(883) **13.** *washkóⁿ a!*
persevere/try IMP.F
Try to do your best.

(884) **14.** *údoⁿ shkáxa / nípi*
good A2.make A2.do.well
(both versions) You did well.

(885) **15.** *tha-gí-sithathe?*
A2-POSS-remember
Do you remember this?

(886) **16.** *wabthágeze níshtóⁿ=i a?*
"letter" A2.finish=PL Q
Have you finished the exercice?

(887) **17.** *bthíshtoⁿ.*
A1SG.finish
I have finished.

(888) **18.** *shetʰóⁿ=noⁿ bthíshtoⁿ=mazhi.*
that.far=HAB A1SG.finish=1SG.NEG
I have not finished.

(889) **19.** *k^{h}e athí^n mo^{n}thi^n a.*
come! have walk IMP.F
Your turn.

(890) **20.** *thí edéshe a.*
you A2.say Q
What did you say?

(891) **21.** *wasníde ía.*
slow speak[IMP.F]
Speak slower.

(892) **22.** *shí égitha.*
again say[IMP.F]
Can you repeat?

(893) **23.** *o^n-thá-no^n'ó^n a?*
P1SG-A2-hear Q
Do you hear me? Did you understand?

D.2 Octa Keen's speech

I recorded Octa Keen on Friday July 26, 2019, at Omaha. The speech is about four minutes long. I transcribed it and submitted a first draft version to her within a few days. I also gave her several CD copies and one copy on a flashdrive. Octa helped me understand some parts of the recording, e.g. sentence 9. A few months later I sent her by post clean copies of the transcription. Two versions of the transcription are reproduced here: first the version which I shared with Octa, second a version with the same interlinear gloss as I use throughout this dissertation.

D.2.1 Transcription shared

In this section, I present the transcription and interlinear glossing that I shared with Octa, dated August 10, 2019.

(894) **1.** *Izházhe wiwíta t^{h}e… I^{n}ké-sabe wa'ú mo^{n}bthí^n.*
name my Black Shoulder woman I walk
My name is… I am a woman of the Black Shoulder (I^{n}ké-sabe) Clan.

(895) **2.** *Míto^n'i izházhe-t^{h}e abthí^n.*
New Moon name-the I have
My name is Míto^n'i.

(896) **3.** *Ó^{n}bathe, Umó^{n}ho^n íye t^{h}e awáshko^n-no^n-mo^n.*
today Umó^{n}ho^n speak that I am trying
Today, I'm trying to speak Umó^{n}ho^n.

(897) **4.** *Wáxe wa'ú akʰá éshti théthudi tʰí wéahide tʰí Paris, France, áh.*
white woman the too in here arrived far arrived (declaration)
The white lady too, she arrived from far away, she arrived from Paris, France.
(The word *théthudi* is pronounced *"théudi"*, which is one of the fast speech forms)

(898) **5.** *Awatʰégoⁿ uwáwakoⁿ tá-akʰa thi íshpahoⁿ taya Wakóⁿda tínuha Jesus íbahoⁿ.*
how you help us will you you know ? W. older brother J. he knows
How you will help us, you know, Wakóⁿda… older brother Jesus, he knows.

(899) **6.** *Óⁿbatʰe Umóⁿhoⁿ íye tʰe wagóⁿze anóⁿzhi-miⁿkʰe.*
today Umóⁿhoⁿ language the teacher I stand
Today I am a Umóⁿhoⁿ language teacher.

(900) **7.** *Atóⁿshte ithápahoⁿ-mazhi-noⁿ-moⁿ góⁿ awáshkoⁿ-noⁿ-moⁿ.*
sometimes I don't know so I do my best
Sometimes I don't know (the words, the meanings), so I'm doing my best.

(901) **8.** *Thí íshpahoⁿ kʰe tha'eoⁿgitha.*
you you know it that pity me
You who knows (the words, meanings), pity me.
(Octa is addressing anyone who might know it and who hears this speech)

(902) **9.** *Umóⁿhoⁿ íye wa'ú ama nóⁿ thiⁿ shi thiⁿgá au? ákiágtha heaven.*
Umóⁿhoⁿ speak woman the mature the too gone ? they have gone back again
The old women who used to speak Umóⁿhoⁿ are gone, they have gone back, to heaven.

(903) **10.** *Wóⁿgithe íye, íye gthíⁿ: Betsy Hastings, Mary Clay,*
all speak speak sit
uncle Clifford and Bertha, Granma Maggie Webster, Victoria Robinson.
All of them are speaking: Betsy Hastings, Mary Clay, uncle Clifford and Bertha, Granma Maggie Webster, Victoria Robinson.
(Reference to the old recordings from the early 1990s that we have been transcribing together)

(904) **11.** *Victoria akʰá, she just left so quick, I didn't even know she was gone.*
the
Victoria, she just left so quick, I didn't even know she was gone.

(905) **12.** *Úshkuda wa'ú akʰá úshkuda.*
kind woman the kind
This woman was very kind, very kind.

(906) **13.** *Góⁿ… oh, Coolidge Stabler éshti uwáwakoⁿ-noⁿ.*
so him too he helps us
So, oh, Coolidge Stabler too, he helped us.

(907) **14.** *Bthúga thi^{n}ge, bthug- they're all gone now.*
all gone all
All of them are gone, they're all gone now.

(908) **15.** *Awát^{h}ego^n báhi-ya ésko^n bthégo^n.*
how pick it up and carry that I am thinking
I'm thinking about how people pick up the language and carry it.

(909) **16.** *Zhi^{n}gá-ama wí^n ak^{h}a Umó^{n}ho^n íye kiwáshko^n ta-ak^{h}a.*
little ones one the Umó^{n}ho^n language try hard will
One of the little ones will try hard to speak Umó^{n}ho^n.

(910) **17.** *Théthudi gthí^n, théthudi gthí^{n}wathe.*
here sit/live here make us sit/live
They live here, they have us live here. (?)

(911) **18.** *Ebé éshti wa ithápaho^n-mazhi.*
who too ? I don't know
I don't know who they are.

(912) **19.** *But théthudi, théthudi gthí^n ta-ak^{h}a.*
here here sit/live will
But they're gonna live here.

(913) **20.** *Umó^{n}ho^n íye wagó^{n}ze gthí^n, tha'éawatha.*
Umó^{n}ho^n language teacher sit pity them
The teacher is gonna be here, and pity them.

(914) **21.** *K^{h}é, ebé-shti, égip^{h}e, sho^n.*
now whoever I have said enough
Now, this is all I have to say (about whoever I spoke about), enough. (?)

D.2.2 Transcription with technical gloss

Below is the same Umó^{n}ho^n transcription, with the interlinear glossing that I use throughout this dissertation. (The list of abbreviations can be referred to on p. 499.)

(915) **1.** *Izházhe wiwíta t^{h}e... I^{n}ké-sabe wa'ú mo^{n}bthí^n.*
name POSS:1SG VERT I. woman A1SG.walk
My name is... I am a woman of the Black Shoulder (I^{n}ké-sabe) Clan.

(916) **2.** *Míto^n'i izházhe t^{h}e abthí^n.*
New.Moon name VERT A1SG.have
My name is Míto^n'i.

(917) **3.** *Ónbathe, Umónho^n íye t^{h}e a-wáshko^n=no^n=mo^n.*
today Umónho^n language VERT A1SG-try=HAB=1SG.AUX
Today, I'm trying to speak Umónho^n.

(918) **4.** *Wáxe wa'ú ak^{h}á é-shti théthu-di t^{h}í wéahide t^{h}í Paris, France, áh.*
white woman PX.SG that-too here-LOC arrive far arrive decl(?)
The white lady too, she arrived from far away, she arrived from Paris, France.
(The word *théthudi* is pronounced *"théudi"*, which is one of the fast speech forms)

(919) **5.** *Awat^{h}égo^n uw-áwa-ko^n tá=ak^{h}a thi íshpaho^n taya Wakó^{n}da tínuha*
how (1)-P1PL-help(2) IRR=AUX you A2.know ? W. older.brother-VOC
Jesus íbaho^n.
J. know
How you will help us, you know, Wakónda… older brother Jesus, he knows.[1]

(920) **6.** *Ónbat^{h}e Umónho^n íye t^{h}e wagó^{n}ze a-nó^{n}zhi mi^{n}k^{h}e.*
today Umónho^n language VERT teacher A1SG-stand 1SG.AUX
Today I am an Umónho^n language teacher.

(921) **7.** *Ató^{n}shte ithápaho^n=mazhi=no^n=mo^n gó^n a-wáshko^n=no^n=mo^n.*
sometimes(?) A1SG.know=1SG.NEG=HAB=1SG.AUX so A1SG-try=HAB=1SG.AUX
Sometimes I don't know (the words, the meanings), so I'm doing my best.

(922) **8.** *Thí íshpaho^n k^{h}e tha'e-o^n-gi-tha.*
you A2.know REL:HORIZ pitiable-P1SG-POSS-CAUS
You who knows (the words, meanings), pity me.
(Octa is addressing anyone who might know it and who hears this speech)

(923) **9.** *Umó^{n}ho^n íye wa'ú ama nó^n thi^n shi thi^{n}gá au? ákiágtha heaven.*
Umónho^n speak woman PX.PL mature OBV.MOV too gone ? go.back.again
The old women who used to speak Umónho^n are gone, they have gone back, to heaven.

(924) **10.** *Wó^{n}githe íye, íye gthí^n: Betsy Hastings, Mary Clay,*
all speak speak sit
uncle Clifford and Bertha, Granma Maggie Webster, Victoria Robinson.
All of them are speaking: Betsy Hastings, Mary Clay, uncle Clifford and Bertha, Granma Maggie Webster, Victoria Robinson.
(Reference to the old recordings from the early 1990s that we were transcribing together)

(925) **11.** *Victoria ak^{h}á, she just left so quick, I didn't even know she was gone.*
px.sg
Victoria, she just left so quick, I didn't even know she was gone.

[1] I associate *ak^{h}a* in *tá=ak^{h}a* to the auxiliary function following Eschenberg's (2005:151) analysis.

(926) **12.** *Úshkuda wa'ú akʰá úshkuda.*
kind woman PX.SG kind
This woman was very kind, very kind.

(927) **13.** *Góⁿ... oh, Coolidge Stabler é-shti uw-áwa-koⁿ=noⁿ.*
so him-too (1)-P1PL-help(2)=HAB
So, oh, Coolidge Stabler too, he helped us.

(928) **14.** *Bthúga thiⁿge, bthug- they're all gone now.*
all gone all
All of them are gone, they're all gone now.

(929) **15.** *Awátʰegoⁿ báhi-ya éskoⁿ bthégoⁿ.*
how pick.up-? that A1SG.think
I'm thinking about how people pick up the language and carry it.

(930) **16.** *Zhiⁿgá ama wíⁿ akʰa Umóⁿhoⁿ íye ki-wáshkoⁿ ta=akʰa.*
small PX.PL one PX.SG Umóⁿhoⁿ language REFL-work.hard IRR=AUX
One of the little ones will try hard to speak Umóⁿhoⁿ.[2]

(931) **17.** *Théthu-di gthíⁿ, théthu-di gthíⁿ-wa-the.*
here-LOC sit here-LOC sit-P1PL-CAUS
They live here, they have us live here. (?)

(932) **18.** *Ebé éshti wa ithápahoⁿ=mazhi.*
who too ? A1SG.know=1SG.NEG
I don't know who they are.

(933) **19.** *But théthu-di, théthu-di gthíⁿ ta=akʰa.*
here-LOC here-LOC sit IRR=AUX
But they're gonna live here.

(934) **20.** *Umóⁿhoⁿ íye wagóⁿze gthíⁿ, tha'é-awa-tha.*
Umóⁿhoⁿ language teacher sit pity-O3PL-CAUS
The teacher is gonna be here, and pity them.

(935) **21.** *Kʰé, ebéshti, égipʰe, shoⁿ.*
now whoever A1SG.say enough
Now, this is all I have to say (about whoever I spoke about), enough. (?)

[2]Same comment as in (919).

Appendix E

Databases

E.1 Morphological causative verbs

Table E.1 shows a sample of verbs containing various causative bound stems. They are alphabetically ordered, with glottal stop *'*at the beginning of the alphabet, ejective consonants before plain voiceless consonants, and plain voiceless consonants before aspirated consonants (e.g., *t'*, *t*, *t*^{h}). The nasal *i*^{n} follows oral *i*. Verb classes or parts of verb classes in parentheses means that I do not have enough data to be certain of the class a verb belongs to: "intr-(a)" means that I know the verb is intransitive, and I suppose that it is intransitive active; "(tr)" means that I suppose that the verb is transitive, etc.

List of comments. (signaled by ****** in the table)

6 *étho*^{n}*be hí_the*. The base is in fact a verb sequence acting as an intransitive stative verb. It could be analyzed as an "adverbial sequence" (see §2.5.6).

18 *nádi*^{n}*di*^{n}*_githe*. The base *di*^{n}*dí*^{n} 'tight/stiff' is attested.

22 *nié_the*. The base *nié* (or *niyé*) is defined as "hurting, in pain" in OLIT-UNL (2018), and as "sore; bedsore; ulcer" in Stabler & Swetland (1991).

23 *ní_the*. The base *ní* is related to *níta* 'to be alive'.

31 *só*^{n}*_kithe(†)*. This verb is not attested, but can be deduced from the applicative counterpart *íso*^{n}*_kithe* 'to whiten oneself with $\{x\}$'.

38 *t'é_the*. See §5.1.1, and in particular (417), for a more precise definition.

51 *tó*^{n}*_the*. The base *tó*^{n} means 'to abound' (intr.) in Dorsey (1891a: 38.8-9). This corresponds to the passive interpretation of the more frequent 'to have $\{x\}$', and it is probably the base of the causative verb *tó*^{n}*_the*.

60 *wathí*^{n}*_githe*. The base *wathí*^{n}*(†)* is not attested as an independent word, but it corresponds to the regular antipassive derivation from the verb *athí*^{n} 'to have $\{x\}$'.

Table E.1: Sample of morphological causative verbs

Nb	Marker	⇓ Verb	Meaning	Source	Base	Meaning	Cat.
1	*-the*	*áhigi_the*	to multiply {x}	ST	*áhigi*	(to be) many	intr-(s)
2	*-k^{h}ithe*	*ák^{h}ihide_k^{h}ithe*	to make {x} watch over {y}	DT	*ák^{h}ihide*	to watch over {x}	tr
3	*-k^{h}ithe*	*baxú_k^{h}ithe*	to make {x} to write {y}	DT	*baxú*	to write {x}	tr
4	*-the*	*bíze_the*	to dry {x}	DT, U	*bíze*	to be dry	intr-s
5	*-k^{h}ithe*	*bíze_the_k^{h}ithe*	to allow {x} to dry {y}	U	*bíze_the*	to dry {x}	tr
6	*-the*	*étho^{n}be hí_the*	to make {x} to come in sight	DT	*étho^{n}be hí* **	to come in sight **	**
7	*-k^{h}ithe*	*gáxe_k^{h}ithe*	to make {x} make {y}	DT, SE	*gáxe*	to make {x}	tr
8	*-k^{h}ithe*	*ginó$^{n'}$o^n_k^{h}ithe*	to make {x} hear about {*their own*}	DT	*ginó$^{n'}$o^n*	to hear {*one's own*}	tr
9	*-the*	*gíthazhi_the*	to make {x} sad	DT	*gíthazhi*	to be sad	intr-s
10	*-k^{h}ithe*	*gthí^n_k^{h}ithe*	to cause / allow {x} to sit	DT, U	*gthí^n*	to sit	intr-a
11	*-the*	*gthó^{n}thi^n_the*	to consider {x} foolish, silly	DT	*gthó^{n}thi^n*	foolish, silly	intr-s
12	*-k^{h}ithe*	*hithá_k^{h}ithe*	to have {x} take a bath	TA	*hítha*	to bathe	intr-(a)
13	*-k^{h}ithe*	*íe_k^{h}ithe*	to proclaim {x}	DT	*íe*	to talk; to speak	intr-a
14	*-k^{h}ithe*	*ímo^{n}xe_k^{h}ithe*	to make {x} ask for {y}	DT	*ímo^{n}xe*	to interrogate {x}; to ask questions to {x}	tr
15	-	*ínie_the(†)*	{*external cause*} to cause pain to {x}	DT	*nié_the*	{*bodypart*} to hurt; to cause pain	tr
16	-	*íso^n_kithe*	to whiten oneself with {x}	DT	*só^n_kithe(†)*	to whiten oneself	intr-a
17	*-k^{h}ithe*	*kigthó^n_k^{h}ithe*	to make {x} marry (each other's relatives)	DT	*kigthó^n*	to marry each other's {*female relative*}	intr-(a)
18	*-githe*	*nádi^{n}di^n_githe*	to make one's {x} stiffer by the heat	DT	*nádi^{n}di^n(†)*	to stiffer by the heat	intr-s

Sample of morphological causative verbs (continued)

Nb	Marker	⇓ Verb	Meaning	Source	Base	Meaning	Cat.
19	*-the*	*nákade_the*	to heat up {x}	SE	*nákade*	to be hot	intr-s
20	*-the*	*násko^n_the*	to melt {x}; to be melt	RE	*násko^n*	to melt, to thaw	intr-(s)
21	*-kithe*	*nát'e_kithe*	to kill oneself by the heat	DT	*nát'e*	to die from the heat	intr-s
22	*-the*	*nié_the*	{*bodypart*} to hurt; to cause pain	DT	*nié*	pain **	n **
23	*-the*	*ní_the*	to save {x} from death; to preserve {x}	DD, DT	*ní*	alive? **	(intr-s)
24	*-kithe*	*ní^{n}kashi^{n}ga_kithe*	to make a man of oneself	DT	*ní^{n}kashi^{n}ga*	person	n
25	*-the*	*no^n'ó^n_the*	to make {x} be heard	U	*no^n'ó^n*	to hear {x}	tr
26	*-the*	*pí_the*	to love {x}; to think well of {x}	DT	**pí*	good	-
27	*-the*	*shéna_the*	to bring {x} to an end; to destroy {x}	DD, DT	*shéna*	no longer, enough	adv?
28	*-the*	*shkó^n_the*	to make {x} move	DT	*shkó^n*	to move	intr-a
29	*-githe*	*sná_githe*	to grease {*one's own axle, etc.*}	DD	**sná*	greased	-
30	*-the*	*sná_the*	to grease {x}; to lubricate {x}	DD	**sná*	greased	-
31	*-kithe*	*so^n_kithe(†)* **	to whiten oneself	-	*só^n*	to be pale, white	intr-s
32	*-k^{h}ithe*	*só^n_k^{h}ithe*	to whiten {x} for (the benefit of) {y}	DT	*só^n*	to be pale, white	intr-s
33	*-the*	*só^n_the*	to cleanse/whiten {x}; too whitewash {x}	DD	*só^n*	to be pale, white	intr-s
34	*-kithe*	*t'é_kithe*	to kill oneself; to kill one another	DT	*t'é*	to die	intr-a
35	*-the*	*t'é_kithe_the*	to make {x} to kill themselves	DT	*t'é_kithe*	to kill oneself; to kill one another	intr-a
36	*-k^{h}ithe*	*t'é_k^{h}ithe*	to let {x} die	U	*t'é*	to die	intr-a

Sample of morphological causative verbs (continued)

Nb	Marker	⇓ Verb	Meaning	Source	Base	Meaning	Cat.
37	*-k^{h}ithe*	*t'é_k^{h}ithe*	to murder {x}; to kill {x}for {y} (ben. or mal.)	DD	*t'é*	to die	intr-a
38	*-the*	*t'é_the* **	to kill {x}	(COMMON)	*t'é*	to die	intr-a
39	*-the*	*t'é_the_the*	to cause accidentally {x} to kill accidentally {y}		*t'é_the*	to kill {x}	tr
40	*-githe*	*téxi_githe*	to prize {*one's own*}	DT	*téxi*	to be difficult; to be precious	intr-s
41	*-the*	*téxi_the*	to prize {x}	DT	*téxi*	to be difficult; to be precious	intr-s
42	*-githe*	*tha'é_githe*	to (feel) pity for {*one's own*};	DT	*tha'é*	to be miserable	intr-s
43	*-ík^{h}ithe*	*tha'é_ík^{h}ithe*	to pity {*one's own*} {*for x*}	DT	*tha'é*	to be miserable	intr-s
44	*-the*	*tha'é_the*	to pity {x}	(COMMON)	*tha'é*	to be miserable	intr-s
45	*-k^{h}ithe*	*thé_k^{h}ithe*	1. to send {*animate*} there	DD, DT	*thé*	to go there	intr-a
46	*-k^{h}ithe*	*thé_k^{h}ithe*	2. to make {x} send {y}	DD, DT	*thé*	to go there	intr-a
47	*-the*	*thé_the*	to send {*inanimate thing*} there	DD, DT	*thé*	to go there	intr-a
48	*-ík^{h}ithe*	*t^{h}í_ík^{h}ithe(†)*	to cause {x} to bring {*one's own*} to {y}	DT	*t^{h}í*	to arrive here	intr-a
49	*-the*	*thi^{n}gé_the*	to exterminate {x}; to give {x} away	DT, TA	*thi^{n}ge*	to be no more	intr-s
50	*-k^{h}ithe*	*thíze_k^{h}ithe*	to make/let {x} take {y}	DT, U	*thizé*	to take {x}	tr
51	*-the*	*tó^n_the*	to acquire {x}	U	*tó^n*	to have a lot of {x}; to abound **	tr **
52	*-k^{h}ithe*	*uhé_k^{h}ithe*	to (feel) pity for {*one's own*};	DT	*uhé*	to have one's way; to get {*what one wanted*}	tr-s

Sample of morphological causative verbs (continued)

Nb	Marker	⇓ Verb	Meaning	Source	Base	Meaning	Cat.
53	*-the*	*uhí_the*	"to cause (accidentally) him [...], to win from another"	DD	*uhí*	to win from {x}	tr
54	*-the*	*unó^n'o^n_the*	to cause {x} to be heard of	DT	*no^n'ó^n*	to hear {x}	tr
55	*-kithe*	*uthéwi^n_kithe*	{*people*} to assemble (themselves)		*uthéwi^n*	to be assembled, collected	intr-s
56	*-the*	*uthéwi^n_the*	to assemble {x}; to collect {x}	DD, DT	*uthéwi^n*	to be assembled, collected	intr-s
57	*-k^{h}ithe*	*uthó^n_k^{h}ithe*	to make {x} hold {y}	DT	*uthó^n*	to hold {x}	tr
58	*-githe*	*uthúhi_githe*	to make {*a relative*} have enough of {x}	DT	*uthúhi*	to have enough of {x}	tr-s
59	*-gik^{h}ithe*	*washkó^n_gik^{h}itha*	to cause {*one's own*} to make an effort	DT	*washkó^n*	to persevere, to make an effort	intr-a
60	*-k^{h}ithe*	*wathíto^n_k^{h}ithe*	to make {x} work	DT	*wathíto^n*	to work	intr-a
61	*-githe*	*wathí^n_githe*	to treat {*one's relatives*} well, "as by giving [them] food, etc., continually"	DD	*wathí^n(†)* **	to have things	intr-a
62	*-kithe*	*wéno^{n}de_kithe*	to make oneself full	DT	*wéno^{n}de*	to be full, satisfied	intr-s
63	*-githe*	*wéshno^n_githe*	to make {*a relative*} thankful	DT	*wéshno^n*	to be pleased, grateful	intr-a
64	*-the*	*xó^{n}de_the*	to gather {x} into a pile	U	*xó^{n}de*	bunch, pile	n
65	*-the*	*zhíde_the*	to redden {x}	DT	*zhíde*	red	intr-s
66	*-kithe*	*zhú_kithe*	to transform oneself into {x}	DT	*zhú*	body, flesh	n

E.2 Instrumental verbs with prefix *ga-*

Table E.2 shows the database of instrumental verbs constructed with the instrumental prefix *ga-*, listed in alphabetical order. The table is divided into three vertical sections. The first one shows the instrumental verb, its definition, its verb class, and the source(s) where it is attested. (Abbreviations are used for the sources; see Abbreviations.)

The second section shows the base, its meaning (when known), and its category (verb class when it is a verb, or noun, adverb, ideophone). The meanings of unattested bases are classified into three categories according to the reliability of the meaning identified: "DD" for bound roots which are included and defined in Dorsey's dictionary (Dorsey n.d.b), "NA-E" for unattested bases whose meaning is easily understood, in particular thanks to minimal pairs, and "NA-D" for unattested bases whose meaning is difficult to define. Verb classes or parts of verb classes in parentheses means that I do not have enough data to be certain of the class a verb belongs to: "intr-(a)" means that I know the verb is intransitive, and I suppose that it is intransitive active; "(tr)" means that I suppose that the verb is transitive, etc.

The third section gives information on the semantic and syntactic functions of the prefix. The column "*ga-*" gives information on the semantics of the prefix, following the semantic map presented in Figure 5.1 p. 297. The column headed by "A.?" specifies if the semantics corresponds to an agentive (A) or non-agentive (NA) meaning of *ga-*. The column headed by "R." indicates if the instrumental verb can be analyzed as a resultative construction, of type 1 or of type 2 (see §5.2.5). Finally, the last column indicates whether the prefix *ga-* has a causative function (see explanations in §5.2.4).

In the first section, instrumental verbs are classified as labile stative verbs (intr-s – lab.) when they are attested in two constructions illustrating the ergative lability (see §4.1.6.2). When they are only attested in bivalent constructions, they are classified as transitive (tr) even when the subject is a natural force such as "the wind", in order to avoid hasty generalizations. The verb class "tr + p." means that the transitive verb is also attested with a passive interpretation. The verb *ugáshte* 'to remain alive after a slaughter' is only attested as a stative verb, as well as several other instrumental verbs based on *ushté* 'to remain (alive), to stay' (see Table E.3). As a consequence, it is classified as an intransitive stative verb (intr-s) despite the agentive meaning of the prefix.

List of comments. (signaled by ** in the table)

4 *ágasho^n(tha)*. Related to *ábasho^{n}tha* 'to push $\{x\}$ and spill it on $\{y\}$' (see Table E.3).

9 *ágazhade*. Also attested once with the meaning "to make a stride" (intr-a).

13 *ga'é*. I consider that it is a transitive verb despite the example provided in OLIT-UNL (2018), because of the meaning of the base.

28 *gabtháb thazhe*. The non-reduplicated form *gabtházhe* is defined this way by Dorsey: "to spread open, as the legs: to straddle" (DD).

50 *gakúge*. Semantic shift of the meaning of the base: from “box, drum”, it comes to refer to the sound made on a hollow object in the instrumental constructions. (This is observed in other instrumental constructions with this base; see Table E.3.)

69 *gasáthu*. OLIT-UNL (2018) provides an example of this verb used intransitively. Here I take into account Dorsey’s example.

92 *gastákʰi ithéthe*. The meaning of *ithéthe* is uncertain.

95/96 *gatáxi*. The ideophone *táxi* is attested in another entry of Dorsey’s dictionary: *táxié tʰígthe*, defined as follows: “to make the sound *taxi* suddenly, in this place. Applicable to a coyote or wolf when crunching bones.”

139 *ugánoⁿpaze*. Attested in DD and DT as *ugáhanapáze*.

141 *ugáshabe*. See *gashábe*, line. 71.

Table E.2: Verbs with instrumental prefix *ga-*

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
1	*ágaha*	to be outside; to be on top	DD, DT	intr-(s)	**áha*	-	-	-	-	-	-
2	*ágapamu*	to have weight that bears down branches	DT	intr-(s)	*pamú (+á-)*	downhill	adv	m.	NA	t.1	no
3	*ágashke*	to tie {x} on {y}; to button/buckle {x}	DD, DT, U	tr	**shké (+á-)*	(un)tie ? (NA-D)	-	-	-	-	?
4	*ágasho^n(tha)* **	to spill {x} on {y}; to throw out {x} from smth on {y}; to shut {*a knife*} up on {y}	DD, U	tr	**sho^n(tha) (+á-)*	spilled (NA-D)	-	b. e. g.	A	t.2	CAUS sem.
5	*ágaspe*	to be pressed down (by snow)	DT	intr-s	**áspe*	-	-	(verb: m. n.)	-	-	-
6	*ágaspe*	to press {x} down; to hold {x} down by weight	DT	tr	**áspe*	-	-	(verb: e. m.)	-	-	-
7	*ágat^{h}a*	to aim at {x}	DT	tr	**át^{h}a*	-	-	-	-	-	-
8	*ágaxade*	to cover {x}	DT, U	tr	**áxade 2*	-	-	-	-	-	-
9	*ágazhade*	to step over {x}; to straddle {x}	DD, DT	tr **	**ázhade*	-	-	-	-	-	-
10	*ágazhi*	to command {x}	DT, SE, U	tr	**ázhi*	-	-	-	-	-	-
11	*ga'á*	to fail at doing (or finishing doing) sth (e.g. chopping)	DD, U	intr-a	**'á*	fail at (NA-E)	-	a. b. c. f. g. h. i. ?	A	no	no
12	*ga'á*	{*wind*} to have not finished blowing	DD	intr	**'á*	fail at (NA-E)	-	o.	NA	no	no
13	*ga'é*	to dig {*a hole*}; to drop {x} into something	DD, U	tr **	*'é*	to dig {x}	tr	e. g.	A	no	no
14	*ga'ó^{n}si*	to make {x} jump by hitting	DD	tr	*u'ó^{n}si* (≈)	to jump	intr-a	a.	A	t.1	CAUS
15	*ga'ó^{n}si*	{*children*} to bounce	U	intr-(a)	*u'ó^{n}si* (≈)	to jump	intr-a	n. (or j. ?)	IND.	t.2	no

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
16	*ga'ú*	to dress {*hides*}	DT	tr	**'ú*	-	-	(verb: a. h.)	-	-	-
17	*gabéni*	to bend (by effect of the wind, or because it's flimsy); {*wind*} to bend {*x*}	DD, SE	intr-s - lab.	*béni*	bent forward (DD)	intr-(s)	m. n. o. p.	NA	t.2	no
18	*gabéni*	to bend {*x*} by striking	DD, SE	tr	*béni*	bent forward (DD)	intr-(s)	a.	A	t.1	CAUS
19	*gabéxi*^{n}	{*wind*} to sweep off {*x*}	DD	tr	*béxi*^{n}	made bare, uncovered, pulled back	intr-s	o.	NA	t.1	no
20	*gabéxi*^{n}	to sweep off, to scrap off {*x*}	DD	tr	*béxi*^{n}	made bare, uncovered, pulled back	intr-s	h.	A	t.1	CAUS
21	*gabízhe*	to shake out {*x, like washrag*}; to make move by cutting, striking	DD, U	tr	**bizhe*	≈ move (NA-D)	-	a. c. f.	A	t.1	CAUS sem.
22	*gabízhe*	{*wind*} to make move by blowing on; to be moving (by effect of the wind)	DD	intr-s - lab.	**bizhe*	≈ move (NA-D)	-	o.	NA	t.1	CAUS sem.
23	*gabízhe*	to blink {*eyes*}	DD, U	tr	**bizhe*	≈ move (NA-D)	-	r.	IND.	t.2	no
24	*gabthá*	{*flower*} to bloom	U	intr-(s)	**bthá*	open, spread out (DD)	-	n.	NA	t.2	no
25	*gabthá*	to spread out {*sheets, ...*}	(U)	tr	**bthá*	open, spread out (DD)	-	f. (?)	A	t.1	CAUS sem.
26	*gabthá*	to open {*eyes*}	DD, DT	tr	**bthá*	open, spread out (DD)	-	n. r.	IND.	t.2	no
27	*gabthábtha-ze*	to gash {*x*} repeatedly	DT	tr	**btháze*	ripped open, torn open (DD)	-	a. c. e.	A	t.1	CAUS sem.
28	*gabthábtha-zhe*	to have the legs wide apart **	DT	intr-(s)	**bthazhe*	-	-	(verb: n.)	-	-	-

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
29	*gabthízhe théthe*	to knock down {*x*}	DT	tr	**bthizhe*	turning around, pushed aside (DD)	-	a. e. l.	A	t.1	CAUS sem.
30	*gabthó^n*	to make a stink by moving sth spoiled through the air	U	intr-(a)	*bthó^n*	to smell	intr-(s)	k. n. p.	IND.	ind.	?
31	*gabthó^n*	{*bad odor*} to penetrate {*x*}(?)	DD	tr	*bthó^n*	to smell	intr-(s)	n. p.	NA	no	no
32	*gabthó^n*	{*bad odor*} to be penetrating	DD	intr-(s)	*bthó^n*	to smell	intr-(s)	e. n.	IND.	ind.	no
33	*gachácha*	to nick {*x*}; to be serrated	SE	tr - p.	**chá*	≈ dull, blent (NA-D)	-	a. c.	A	t.1	CAUS sem.
34	*gach^{h}áki*	to smack {*x*}, to slap {*x*}	SE, U	tr	**ch^{h}áki*	(ideophone)	ideo	a.	A	t.1	CAUS sem.
35	*gadó^n*	to be blown up (by wind, ...); {*wind, water*} to press on {*sail, paddle*}	DD, DT	intr-s - lab.	**dó^n*	pull, push, drag (NA-E)	-	o. p.	NA	t.1	no
36	*gadó^n*	to pound on {*x*} with a club or others	DD	tr	**dó^n*	pull, push, drag (NA-E)	-	a. c.	A	t.1	CAUS sem.
37	*gadúzhe*	to pick out {*x*} (violently); to force {*x*} out by striking; to make a crack by striking	DD, DT	tr	**duzhe*	split, craked (DD)	-	a. e.	A	t.1	CAUS sem.
38	*gagígizhe*	{*snakes*} to be coiled	DT	intr-(s)	**gizhe*	≈ bent? (NA-D)	-	-	-	-	no
39	*gagíze*	to creak (like wood); {*wind*} to make {*x*} creak	DD, T	intr-(s) - lab.	**gize*	to creak (DD)	-	n. o.	NA	t.2	no
40	*gagthéze* **	{*fish*} to cause ripples in {*water*}	DT	tr	*gthéze*	to be stripped	intr-s	k. n.	IND.	t.1	?
41	*gahé*	to comb {*hair*}	DD, U	tr	**hé*	-	-	(verb: i.)	-	-	-
42	*gahíthe*	to drift by air/wind; {*wind*} to drift {*x*} towards one	DT, DD, ST, U	intr-(s) - lab.	**hithe*	≈ away ? (NA-D)	-	p.	NA	t.1	no

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
43	*gahó^n*	to get up from a seat	DD	intr-(a) ?	**hó^n*	≈ lift, raised? (NA-D)	-	d. e. ?	A	t.2	no
44	*gahó^n*	to lift {*sth heavy*}	U	tr	**hó^n*	≈ lift, raised? (NA-D)	-	d.	A	t.1	?
45	*gahúto^n*	to make {*x*} cry out by hitting; to cry out from being hit	DT	tr - p.	*húto^n*	to cry out	intr-a	a.	A	t.1	CAUS
46	*gahúto^n*	to make a whizzing sound by twirling {*x*}	DD	(tr)	*húto^n*	to cry out	intr-a	b. f.	A	t.1	CAUS
47	*gaí^{n}xe*	to wheeze	U	intr-(s)	**i^{n}xe*	-	-	(verb: n.)	-	-	-
48	*gaíza*	{*tree*} to sway; {*wind*} to make {*a tree*} shake/move	DD, SE	intr-(s) - lab.	**iza*	≈ shaked? (NA-D)	-	o.	NA	t.1	no
49	*gaíza*	to wave {*hands*}	DD, SE	tr	**iza*	≈ shaked? (NA-D)	-	f. n.	IND.	t.2	?
50	*gakúge*	to make a hollow noise by falling **	U	intr-(s)	*kúge*	box, drum **	n	l.	NA	t.1	no
51	*gakúge*	to make a hollow noise by striking {*x*}	DD	tr	*kúge*	box, drum	n	a.	A	t.1	CAUSb
52	*gakúku*	to knock on {*x*} (repeatedly)	DT, SE	tr	**kú*	(ideophone)	ideo	a.	A	t.1	?
53	*gak^{h}iáho^n*	to arise (by effect of the wind); {*wind*} to arise {*x*}	DT	intr-(s) - lab.	**k^{h}iaho^n*	up (NA-E)	-	p.	NA	t.1	no
54	*gak^{h}úk^{h}uthe*	to beat {*x*} rapidly	DT	(intr-a)	*k^{h}úthe*	quickly (ideophone?)	adv	a.	A	no	no
55	*gamú*	to empty {*x*} by pouring out, by letting fall	DD, DT	tr	**mú*	to drip or drop (DD)	-	g. l.	A	t.1	CAUS sem.
56	*ganáko^{n}ko^n*	{*bug*} to be lit up	SE	intr-(s)	*nákon^n*	to be lit up; to shine	intr-s	n.	NA	t.2	no
57	*ganásage*	to get hard	SE	intr-s	*násage*	to harden by heat	intr-s	n.	NA	t.2	no

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
58	*ganí*	to fan off {x}	DD, SE	tr	**ní*	-	-	(verb: f. o.)	-	-	-
59	*ganó^{n}ge*	to roll {x} by throwing	SE	tr	*nó^{n}ge*	{*machine*} to run	intr-a	b.	A	t.1	CAUS
60	*gaó^{n}ba*	to beat something until the day	U	intr-(a)	*ó^{n}ba*	day	n	a.	A	t.2	no
61	*gapái*	to cut {x} sharp	DT	tr	*paí*	to be sharp	intr-s	e. c.	A	t.1	CAUS
62	*gapámo^n-gthe*	to make {*an animal*} bend forward	ST	tr	*pamó^{n}gthe*	to bow the head	intr-(s)	d. e. ?	A	t.2	CAUS
63	*gapámo^n-gthe*	to lower the head to charge	U	intr	*pámo^{n}gthe*	to bow the head	intr-(s)	e. n. ?	IND.	ind.	no
64	*gap^{h}úki*	to make the sound *puk^{h}i* by striking against {*a soft thing*}	DT	tr	**p^{h}uki*	(ideophone)	ideo	a.	A	t.1	CAUS sem.
65	*gap^{h}úkit^{h}e*	to make the sound *puk^{h}i* by falling	DT	intr-(s)	**p^{h}ukit^{h}e*	(ideophone)	ideo	l.	NA	t.1	no
66	*gasáda*	to straighten {x} by hitting	DD	tr	*sáda*	to be stretched, straightened out (DD)	intr-s	a.	A	t.1	CAUS
67	*gasápi*	to lash {x}	DD, U	tr	**sapi*	-	-	(verb: a.)	-	-	-
68	*gasápi*	to flap {*wings*}	SE	tr	**sapi*	-	-	(verb: n.)	-	-	-
69	*gasáthu*	to shake {x} and make it rattle	DT, U	tr **	*sathú*	to rattle	intr-(a)	f.	A	t.1	CAUS
70	*gasé*	to cut {x} to chop {x}	DT, SE, U	tr	*sé*	separated, broken	intr-s	c.	A	t.1	CAUS
71	*gashábe*	to make {*flesh, ground*} dark by striking, hoeing…	DD	tr	*shábe*	dark	intr-s	a.	A	t.1	CAUS
72	*gashé*	to deprive {x} of {y} by chasing/from war	DT	tr	**shé*	-	-	(verb: e.)	-	-	-

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
73	*gashétho^n*	to come to pieces from jolting	DD	intr-(s)	**shetho^n*	taken apart, into pieces (DD)	-	k.	NA	t.1	no
74	*gashétho^n*	to destroy {x} by dropping, throwing, knocking...; to be destroyed	DD, SE, U	tr - p.	**shetho^n*	taken apart, into pieces (DD)	-	a. b. g.	A	t.1	?
75	*gashíbe*	to force out {x}	DT	tr	**shibe*	out (NA-E)	-	e.	A	t.1	CAUS sem.
76	*gashíbe*	to be outside	DT	intr-s	**shibe*	out (NA-E)	-	-	-	-	no
77	*gashízhe*	to fall on the knees	DT	intr-(s)	**shizhe*	crushed ? (NA-E)	-	n.	NA	t.2	no
78	*gashnó^n*	to miss {x} (when striking/throwing)	DD, DT, SE	tr	**shnó^n*	missing, letting fall (DD)	-	a. b. c. f. g. ?	A	t.2	no
79	*gashnúde*	to moult (feathers); to fall off (by itself)	DD	intr	**shnude*	bare, bold (NA-E)	-	n.	NA	t.2	no
80	*gashnúde*	to make {x} be removed by combing, hitting, ...	DD, DT	tr	**shnude*	bare, bold (NA-E)	-	a. h.	A	t.1	CAUS sem.
81	*gashpáshpa*	to chop {x}	RE	tr	**shpé*	splited off (NA-E)	-	c.	A	t.1	CAUS sem.
82	*gashtó^n*	{*wind*} to stop blowing	DD, TA	intr	**shtó^n*	stopping, letting go (DD)	-	o.	NA	no	no
83	*gashtó^n*	to stop hitting (something)	DT, DD	(intr-a)	**shtó^n*	stopping, letting go (DD)	-	a.	A	no	no
84	*gashtó^{n}k^{h}a*	to tempt {x}; to deceive {x}	DT	tr	**shtó^{n}k^{h}a*	-	-	-	-	-	-
85	*gaskí*	to pant	DT, SE	intr-s	**skí*	-	-	(verb: n.)	-	-	-
86	*gasní^{n}de*	to slip out of a case or sheath in consequence of a fall	DD	(intr-s)	**sni^{n}de*	≈ long outside (NA-D)	-	l. n.	NA	t.1	no
87	*gasní^{n}de*	to make {x} slip far by hitting and go through an object	DD, DT	tr	**sni^{n}de*	≈ long outside (NA-D)	-	a.	A	t.1	CAUS sem.

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
88	*gasnú*	to make {x} slide by hitting	DD	tr	**snú*	glide, slide (DD)	-	a.	A	t.1	CAUS sem.
89	*gasnú*	{*otter, car...*} to slide	DD, DT, SE	intr-a	**snú*	glide, slide (DD)	-	n.	IND.	t.2	no
90	*gasnú*	{*wind*} to make {x} slide by blowing	DD, DT	tr	**snú*	glide, slide (DD)	-	o.	NA	t.1	no
91	*gastá*	to smash {x} flat/soft/pliable	DD, DT	tr	**stá*	flat, flattened (NA-E)	-	a.	A	t.1	CAUS sem.
92	*gastákʰi ithéthe* **	to brush/knock {x} away in the air	SE	tr	**stakʰi*	flying off (DD)	-	a. b. e. h.	A	t.1	CAUS sem.
93	*gasúde*	to be blown off/away (by wind)	DD	intr-s - lab.	**sude*	bare of hair, vegetation	-	o.	NA	t.1	no
94	*gasúde*	to trim {x}	DT, U	tr	**sude*	bare of hair, vegetation	-	c.	A	t.1	CAUS sem.
95	*gatáxi*	to make a tapping sound by falling	DT	intr-(s)	**taxi*	(ideophone) **	ideo	l.	NA	t.1	no
96	*gatáxi*	to make {x} make a tapping sound by hitting/throwing it	DT	tr	**taxi*	(ideophone) **	ideo	a. b.	A	t.1	CAUS sem.
100	*gathúzhe*	to spill {x} by knoking it; to upset and spill {x}	DD	tr - p.	**thuzhe*	≈ spread ? (NA-D)	-	a. g.	A	t.1	CAUS sem.
101	*gathúzhe*	to slosh, to fall out	DD, U	intr	**thuzhe*	≈ spread ? (NA-D)	-	n.	NA	t.2	no
97	*gatúbe*	to beat {x} fine; to crush {x}	DD, ST	tr	*túbe*	ground, broken up	intr-s	a.	A	t.1	CAUS
98	*gatúbe*	to be grounded by a fall, an accident	DT, U	intr-s	*túbe*	ground, broken up	intr-s	l.	NA	t.1	no
99	*gat'é*	to die by falling	DT	intr-(s)	*t'é*	to die	intr-a	l.	NA	t.1	no
102	*gawákʰega*	to make {x} sick by striking	DD	tr	*wakʰéga*	to be sick	intr-s	a.	A	t.1	CAUS

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
103	*gawák^{h}ega*	to be carsick, seasick or similar; {*horse, wagon*} to make {*x*} sick	DD, U	intr-s - lab.	*wak^{h}éga*	to be sick	intr-s	k.	NA	t.1	no
104	*gawí^{n}xe*	to fly / sail round and round; to tilt	DD, DT, (U)	intr	**wi^{n}xe*	≈ spiral (NA-D)	-	o. p.	NA	t.2	no
105	*gaxá*	to surpass {*x*}, to go beyond {*x*}	DT	tr	**xá* /x/	-	-	-	-	-	-
106	*gaxábe*	to scrape {*one's body part*}, to skin {*one's body part*} (by falling)	U	tr	**xabe* /ɣ/	≈ flayed? (NA-D)	-	l. n.	NA	t.2	?
107	*gaxábe*	to cut off {*the fat*}	DD	tr	**xabe* /ɣ/	≈ flayed? (NA-D)	-	a. c. d. e	A	t.1	CAUS sem.
108	*gaxádo^n*	to have the fur/hair standing out over from being blown at	DT	intr-(s)	**xado^n*	disheveled (NA-E)	-	o.	NA	t.1	no
109	*gaxé*	to turn aside, to leave the main road	DD, DT	intr-a	**xé 1*	-	-	-	-	-	-
110	*gaxí athe*	to fell {*x*}	DT	tr	**xí 1*	≈ down / up ? (NA-D)	-	c.	A	t.1	CAUS sem.
111	*gaxí athe*	{*wind*} to blow down {*x*}	DD	tr	**xí 1*	≈ down / up ? (NA-D)	-	o.	NA	t.1	no
112	*gaxíxe*	to shatter {*x*} by striking, throwing...	DT, SE	tr	*xíxe*	broken in (DD)	intr-(s)	a. b.	A	t.1	CAUS
113	*gaxó^n*	to break {*x*} by striking, throwing, droping; to be chipped	DD, S, SE, U	tr - p.	*xó^n* /x/	to be broken	intr-s	a. b. g.	A	t.1	CAUS
114	*gaxtháde*	to dig under {*x*}, make {*x*} large at the base	DD	tr	**xthade*	-	-	(verb: a. d.)	-	-	-
115	*gaxtháde*	to get burried {*in the snow*}	DT	intr-s	**xthade*	-	-	(verb: n.)	-	-	-

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
116	*gaxtházhe*	to make {*x*} cry by hitting him	DT	tr	*xtházhe*	to bellow	intr-a	a.	A	t.1	CAUS
117	*gaxthí*	to kill {*x*}; to beat {*x*} up; to be beaten	DT, SE	tr - p.	*xthí*	to break out in sores	intr-(s)	a.	A	t.1	CAUS
118	*gaxthó*^{n}	to migrate; to go to hunt	DT	intr-(a)	**xthó*^{n}	-	-	-	-	-	-
119	*gaxtó*^{n}	to pour out {*x*}; to empty {*x*}	DD, DT	tr	*xtó*^{n}	to drop, as a liquid	intr-(s)	g.	A	t.1	CAUS
120	*gazhíde*	{*wind*} to make {*x*} red	DD	tr	*zhíde*	red	intr-s	o.	NA	t.1	no
121	*gazhíde*	to make {*x*} red by hitting	DD	tr	*zhíde*	red	intr-s	a.	A	t.1	CAUS
122	*gazhó*^{n}*zho*^{n}	to shake out {*x*}	SE	tr	**zho*^{n}*zho*^{n}	≈ shaken ? (NA-D)	-	d. e. ?	A	t.2	CAUS sem.
123	*gazí*	to strain {*a musle*} by sudden throwing; to stretch {*a musle*} stiff	DD, DT	tr	**zí*	≈ stretched (NA-D)	-	b. e.	A	t.2	?
124	*gazó*^{n}	to knock {*x*} down; to kill {*x*} suddenly	DD, DT	tr	**zó*^{n}	≈ go down, downward (NA-D)	-	a.	A	t.1	CAUS sem.
125	*gazó*^{n}*de*	to plait {*x*}	DT	tr	*zó*^{n}*de*	motionless, quiet	intr-s	i.	A	t.1	?
126	*giásada*	to brush {*x's hair; mane*}	SE	tr	*sáda*	to be stretched, straightened out (DD)	intr-s	i.	A	t.1	CAUS
127	*ígabexi*^{n}	{*scum*} to blow up (from the water)	DT	intr-(s)	*béxi*^{n} (+ *í-*)	made bare, uncovered, pulled back	intr-s	n.	NA	t.2	no
128	*ígadize*	to ride round and round {*x*}	DT	tr	**ídize*	-	-	(verb: r.)	-	-	-
129	*ígasko*^{n}*_the*	to attempt doing {*x*}	DT, SE, U	tr	**ísko*^{n}*the*	-	-	-	-	-	-

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
130	*ígahi*	to mix {x} with/in	DT, RE, SE, U	tr	**íhi*	-	-	-	-	-	-
131	*ígasho^{n}sho^n*	to run round and round; back and forth	DT	intr-(a)	**sho^{n}sho^n (+ í-)*	-	-	(verb: r.)	-	-	-
132	*ígat'o^n*	to grunt	DT	intr-(a)	**ít'o^n*	-	-	-	-	-	-
133	*ugá'ude*	to break a hole {*in x*}	DT, (U)	tr	*u'úde*	hole	n	a.	A	t.1	CAUSb
134	*ugáe*	to scatter {x} by hitting	DD	tr	**ué*	scattered (NA-E)	-	a.	A	t.1	CAUS sem.
135	*ugáe*	to scatter; to be scattered; {*wind*} to scatter {x}	DD, DT	intr-(s) - lab.	**ué*	scattered (NA-E)	-	n. p.	IND.	t.2	no
136	*ugáha*	to float	DT	intr-(s)	**uhá*	-	-	-	-	-	-
137	*ugák^{h}iba*	to crack by effect of the wind; {*wind*} to make a crack	DD	intr-s - lab.	*uk^{h}íba*	crack or open space bounded by two parallel lines	n	o.	NA	t.1	no
138	*ugák^{h}iba*	to make a crack in {x} by hitting	DD, DT, (U)	(tr)	*uk^{h}íba*	crack or open space bounded by two parallel lines	n	a.	A	t.1	CAUSb
139	*ugáno^{n}paze* **	to be dark	DD, U	imp	**no^{n}páze (+ u-)*	≈ darkness (NA-D)	-	n. q. ?	NA	no	no
140	*ugás'í^n*	to peep	DD, DT, U	intr-(a)	**us'í^n*	-	-	-	-	-	-
141	*ugáshabe* **	to make a distance shadow	DT	intr-(s)	*shábe (+u-)*	dark	intr-s	q.	NA	t.2	no
142	*ugásho^n*	to travel	DT, U	intr-a	**usho^n*	-	-	-	-	-	-
143	*ugáshte*	to leave {*a remnant*} yet to be paid	DD	(tr)	*ushté*	to remain (alive)	intr-s	-	-	-	?
144	*ugáshte*	to remain alive after a slaughter	DD, DT	intr-s	*ushté*	to remain (alive)	intr-s	a.	A	t.2	no

Verbs with instrumental prefix *ga-* (continued)

Nb	⇓ Verb	Meaning	Source	Class	Base	Meaning	Cat.	*ga-*	A.?	R.	Caus.
145	*ugáshte*	to remain alive after a fall	DT	intr-s	*ushté*	to remain (alive)	intr-s	l.	NA	t.2	no
146	*ugásne*	to split {*x*} by hitting	DT, U	tr	*usné*	crack, split	n	a.	A	t.1	CAUSb
147	*ugásno*^{n}	to lasso {*x*}; to throw a rope over {*x*}	DD, U	tr	**usnó*^{n} *1*	≈ threaded in, connected in (NA-D)	-	b.	A	t.1	CAUS sem.
148	*ugásno*^{n}	to make {*seed*} come out of seedpod by hitting	DD	tr	**usnó*^{n} *1*	≈ threaded in, connected in (NA-D)	-	a.	A	no	CAUS sem.
149	*ugát'i*^{n}*ze*	{*fog*} to become thick; {*skin*} to close over a wound with sth inside (like a bullet)	DT	intr-(s)	*t'í*^{n}*ze (+ u-)*	firm, packed down, fast, hard.	intr-s	q.	NA	t.2	no
150	*ugáti*	to scorch {*x*} over a fire; to cure {*meat*} by smoking	DT, HA	tr	**uti*	-	-	-	-	-	-
151	*ugáxpathe*	{*wind*} to blow down {*leaves*}	DD	tr	*uxpáthe*	to fall	intr-s	o.	NA	t.1	no
152	*ugáxpathe*	to strike down {*x*}	DD, DT	tr	*uxpáthe*	to fall	intr-s	e.	A	t.1	CAUS
153	*úgaxthe*	to face {*x*}	DT	tr	**uxthe*	-	-	-	-	-	-
154	*ugázhide*	to shed a red light	DT	intr-(s)	*zhíde (+u-)*	red	intr-s	q.	NA	t.2	no
155	*ugázi*	to make a yellow glare; {*yellow paint*} to soak through (cloth)	DD, DT	intr-(s)	*zí (+ u-)*	yellow	intr-s	q.	NA	t.2	no
156	*wégat*^{h}*o*^{n}	to pound things with {*x*}	DT	tr	**wét*^{h}*o*^{n}	-	-	(verb: a.)	-	-	-

E.3 Other instrumental verbs

Table E.3 shows the database of instrumental verbs. (Instrumental verbs with *ga-* are not included, since they are already shown in Table E.2.) The verbs are listed in alphabetical order of their bases, which enables a comparison of minimal pairs from the same base. The unattested bases come first, followed by the attested bases. After the number and specification of the instrumental prefix used (first two columns), the Table is divided in three sections, like Table E.2. The first one shows the instrumental verb, its definition, its verb class, and the source(s) where it is attested. (Abbreviations are used for the sources; see Abbreviations.)

The second section shows the base, its meaning, when known, and its category (verb class when it is a verb, or noun, adverb, ideophone). The meanings of unattested bases are classified into three categories according to the reliability of the meaning identified: "DD" for bound roots which are included and defined in Dorsey's dictionary (Dorsey n.d.b), "NA-E" for unattested bases whose meaning is easily understood, in particular thanks to minimal paris, and "NA-D" for unattested bases whose meaning is difficult to define. Verb classes or parts of verb classes in parentheses means that I do not have enough data to be certain of the class a verb belongs to: "intr-(a)" means that I know the verb is intransitive, and I suppose that it is intransitive active; "(tr)" means that I suppose that the verb is transitive, etc.

The last column indicates whether or not the instrumental prefix has a causative function (see explanations in §5.3.3.1–5.3.3.2).

List of comments. (signaled by ** in the table)

17 *umúbthi^n*. The transitivity is due to the presence of an applicative object introduced by *u-* 'in'. See Chapter 6.

31 *ugípido^n*. The phoneme /b/ becomes /p/ after the possessive prefix *gi-*.

36 *nó^{n}ge*. Note the unusual accentuation: the prefix *no^n-* does not usually attract the accent.

55 *no^{n}híthethe*. This verb is composed of **no^{n}hí* and *thé_the* 'to cause {x} to go; to send {x} off suddenly' (DD). *Thé_the* seems often used as an auxiliary meaning that the action is done suddenly and/or violently and/or quickly. Each part takes person markers.

77 *thish'í^{n}k^{h}a*. Could be *thish'í^{n}k^{h}e*: it is attested only once in a context triggering Ablaut.

83 *thashízhe*. Only attested in DT as a proper name.

93 *no^{n}shnúde*. Saunsoci & Eschenberg (2016: 189) provide another meaning that was not taken into account in the study: "to take {*shoes*} off". This implies that *no^n-* 'feet' does not represent the body part used for the action, but the body part affected by the action.

104 *múshto^n*. This verb is attested once in Dorsey (1890: 400.12) in the sequence *múo^{n}thíshto^n taít^{h}e*, glossed 'we shall stop shooting'. Although the gloss does not mention a patient ("you") and suggests an intransitive reading, this citation is from the Umó^{n}ho^n addressing their enemies in a fight. Consequently, I consider this form to an conjugated form of *múshto^n*, found in DD, and that *múshto^n* is transitive.

109 *basí*. The root *sí* could correspond to a noun meaning "foot", or to a transitive verb meaning "to hoard {x}" (DD). But neither has a clear semantic link with *basí* 'to herd {x}', which is why I assume the root is unattested.

114 *íkipiski*. This verb is attested only once with 3rd person subject and object in Dorsey (1890: 305.3), where it seems to be transitive. However, another interpretation is possible: that *íkipiski* means "to be close together, without touching".

123-126. The word *so^{n}só^{n}de* is attested in Stabler & Swetland (1977) as "close together", and in Sanchez, Larson & Walker (in progress) as "stiff, as people who are stiffly erect and stoic". Although there is a semantic link between *so^{n}só^{n}de* and the instrumental verbs, the two different meanings for the base, the reduplicated base opposed to the non-reduplicated instrumental verbs, and the oblique prefixes on the instrumental verbs make it impossible to single out the function of the instrumental prefixes.

132 *íbista*. The locative object "against {y}" is introduced by the oblique applicative prefix *í-*.

144 *no^{n}tátaxi*. The ideophone *táxi* is attested in another entry of Dorsey's dictionary: *táxié t^{h}ígthe*, defined as follows: "to make the sound *taxi* suddenly, in this place. Applicable to a coyote or wolf when crunching bones."

148 *no^{n}thí^n_tha(†)*. This verb is attested only once in Dorsey (1890: 296.10) with A1SG: *anó^{n}bthi^{n}tha*. Note that it is a doubly conjugated verb (see §3.4).

153 *no^{n}t^{h}át^{h}a*. This verb is only attested once in Dorsey (1890: 615.10), in a context not triggerring Ablaut (see §3.5.2), so its base apparently has a final /a/ vowel. However, note the similar semantics between *no^{n}t^{h}át^{h}a* and *no^{n}t^{h}é* in 154.

178 *náxpo^n_the*. This verb is attested once, with the causative marker, showing that the prefix *ná-* has no causative function.

200 *no^{n}zhége*. This verb is only attested in Dorsey (1890: 565.10), about a turtle "walking with the legs bent exceedingly".

208 *no^{n}zhú*. The root *zhú* 'body' is attested, but there appears to be no semantic link with *no^{n}zhú*.

219 *áthi'e*. The second object "on {y}" is introduced by the locative applicative prefix *á-* 'on'.

221 *thibás'í^n*. The base *bas'í^n* 'upside down' is only attested as the first verb in verb sequences, where it modifies the second verb (see Dorsey 1890: 440.19 & 602.19). As a result, it could be considered an adverb. However, in the instrumental verb *thibás'i^n* 'to put {x} down, face first', it corresponds to a state verb "to be upside down", and it is classified as such. See §2.4.5 for a presentation of verb-modifying adverbs and the difficulty of distinguishing them from stative verbs.

223 *thibébthi^n*. Also spelled *thibthébthi^n* in DT. Dorsey (n.d.b) specifies that both forms have the same meaning.

228 *nábize_the*. This verb is transitive due to the causative marker *-the*. This brings evidence that *ná-* has no causative function.

236 *nábtho^n*. This verb is attested once in OLIT-UNL (2018: 563): *Théthudi shúde nábtho^n.*

(here smoke fire-smell), 'Around here is the smell of fire.'. It is not clear if *shúde* 'smoke' is the verb subject.

242 *nádi^{n}di^n_githe*. Same comment as 228.

247 *wáthiesa*. This verb contains the prefix *wa-* as an "underspecified argument marker" (cf. §7.1.3). It is not clear if it should be considered an antipassive marker or an indefinite object marker (cf. §7.3), but it fills the object position in any case. This is why the form *wáthiesa* is classified as "intr-a".

248 *náetho^{n}be_the*. Same comment as 228.

251 *no^{n}bíxo^n*. See instrumental verbs based on *ubíxo^n*.

237/238 *uthíbtho^n/thibthó^n*. The base *bthó^n* is attested as a noun, "odor, smell", and as a bivalent stative verb: "to smell of $\{x\}$" (to emit the odor). I consider the instrumental verbs to be derived from the noun.

281 *thinúshi*. The base *núshi* is only attested in Dorsey's dictionary, who classifies it as an adverb meaning "low". However, in the instrumental verb it corresponds to a state verb meaning "to be low", and it is classified as such. See §2.4.5 for a presentation of verb-modifying adverbs and the difficulty of distinguishing them from stative verbs.

302 *náshabe_the*. Same comment as 228.

309 *náshtide_the*. Same comment as 228.

319 *ábisnathe*. Same as 219.

323 *kigthát'e*. This verb is intransitive due to the reflexive prefix *ki(g)-*. The instrumental prefix *tha-* does have a causative function.

330 *kibáthi^{n}ge*. Same comment as 323, with the prefix *ba-* 'by pushing'.

333 *mátube*. This lexeme is presented as a noun "ground meat" in OLIT-UNL (2018), but is presented as a transitive verb in Dorsey's dictionary. Considering that *má-* requires a human agent, and that all other verbs with *má-* are transitive, this lexeme is considered a transitive verb. I assume that the noun "ground meat" results from a conversion of the passive interpretation of this verb ("to be grounded").

345 *unábixo^n*. See other verbs based on *bixó^n*.

350 *nágo^{n}be*. Dorsey (n.d.b) provides an example where this verb has no subject and seems to be impersonal: *nágo^{n}ba ínahi* (=INS:temp-*light really) 'The prairie fire makes a great light'. Conversely, OLIT-UNL (2018: 562) provides an example with a subject, suggesting that it is an intransitive stative verb: *Mí tho^n nágo^{n}be.* (=sun the INS:temp-*light) 'The sun is shining'.

354 *ugígthashte*. This verb is attested once in Dorsey (1890: 288.19), with a passive reading. I have re-established the active meaning in the translation. The possessive prefix *gí-* is due to the fact that there is a kinship relationship between the subject and object (the Bear girl attacks her own people, and spares her younger sister).

375 *múxthu'a*. Attested once in Dorsey (1890: 80.13) with "quiver" as an object: all the arrows were shot.

382 *áthaza'e*. Same comment as 219.

389 *názi*. There is one transitive use of this verb, in OLIT-UNL (2018): "to singe $\{x\}$".

Verbs not included in the database. The following verbs were eliminated from the database, because they have no semantic link with the corresponding instrumental prefixes; it is possible that some of them merely have homonymous syllables: ***ábagtha*** 'to retreat from {x}'; ***ábano^n*** 'to gaze at {x}'; ***áno^{n}xthe*** 'to hide {x}'; ***áthaha*** 'to put on {*clothing*}'; ***áthixude*** 'to be blurred'; ***bakú*** 'to put a blanket over the head'; ***bamáxe*** 'to bow the head'; ***baníuski*** 'to hiccup'; ***baskíthe*** 'to be angry'; ***biníhe*** 'to fear {*that CL*}'; ***gína'axe(†)*** 'to pass close to {*x, plural*}'; ***íbaho^n*** 'to know/recognize {x}'; ***íbaku*** 'to be bothersome'; ***íno^{n}de*** 'to be full; to be satisfied'; ***náxitha*** 'to threaten or vex {x}'; ***názhizhó^n*** 'to fast'; ***pamákide*** 'arching the neck'; ***thagé*** 'to wear {x} on one's head'; ***uthí'age*** 'not to want {*CL*}'; ***uthíxage*** 'to be chapped'; ***wanó^{n}xthi^n*** 'to hurry (away?)'.

Table E.3: Database: other instrumental verbs

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
1	*ná-*	*ná'a*	to fail in burning or freezing	(DD)	intr-(s)	**'á*	fail at (NA-E)	-	no
2	*thi-*	*thi'á*	not to be able to {*CL*}; to fail	SE, U	intr-a	**'á*	fail at (NA-E)	-	no
3	*ná-*	*ná'a*	to fail at burning {x}	U	tr	**'á*	fail at (NA-E)	-	no
4	*no^n-*	*no^n'á*	to fail at doing {x} (an action with the feet)	U	tr	**'á*	fail at (NA-E)	-	no
5	*tha-*	*tha'á*	to fail to drink/eat {x}; not to drink/eat {x}	DT, U	tr	**'á*	fail at (NA-E)	-	no
6	*thi-*	*thi'áxe*	to open {x} (with straight motion)	SE	tr	**'áxe* /ɣ/	-	-	-
7	*tha-*	*tha'í'i*	to spit out large pieces of {x} (?)	DT	tr	**'í'i*	-	-	-
8	*no^n-*	*ína'uxchi*	to pass very close to {x}	DT	tr	**'u*	-	-	-
9	*ba-*	*ba'ú*	to burp	DT, SE, U	intr-a	**'ú*	-	-	-
10	*thi-*	*thiáze*	to pull {x} open; to uncover {x} (by pulling)	DT	tr	**aze*	-	-	-
11	*thi-*	*thibthá*	to open {x} (hands or eyes)	DT, SE, U	tr	**bthá*	open, spread out (DD)	-	CAUS sem.
12	*mú-*	*múbthaze*	to explode	SE, U	intr-(s)	**btháze*	ripped open, torn open (DD)	-	no
13	*ná-*	*nábthaze*	to explode; to pop because of the heat; to pop open?	MOD	intr-(s)	**btháze*	ripped open, torn open (DD)	-	no
14	*bi-*	*bibtháze*	to pop {*e.g. a ballon*}	MOD	tr	**btháze*	ripped open, torn open (DD)	-	CAUS sem.
15	*má-*	*mábtho^{n}ze*	to cut open {x}; to dice {x}	DT, SE	tr	**btháze*	ripped open, torn open (DD)	-	CAUS sem.
16	*thi-*	*thibtháze*	to tear {x}	DT, SE, U	tr	**btháze*	ripped open, torn open (DD)	-	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
17	*mú-*	*umúbthi^n*	{*wind, snow*} to penetrate in {x}	U	tr **	**bthí^n*	≈ pass through (?)	-	no **
18	*ná-*	*unábthi^n*	to sweat	DT, SE	intr-s	**bthí^n*	≈ pass through (?)	-	no
19	*ba-*	*babthízhe théthe*	to push over {x}	DT	tr	**bthizhe*	turning around, pushed aside (DD)	-	?
20	*mú-*	*múbthiz' ithéthe*	to knock off {x} by shooting	DT	tr	**bthizhe*	turning around, pushed aside (DD)	-	?
21	*thi-*	*thibúxe*	to fart	SE	intr-a	**buxe*	-	-	-
22	*ba-*	*bach^{h}ízhe*	to force one's way by pushing	DT	(intr-a)	**ch^{h}izhe*	break through (?) (NA-D)	-	no
23	*bi-*	*bich^{h}ich^{h}izhe*	to break {x} by pressing	DT	tr	**ch^{h}izhe*	break through (?) (NA-D)	-	CAUS sem.
24	*mú-*	*múdada*	to ache	DD, SE, U	intr-(s)	**dada*	-	-	-
25	*ná-*	*nádadáze*	to send sparks (a fire)	DT	intr-(s)	**dadaze*	-	-	-
26	*no^n-*	*no^{n}dázhe*	to blister {x} by action of the feet (?)	U	tr	**dazhe*	blister (NA-E)	-	CAUS sem.
27	*tha-*	*thadé*	to pronounce {x}; to read {x}	DT	tr	**dé*	-	-	-
28	*ba-*	*badí*	to shovel off {*snow*}, dig out {*of mud*}	DD, SE	tr	**dí*	off, away (NA-E)	-	CAUS sem.
29	*ba-*	*badó^n*	to push {x}	U	tr	**do^n*	pull, push, drag (NA-E)	-	CAUS sem.
30	*tha-*	*thadó^n*	to suck {x}	U	tr	**do^n*	pull, push, drag (NA-E)	-	CAUS sem.
31	*bi-*	*ugípido^n* **	to push down one's {x} (on {y}?)	DT	tr	**dó^n*	pull, push, drag (NA-E)	-	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
32	*thi-*	*thidó^n*	to pull {x}	DT, SE, U	tr	**dó^n*	pull, push, drag (NA-E)	-	CAUS sem.
33	*tha-*	*thadúxe*	to crunch {x}	DD, U	tr	**duxe*	-	-	-
34	*ba-*	*badúzhe*	to force {x} out by pushing	DT	tr	**duzhe*	split, craked (DD)	-	CAUS sem.
35	*thi-*	*thiétho^n*	to spread {x}; to scatter {x}	DT	tr	**étho^n*	-	-	-
36	*no^n-*	*nó^{n}ge*	to run	DT, U	intr-a	**ge*	-	-	-
37	*mú-*	*múgixe*	to make a furrow while shooting	DD, U	intr-a	**gixe*	≈ scratch, furrow (NA-D)	-	no
38	*má-*	*mágixe*	to carve {x}; to slice {x}	DD, U	tr	**gixe*	≈ scratch, furrow (NA-D)	-	CAUS sem.
39	*thi-*	*thigthá*	to unroll {x}	DT	tr	**gthá*	-	-	-
40	*mú-*	*múgtho^n*	to go astray	DD, U	intr	**gtho^n*	-	-	-
41	*thi-*	*íthigtho^n*	to rule {x}; to take {*a decision*}	DT	tr	**gtho^n*	-	-	-
42	*ná-*	*nágthuze*	to be made thick by the heat	TA	intr-s	**gthuze*	-	-	no
43	*no^n-*	*no^{n}há(†)*	to kick off {x} (with {y})	DT	tr	**ha*	-	-	-
44	*ba-*	*bahá*	to show {x}	DT, U	tr	**há*	-	-	-
45	*mú-*	*múhatheza*	to return safely from a battle/shooting	U	intr-(s)	**hatheza/e*	≈ slightly (NA-D)	-	no
46	*ba-*	*bahé*	to push {x} aside; to knock {x} aside	DT	tr	**hé*	-	-	-
47	*tha-*	*thahé*	to hold {x} by the mouth; {*fish*} to bite (the hook)	DT, SE	tr	**hé*	-	-	-
48	*no^n-*	*no^{n}hébe*	to wait	DT	intr-(a)	**hébe*	-	-	-
49	*no^n-*	*no^{n}hébe*	to wait for {x}	DT	tr	**hébe*	-	-	-
50	*ba-*	*bahí théthe*	to pick up {x}	DT	tr	**hí*	-	-	-
51	*thi-*	*thihí*	to scare off {x}	DD, U	tr	**hí*	-	-	-

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
52	*ba-*	*ubáhi^n*	to prod {x}; to stick {x} (through {y})	SE	tr	**hi^n*	-	-	-
53	*bi-*	*bihíthe*	to blow {x}	DT, U	tr	**hithe*	≈ away ? (NA-D)	-	?
54	*mú-*	*múhithe*	to blow away {x}	U	tr	**hithe*	≈ away ? (NA-D)	-	?
55	*no^n-*	*no^{n}híthethe* **	to knock down {x} by kicking	DT	tr	**hithe*	≈ away ? (NA-D)	-	?
56	*thi-*	*thihó^n*	to lift {x}	SE	tr	**hó^n*	lift, raised? (NA-D)	-	CAUS sem.
57	*tha-*	*thahó^n*	to pray to {x}	DT, SE	tr	**hó^n*	-	-	-
58	*no^n-*	*no^{n}hó^{n}ho^n*	to make {x} tremble under the feet	DT	tr	**ho^{n}ho^n ?*	-	-	-
59	*tha-*	*thahúni*	to devour {x}	DT, U	tr	**huni*	-	-	-
60	*bi-*	*biká*	to wipe {x}	DT	tr	**ká*	-	-	-
61	*ná-*	*nákade*	to be hot	DT	intr-s	**kade*	-	-	-
62	*thi-*	*thik^{h}iáho^n*	to raise {x}	DT	tr	**k^{h}iaho^n*	up (NA-E)	-	CAUS sem.
63	*ná-*	*nákо^n*	to be lit up; to shine	DT, SE	intr-s	**kó^n*	-	-	-
64	*mú-*	*múko^n*	to lightly tap {x}	U	tr	**kó^n*	-	-	-
65	*thi-*	*gíthiko^n*	to make room for {x}	DT	tr	**kó^n*	-	-	-
66	*bi-*	*bimó^n*	to knead {x}	DD, RE, U	tr	**mó^n*	-	-	-
67	*tha-*	*thaná*	to put {x} on one's lips	DT	tr	**ná*	-	-	-
68	*ba-*	*baníde*	to bend over	SE	intr-a	**níde*	-	-	-
69	*no^n-*	*no^{n}p'ó^{n}de*	to make {x} shake by walking (?)	DT	tr	**p'o^{n}de*	shaken (NA-E)	-	CAUS sem.
70	*thi-*	*thip'ó^{n}de*	to shake {x} by pulling	DT	tr	**p'o^{n}de*	shaken (NA-E)	-	CAUS sem.
71	*no^n-*	*no^{n}pí*	to dance well	DT	intr-a	**pí*	well (DD)	-	no

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
72	*thi-*	*thipí*	to be good at {V}	DT, SE, U	intr-a	**pí*	well (DD)	-	no
73	*tha-*	*thapí*	to speak {x} well	DT, U	tr	**pí*	well (DD)	-	no
74	*thi-*	*thipí*	to be good towards {*someone*}	DT, SE, U	tr	**pí*	well (DD)	-	no
75	*thi-*	*thipí^{n}ze*	to close {*eyes*}	DT	tr	**pi^{n}ze*	-	-	-
76	*ba-*	*bap^{h}úshi^n*	to be puffed up	DT	intr-s	**p^{h}ushi^n*	-	-	-
77	*thi-*	*thish'í^{n}k^{h}a* **	{*animal*} to bend {*the tail*} backwards	DT	tr	**sh'i^{n}k^{h}a*	-	-	-
78	*ba-*	*bashétho^n*	to pay {x}	DD, SE, U	tr	**shetho^n*	taken apart, into pieces (?) (DD)	-	?
79	*thi-*	*thishétho^n*	to break apart {x}, take apart {x}	DT, SE	tr	**shetho^n*	taken apart, into pieces (DD)	-	?
80	*ba-*	*bashíbe*	to force one's way out by pushing	DT	intr-(a)	**shibe*	out (NA-E)	-	no
81	*no^n-*	*no^{n}shíbe*	to walk/run out of {x}; to take the feet out of {x}	DT	tr	**shibe*	out (NA-E)	-	CAUS sem.
82	*thi-*	*thishíbe*	to pull open {x}; to fire {*a gun*}	DT, SE	tr	**shibe*	out (NA-E)	-	CAUS sem.
83	*tha-*	*thashízhe*	to crush {x} with the teeth + to shiver with one's teeth (?) **	DD, DT	tr	**shizhe*	crushed ? (NA-E)	-	CAUS sem.
84	*thi-*	*áthishkabe*	{*animals*} to climb {x}	SE	tr	**shkabe*	-	-	-
85	*thi-*	*thishké*	to untie {x}	DT	tr	**shké*	≈ (un)tie ? (NA-D)	-	?
86	*thi-*	*áthishnapa*	{*clothes*} to be tight	SE	intr-s	**shnapa*	-	-	-
87	*ba-*	*bashnó^n*	to miss {x} while pushing	DT	tr	**shnó^n*	missing, letting fall (DD)	-	?

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
88	*mú-*	*múshno^n*	to miss {x} (when shooting)	DT, SE, U	tr	**shnó^n*	missing, letting fall (DD)	-	no
89	*no^n-*	*no^{n}shnó^n*	to miss {x} while walking, running, kicking...	DT	tr	**shnó^n*	missing, letting fall (DD)	-	no
90	*thi-*	*thishnó^n*	to drop {x}	DT	tr	**shnó^n*	missing, letting fall (DD)	-	no
91	*ná-*	*náshnude*	to fall off, to pop because of the heat	SE	intr-(s)	**shnude*	bare, bold (NA-E)	-	no
92	*má-*	*máshnushnude*	to cut off {x} several times (or: several {x})	DT	tr	**shnude*	bare, bold (NA-E)	-	CAUS sem.
93	*no^n-*	*no^{n}shnúde*	to make {x} fall off by running, kicking, etc **	DT	tr	**shnude*	bare, bold (NA-E)	-	CAUS sem.
94	*thi-*	*thishnúde*	to pull {x} out/off; to take {x} apart	DT, SE	tr	**shnúde*	bare, bold (NA-E)	-	CAUS sem.
95	*ba-*	*bashó^n*	{*creek*} to bend	DT	intr-(s)	**shó^n*	-	-	-
96	*ba-*	*bashpé*	to thrust off {x}	DT	tr	**shpé*	be split off (NA-E)	-	CAUS sem.
97	*no^n-*	*no^{n}shpé*	to kick off {x}	DT	tr	**shpé*	be split off (NA-E)	-	CAUS sem.
98	*tha-*	*thashpé*	to bite a chunck off of {x}	DT, U	tr	**shpé*	be split off (NA-E)	-	CAUS sem.
99	*thi-*	*thishpé*	to pull/pinche a piece off of {x}	DT	tr	**shpé*	be split off (NA-E)	-	CAUS sem.
100	*má-*	*máshpashpa*	to cut {x} in chunks	DT, SE	tr	**shpé*	be split off (NA-E)	-	CAUS sem.
101	*má-*	*máshto^n*	to stop cutting of sawing	DT	intr-a	**shtó^n*	stopping, letting go (DD)	-	no
102	*no^n-*	*no^{n}shtó^n*	to stop walking; running; dancing, etc	DT, SE, U	intr-a	**shtó^n*	stopping, letting go (DD)	-	no

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
103	*tha-*	*thashtó*^{n}	to stop talking; singing; eating, etc	DT, SE	intr-a	**shtó*^{n}	stopping, letting go (DD)	-	no
104	*mú-*	*múshto*^{n}	to stop shooting at $\{x\}$	DT	tr	**shtó*^{n}	stopping, letting go (DD)	-	no
105	*tha-*	*thashtó*^{n}	to release $\{x\}$ by opening the mouth	DT	tr	**shtó*^{n}	stopping, letting go (DD)	-	no
106	*thi-*	*thishtó*^{n}	to finish $\{x\}$	(common)	tr	**shtó*^{n}	stopping, letting go (DD)	-	no
107	*ná-*	*náshue*	to sizzle (when frying)	SE	intr-(s)	**shue*	(ideophone)	id	no
108	*thi-*	*thishúpa*	to tidy up ($\{x\}$), to straighten things out	SE	tr	**shupa*	≈ straighthen, ready (?) (NA-D)	-	CAUS sem.
109	*ba-*	*basí*	to lead $\{x\}$, to herd $\{x\}$	DT, U	tr	**sí* **	-	-	-
110	*mú-*	*músisi*	to feel shooting pains (stomach, innards)	U	intr-(s)	**sisi*	-	-	-
111	*thi-*	*thiskébe*	to scrap off $\{x\}$	DT	tr	**skébe*	-	-	-
112	*má-*	*máski*	to notch $\{x\}$	U	tr	**ski*	-	-	-
113	*thi-*	*thiskí*	to wring out $\{x\}$	U	tr	**skí*	-	-	-
114	*bi-*	*íkipiski*	to be near $\{x\}$ without touching	DT	tr **	**skí ?*	-	-	-
115	*ba-*	*basníde*	to shuffle $\{cards\}$; to squirt	DD, SE, (U)	tr	**sníde*	-	-	-
116	*tha-*	*thasní*^{n}	to swallow $\{x\}$; to eat/drink up $\{x\}$	DT, SE, U	tr	**sní*^{n}	-	-	-
117	*ba-*	*basnó*^{n}	to push a stick through $\{x\}$	DT	tr	**snó*^{n}	throught (NA-E)	-	CAUS sem.
118	*ba-*	*ubásno*^{n}	to plug in $\{x\}$	SE	tr	**snó*^{n} *(+ u-)*	throught (NA-E)	-	CAUS sem.
119	*thi-*	*uthísno*^{n}	to thread $\{x\}$	U	tr	**snó*^{n} *(+ u-)*	throught (NA-E)	-	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
120	*ba-*	*basnú*	to slide {*furniture*} by pushing	DT, SE, U	tr	**snú*	glide, slide (DD)	-	CAUS sem.
121	*tha-*	*thasnú*	to drag {x} with the teeth	DT	tr	**snú*	glide, slide (DD)	-	CAUS sem.
122	*thi-*	*thisnú*	to drag {x}; to pull {x}	DT, SE	tr	**snú*	glide, slide (DD)	-	CAUS sem.
123	*thi-*	*áthiso^{n}de*	to squeeze {x}	DT	tr	**so^{n}de*	≈ press against (?) (NA-D)	-	CAUS sem.
124	*ba-*	*ábaso^{n}de*	to press against {x} on the ground	DT	tr	**so^{n}de*	≈ press against (?) (NA-D)	-	CAUS sem.
125	*bi-*	*íbiso^{n}de*	to press (oneself?) against {x}	DT	tr	**so^{n}de*	≈ press against (?) (NA-D)	-	CAUS sem.
126	*no^n-*	*áno^{n}so^{n}de*	to close on {x} (involuntarily)	DT	tr	**so^{n}de*	≈ press against (?) (NA-D)	-	CAUS sem.
127	*ba-*	*basó^{n}so^{n}tha*	to stir {x} repeatedly	DD, (SE), RE	tr	**so^{n}tha*	turned completely over in a vertical plane (DD)	-	CAUS sem.
128	*ba-*	*íbaso^{n}tha*	to turn over {x}	DD, SE, (RE)	tr	**so^{n}tha*	turned completely over in a vertical plane (DD)	-	CAUS sem.
129	*thi-*	*thisó^{n}tha*	to turn over {x}	DT, SE, RE	tr	**so^{n}tha*	turned completely over in a vertical plane (DD)	-	CAUS sem.
130	*bi-*	*bispé*	to crouch	DT	intr-(a)	**spé*	-	-	-
131	*ba-*	*baspó^n*	to nudge/poke at {x}	DT	tr	**spó^n*	≈ touch/reach (NA-D)	-	CAUS sem.
132	*bi-*	*íbista*	to press {x} against {y}	DT	dtr **	**stá*	flat, flattened (NA-E)	-	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
133	*ba-*	*bastákʰi théthe*	to push {x} (and splinter it?)	DT	tr	**stakʰi*	flying off (DD)	-	?
134	*nonˀ-*	*nonˀstákʰi*	to kick {x} (and send them away)	DT	tr	**stakʰi*	flying off (DD)	-	CAUS sem.
135	*nonˀ-*	*nonˀstápʰi*	to run softly	DT	intr-(a)	**stapʰi*	-	-	-
136	*tha-*	*thastube*	to lick {x}; to taste {x}	SE, U	tr	**stube*	-	-	-
137	*thi-*	*thistúbe*	to spread the hands towards {x}	DT	tr	**stube*	-	-	-
138	*ná-*	*unásude*	{*vegetation*} to be burnt bare	DT	intr-s	**sude*	bare of hair, vegetation (DD)	-	no
139	*thi-*	*thisúde*	to de-stem {x}; to clean {x}	SE	tr	**sude*	bare of hair, vegetation (DD)	-	CAUS sem.
140	*bi-*	*ábit'a*	to press {x}; to press on {x}	DT	tr	**t'á*	-	-	-
141	*ná-*	*gínat'ega*	to be whitened by the heat on {x} (malefactive)	DT	bi-s **	**t'ega*	-	-	-
142	*thi-*	*thit'óˀ*	to touch {x}; to feel {x}	DT	tr	**t'óˀ*	-	-	-
143	*ba-*	*bat'ú*	to block {x}'s way	DT	tr	**t'ú*	-	-	-
144	*nonˀ-*	*nonˀtátaxi*	to make the sound "taxi" while walking	DT	intr-(a)	**taxi*	(ideophone)	id	CAUS sem.
145	*ná-*	*nátaze*	to shine in spots	U	intr-(s)	**taze*	-	-	-
146	*bi-*	*ábite*	to touch {x}	SE, U	tr	**té*	-	-	-
147	*thi-*	*thité*	to ford {x}	DT	tr	**té*	-	-	-
148	*nonˀ-*	*nonˀthíˀ_-tha(†)* **	to twist {*an ankle*} by running	DT	tr	**thiˀtha*	-	-	-
149	*ná-*	*náthizizíje*	to sizzle in the fire	DT	intr-(s)	**thizizije*	(ideophone)	id	no
150	*ba-*	*ubáti*	to plug {x}	U	tr	**ti*	-	-	-
151	*nonˀ-*	*nonˀtíde*	to make a drumming sound with one's feet	DT	intr-(a)	**tidé*	(ideophone)	id	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
152	*tha-*	*thatóⁿ*	to drink {x}	(common)	tr	**tóⁿ*	-	-	-
153	*noⁿ-*	*noⁿtʰátʰa*	to patter the ground with the sole of the foot	DT	intr-a	**tʰa* **	(ideophone)	id	CAUS sem.
154	*noⁿ-*	*noⁿtʰé*	to dance; to (lively) step	DT	intr-a	**tʰe*	-	-	-
155	*ba-*	*batʰé*	to sew {x}	DT, SE, U	tr	**tʰe*	-	-	-
156	*noⁿ-*	*noⁿtʰé*	to kick {x}; to step on {x}	DT, U	tr	**tʰe*	-	-	-
157	*tha-*	*thatʰé*	to eat {x}	(common)	tr	**tʰe*	-	-	-
158	*thi-*	*áthitʰe*	to cross {x}	DT	tr	**tʰe*	-	-	-
159	*bi-*	*ubítʰoⁿ*	press {x} down in {*blood*} (?); "to press {x} down to the blood"	DT	tr	**tʰoⁿ*	-	-	-
160	*thi-*	*thiúubthiⁿ*	to pull {x} round and round	DT	tr	**úbthiⁿ (?)*	-	-	-
161	*tha-*	*thawá*	to count	U	intr-a	**wá*	-	-	-
162	*tha-*	*thawá*	to count {x}	U	tr	**wá*	-	-	-
163	*mú-*	*múxa*	to stand up in the air	DD, U	intr-(s)	**xá /ɣ/*	-	-	-
164	*thi-*	*thixábe*	to flay {x}	DT	tr	**xabe /ɣ/*	≈ flayed? (NA-D)	-	CAUS sem.
165	*mú-*	*múxadoⁿ*	to have bushy hairs	U	intr-(s)	**xadoⁿ /ɣ/*	disheveled (NA-E)	-	no
166	*ba-*	*baxápʰi*	to pierce {x} (by pushing)	DT	tr	**xapʰi*	pierced (NA-E)	-	CAUS sem.
167	*thi-*	*thixápʰi*	to pierce {x} (with claws)	DT	tr	**xapʰi*	pierced (NA-E)	-	CAUS sem.
168	*thi-*	*thixé*	to pursue {x}	DT	tr	**xé 1*	-	-	-
169	*thi-*	*áthixe*	to marry {x} (by female to male)	DT, SE	tr	**xé 2*	-	-	-
170	*bi-*	*ábixe*	to boil	DT, SE	intr-(s)	**xé 2*	-	-	-
171	*noⁿ-*	*kinóⁿxi*	to arouse oneself by dancing	DT	intr-a	**xí 1*	≈ down / up ? (NA-D)	-	no

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
172	*ba-*	*baxí athe*	to push over {x}; to awake {x} by pushing	DT	tr	**xí 1*	≈ down / up ? (NA-D)	-	CAUS sem.
173	*thi-*	*thixí*	to wake {x} up	DT, SE	tr	**xí 1*	≈ down / up ? (NA-D)	-	CAUS sem.
174	*thi-*	*uthíxide*	to look for {x}	DT, SE, U	tr	**xide 2*	-	-	-
175	*no^n-*	**íno^{n}xithe*	to attack/chase {x}	DT, U	tr	**xithe* /ɣ/	-	-	-
176	*ba-*	*ubáxo^n*	to push/thread {x} into {y}	DT	tr	**xó^n* /ɣ/	-	-	-
177	*no^n-*	*ugíno^{n}xpe*	to string one's own {*bow*}	DT	tr	**xpe*	≈ thread, string form	-	-
178	*ná-*	*náxpo^{n}the*	to cause {x} to melt (by the heat)	DT	tr	**xpó^n*	thawed out (DD)	-	no **
179	*mú-*	*múxtaxta*	to peck {x} with one's head (woodpecker)	U	tr	**xta*	-	-	-
180	*ba-*	*baxté*	to tie {x}, to corral {x}	DT, U	tr	**xté*	-	-	-
181	*tha-*	*thaxté*	to bite {x}	DT, SE	tr	**xté*	-	-	-
182	*tha-*	*thaxthaxthapzha*	to pierce often {x} with the teeth	DT	tr	**xthapzha ?*	-	-	-
183	*tha-*	*thaxthí*	to nibble {x}	U	tr	**xthí*	-	-	-
184	*thi-*	*thixthíbe*	to squish {x}	SE	tr	**xthibe*	-	-	-
185	*ná-*	*náxthi^n*	to burn	DT, U	intr-(s)	**xthí^n*	-	-	-
186	*thi-*	*thixthó^n*	to gather {x} in one hand	DT	tr	**xthó^n*	-	-	-
187	*ba-*	*baxthú*	to pierce {x}	U	tr	**xthú*	-	-	-
188	*tha-*	*thaxthúde*	to choke	U	intr	**xthúde*	-	-	-
189	*thi-*	*thixthúde*	to pull/peel off {x}	DT, SE	tr	**xthúde*	-	-	-
190	*ba-*	*baxú*	to write {x}	DT, SE	tr	**xú* /ɣ/	≈ marked (?) (NA-D)	-	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
191	*má-*	*máxu*	to carve {x}, to notch {x}	SE, U	tr	**xú* /ɣ/	≈ marked (?) (NA-D)	-	CAUS sem.
192	*ná-*	*náxu*	to brand {x}	U	tr	**xú* /ɣ/	≈ marked (?) (NA-D)	-	CAUS sem.
193	*thi-*	*thixú*	to draw {x}	SE, U	tr	**xú* /ɣ/	≈ marked (?) (NA-D)	-	CAUS sem.
194	*tha-*	*thaxú*	to drink {x} dry	DT	tr	**xú* /x/	-	-	-
195	*mú-*	*múza*	to plant {x} in the ground (e.g. a pole)	DT, U	tr	**za*	-	-	-
196	*thi-*	*thizé*	to take {x}; to get {x}	(common)	tr	**zé*	-	-	-
197	*thi-*	*thipáze*	to pull {x}'s hair	DT	tr	**zé*	-	-	-
198	*thi-*	*thizhá*	to wash {x}, to rince {x}	DD, SE, U	tr	**zhá*	-	-	-
199	*thi-*	*thizhábe*	to peel {x}	DD, SE	tr	**zhabe*	-	-	-
200	*no^n-*	*no^{n}zhage*	to bent {x} while walking (?) **	DT	(tr)	**zhage*	-	-	-
201	*no^n-*	*no^{n}zházhaje*	to kick out one's legs	DT	intr-(a)	**zhaje ?*	-	-	-
202	*thi-*	*íthizhe*	to lade out {x}	DT	tr	**zhé*	-	-	-
203	*ba-*	*bazhíbe*	to poke {x}	U	tr	**zhibe*	-	-	-
204	*thi-*	*thizhí^{n}de*	to reach {x} with the arm	DT	tr	**zhi^{n}de*	-	-	-
205	*mú-*	*múzho^n*	to winnow {x}; to sift {x}	U	tr	**zho^n*	-	-	-
206	*bi-*	*ubízho^n*	to blow into {x}	DT	tr	**zhó^n*	-	-	-
207	*thi-*	*thizhó^{n}zho^n*	to shake {x} (repeatedly)	DT, (SE), (U)	tr	**zho^{n}zho^n*	≈ shaken (NA-E)	-	CAUS sem.
208	*no^n-*	*no^{n}zhú*	to thresh {x}	DT	tr	**zhú* **	-	-	-
209	*ba-*	*bazhúzhu*	{*inanimate*} to be rough	U	intr-s	**zhuzhu*	-	-	-
210	*thi-*	*thizí*	to stretch {x}	SE	tr	**zí*	≈ stretched (NA-D)	-	CAUS sem.

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
211	*mú-*	*múzibe*	to slightly wound {x} by shooting	DT	tr	**zibe*	a little (NA-E)	-	no
212	*thi-*	*thizíbe*	to pick a little piece off {x}	DT, SE, RE	tr	**zibe*	a little (NA-E)	-	no
213	*ba-*	*bazó^n*	to push one's way through {x}	DT	tr	**zó^n*	-	-	-
214	*ná-*	*názo^{n}de*	to evade the blows, the shoots	DT	intr-(a)	**zo^{n}de*	-	-	-
215	*ba-*	*ábazu*	to point at {x}	DT, SE, U	tr	**zu*	-	-	-
216	*thi-*	*thizúe*	to strech out	DT	intr-(a)	**zue*	-	-	-
217	*thi-*	*thi'áxe*	to make {x} squeak	SE	tr	*'axe*	to be squeaky	intr-s	CAUS
218	*má-*	*má'e*	to slice {x}; to cut up {x}	U	tr	*'é*	to scatter {x}	tr	?
219	*thi-*	*áthi'e*	to drop {x} on {y}	DT, SE	dtr **	*'é*	to scatter {x}	tr	?
220	*bi-*	*biákibeso^n*	to make {x} double up on itself by pressure/weight	DT	tr	*ákibeso^n*	folded once on itself	intr-s	CAUS
221	*thi-*	*thibás'í^n*	to put {x} down, face first	SE	tr	*bas'í^n*	upside down	intr-(s) **	CAUS
222	*mú-*	*múbazhu itháthe*	{*water*} to shoot up suddenly and frequently (when boiling)	DT	intr-(s)	*bazhú*	callous, fored by a burn	intr-(s)	no
223	*thi-*	*thibébthi^n* **	to roll up {*cigarettes, bread, etc*}	DT, SE	tr	*bébthi^n*	warped, twisted	intr-(s)	CAUS
224	*thi-*	*thibéni*	to bend {x}	SE	tr	*béni*	bent forward	intr-(s)	CAUS
225	*thi-*	*thibéxi^n*	to sweep {x}	U	tr	*béxi^n*	made bare, uncovered, pulled back	intr-s	CAUS
226	*mú-*	*múbixo^n*	to blow forcefully	U	intr-a	*bixó^n* /ɣ/	blow at {x}	tr ?	no
227	*bi-*	*no^{n}bíxo^n*	to scatter {x} by action of the foot (walking, kicking...)	DT	tr	*bixó^n?* /ɣ/	blow at {x} **	tr ?	CAUS?
228	*ná-*	*nábize_the*	to dry {x}	SE	tr **	*bíze*	to dry, to be dry	intr-(s)	no **

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
229	*ba-*	*babíze*	to mop {x}	U	tr	*bíze*	to dry, to be dry	intr-s	CAUS
230	*bi-*	*bibíze*	to rub {x} dry	DT	tr	*bíze*	to dry, to be dry	intr-s	CAUS
231	*tha-*	*thabíze*	to drink {x} dry	U	tr	*bíze*	to dry, to be dry	intr-s	CAUS
232	*thi-*	*thibíze*	to dry {x}	U	tr	*bíze*	to dry, to be dry	intr-s	CAUS
233	*bi-*	*bibtháska*	to flatten {x} (by pressure); to smash {x}	TA, RE, U	tr	*btháska*	to be flat	intr-s	CAUS
234	*thi-*	*thibtháska*	to flatten {x} by letting air out	SE, U	tr	*btháska*	to be flat	intr-s	CAUS
235	*thi-*	*thibthí*	to pulverize {x}; to plow {x}	DT	tr	*bthí*	powered, pulverized, fine	intr-s	CAUS
236	*ná-*	*nábtho^n*	to smell of fire; {x} smells of fire (?) **	U	bi-s **	*bthó^n*	to smell of {x} (= emit a smell)	bi-s	no
237	*thi-*	*uthíbtho^n*	to smell {x} (= perceive)	DT	tr	*bthó^n*	smell	n	?
238	*thi-*	*thibthó^n*	to smell {x} (= perceive)	DT, SE, U	tr	*bthó^n*	smell	n	?
239	*bi-*	*bibúta*	to press {x} round; to make a ball by pressing {x}	RE, U	tr	*búta*	round	intr-s	CAUS
240	*thi-*	*thibúta*	to make round; to crumple up {*a sheet of paper*}	DT, SE	tr	*búta*	round	intr-s	CAUS
241	*tha-*	*thadí^{n}di^n*	to speak loudy	DT	intr-(a)	*di^{n}dí^n*	to be tight/stiff (for humans)	intr-s	no
242	*ná-*	*nádi^{n}di^n_-gíthe*	to make one's {x} stiffer by the heat	DT	tr	*di^{n}dí^n*	to be tight/stiff (for humans)	intr-s	no
243	*ba-*	*badí^{n}di^n*	{*skin*} to be distended	DT	intr-s	*di^{n}dí^n*	to be tight/stiff (for humans)	intr-s	no
244	*má-*	*mádi^{n}di^n*	to bear down firmly on an ob. in cutting it with a knife	(DD)	tr	*di^{n}dí^n*	to be tight/stiff (for humans)	intr-s	CAUS
245	*thi-*	*thidí^{n}di^n*	to hold {x} tight, to grasp {x}	DT, SE	tr	*di^{n}dí^n*	to be tight/stiff (for humans)	intr-s	CAUS

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
246	*no^n-*	*no^{n}ésa*	to run too far	DT	intr-a	*ésa*	to last longer than was anticipated (DD)	intr-(s)	no
247	*thi-*	*wáthiesa*	to spent more time than intended **	DT	intr-a **	*ésa*	to last longer than was anticipated	intr-s	?
248	*ná-*	*náetho^{n}be_the*	to make {x} come out with fire/heat	DT	tr	*étho^{n}be*	to be in sight	intr-(s)	no
249	*tha-*	*thaétho^{n}be*	to make {x} emerge by biting	DT	tr	*étho^{n}be*	to be in sight	intr-(s)	CAUS
250	*tha-*	*thagithe*	to make {x} glad by talking	DT	tr	*gíthe*	to rejoice, to be happy	intr-s	CAUS
251	*thi-*	*thigthéze*	to streak {x}, make stripes on {x}	U	tr	*gthéze*	to be stripped	intr-s	CAUS
252	*tha-*	*thagthó^n*	to swear, to cuss	U	intr-a	*gthó^n*	bad words, to revile	intr-a	no
253	*mú-*	*múhega*	to hurt slightly {x} when shooting	U	tr	*héga*	a little	adv ?	no
254	*mú-*	*múhegazhi*	to make a lot of noise while shooting	U	intr-a	*hégazhi*	a lot	adv	no
255	*ná-*	*náhegazhi*	to burn brightly, with force; to spread fast (the fire)	DT	intr-(s)	*hégazhi*	a lot	adv ?	no
256	*no^n-*	*no^{n}hégazhi*	to run, walk, dance, or kick excessively; to run fast	DT, ULCC	intr-a	*hégazhi*	a lot	adv ?	no
257	*mú-*	*múhegazhi*	to shoot down a lot of {x}	DT	tr	*hégazhi*	a lot	adv ?	no
258	*tha-*	*thahégazhi*	to make great noise (with the mouth)	DT	intr-a	*hégazhi*	a lot	adv ?	no
259	*tha-*	*thahíde*	to ridicule {x}; to tease {x}	DT, U	tr	*híde*	base, bottom	n	CAUSb
260	*thi-*	*thihíde*	to turn down {*stove*}, to lower {x}	SE	tr	*híde*	base, bottom	n	CAUSb
261	*mú-*	*múho^n*	to shoot until nightfall	DD, U	intr-a	*hó^n*	night	n	no

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
262	*no^n-*	*no^{n}hó^n*	to walk until nightfall	DT	intr-a	*hó^n*	night	n	no
263	*bi-*	*bihúto^n*	to blow into {x} {*a horn, trumpet, flute...*}	DT	tr	*húto^n*	to cry out	intr-(a)	CAUS
264	*no^n-*	*no^{n}húto^n*	to make {x} cry or make noise (by walking)	DT	tr	*húto^n*	to cry out	intr-a	CAUS
265	*tha-*	*thak^{h}úthe*	to speak quickly	DD, DT	intr-(a)	*k^{h}úthe*	quickly	adv	no
266	*thi-*	*thik^{h}utha*	to hurry	DT	intr-(a)	*k^{h}úthe*	quickly	adv	no
267	*mú-*	*múk^{h}uk^{h}uthe*	to shoot more rapidly than before	(DD)	intr-a	*k^{h}úthe*	quickly	adv	no
268	*mú-*	*múkuge*	to make {x} remble by shooting at it	U	tr	*kúge*	box, drum	n	CAUSb
269	*ba-*	*bakúwi^{n}xe*	to bend around, to turn around	DT	(intr-s)	*kúwi^{n}xe*	turn, spin, walk around	intr-(a)	no
270	*no^n-*	*gíno^{n}kuwi^{n}xe*	run around trying to get things done	U	intr-(a)	*kúwi^{n}xe*	turn, spin, walk around	intr-(a)	no
271	*tha-*	*thakúwi^{n}xe*	to cry around (?)	DT	intr-a	*kúwi^{n}xe*	turn, spin, walk around	intr-(a)	no
272	*thi-*	*thikúwi^{n}xe*	to turn {x}	DT	tr	*kúwi^{n}xe*	turn, spin, walk around	intr-(a)	CAUS
273	*no^n-*	*no^{n}míthumo^{n}shi*	to walk until noon	DT	intr-a	*míthumo^{n}shi*	noon	n	no
274	*thi-*	*thimó^{n}gthe*	to raise {x} (tail, ...); to put {x} upright	DT	tr	*mó^{n}gthe*	to be erect	intr-(s)	CAUS
275	*thi-*	*thimó^{n}shi*	to raise up {x}	SE, U	tr	*mó^{n}shi*	above, high in the air	intr-(s)	CAUS
276	*thi-*	*thináko^n*	to turn on {*lights*}	SE	tr	*náko^n*	to be lit up; to shine	intr-s	CAUS
277	*no^n-*	*no^{n}náxthi^n*	to make {x} bright by walking	DT	tr	*náxthi^n*	to burn	intr-s	CAUS
278	*thi-*	*thinázhi*	to turn off {*lights*}	SE	tr	*názhi*	to be extinguished	intr-s	CAUS

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
279	*ba-*	*banó^{n}ge*	to roll {x} by pushing	SE, U	tr	*nó^{n}ge*	to run	intr-a	CAUS
280	*thi-*	*thinó^{n}ge*	to turn on {x} (with circular motion)	SE	tr	*nó^{n}ge*	to run	intr-a	CAUS
281	*thi-*	*thinúshi*	to lower {*a flame*}; turn down {*a lamp*}	SE, U	tr	*núshi*	low	intr-(s) **	CAUS
282	*ná-*	*náo^{n}ba*	{*fire*} to burn until the morning	U	intr	*ó^{n}ba*	day	n	no
283	*no^n-*	*no^{n}ó^{n}ba*	to walk until daybreak	DT	intr-a	*ó^{n}ba*	day	n	no
284	*tha-*	*thaó^{n}ba*	to talk all night	U	intr-a	*ó^{n}ba*	day	n	no
285	*thi-*	*thió^{n}baba*	to be shiny/sparkly	SE	intr-s	*ó^{n}ba*	day	n	no
286	*ba-*	*baó^{n}ba*	to push (make pushing movement) until day	DT	(tr)	*ó^{n}ba*	day	n	no
287	*mú-*	*múpa*	to be overboiled; {*coffee*} be strong	SE, U	intr-s	*paí* (?)	to be sharp	intr-s	no
288	*thi-*	*thipái*	to sharpen {*a knife*}	DT, U	tr	*paí*	to be sharp	intr-s	CAUS
289	*ná-*	*násabe*	to burn black	DT, U	intr-(s)	*sábe*	to be black	intr-s	no
290	*ba-*	*basáde*	to iron {x}	U	tr	*sáda*	straightened out	intr-s	CAUS
291	*ná-*	*násage*	to (be) harden(ed) by the heat	DT, U	intr-(s)	*sagí*	to be hard, solid	intr-s	no
292	*ná-*	*násagi*	to harden {x} by means of the heat	U	tr	*sagí*	to be hard, solid	intr-s	CAUS
293	*no^n-*	*no^{n}sági*	to make {x} firm by walking	U	tr	*sagí*	to be hard, solid	intr-s	CAUS
294	*thi-*	*thisági*	to strengthen {x}, to tighten {x}	SE, U	tr	*sagí*	to be hard, solid	intr-s	CAUS
295	*thi-*	*thisáthu*	to rattle {x}	DT	tr	*sathú*	to rattle	intr-(s)	CAUS
296	*ba-*	*basé*	to cut {x}, to shear {x}	U	tr	*sé*	separated, broken	intr-s	CAUS
297	*bi-*	*bisé*	to cut {x}	DT	tr	*sé*	separated, broken	intr-s	CAUS

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
298	*má-*	*máse*	to cut off {x}; to saw {x}	DT, U	tr	*sé*	separated, broken	intr-s	CAUS
299	*no^n-*	*no^{n}sé*	to cut {x} with a machine	DT	tr	*sé*	separated, broken	intr-s	CAUS
300	*tha-*	*thasé*	to cut {x} with one's teeth	DT	tr	*sé*	separated, broken	intr-s	CAUS
301	*thi-*	*thisé*	to cut {x} (with scissors)	DT, SE, U	tr	*sé*	separated, broken	intr-s	CAUS
302	*ná-*	*náshabe_-the*	to blacken {x} by means of the fire	DT	tr	*shábe*	to be dark	intr-s	no
303	*no^n-*	*no^{n}shábe*	to shade {x} (by standing somewhere?)	U	tr	*shábe*	dark	intr-s	CAUS
304	*bi-*	*bishkó^n*	to make {x} move by pressing on it, or by one's weight	DT	tr	*shkó^n*	to move	intr-a	CAUS
305	*ba-*	*bashná*	to shave {x}	U	tr	*shná*	to be bald	intr-s	CAUS
306	*thi-*	*thishná*	to puck {*feathers*}	DT, SE, U	tr	*shná*	to be bald	intr-s	CAUS
307	*no^n-*	*no^{n}shnáha*	to slip while walking (on {x}?)	DT, U	tr	*shnahá*	smooth, slippery	intr-s	CAUS
308	*ba-*	*bashó^{n}the*	to pour/spill out the content of {x}	(common)	tr	*sho^{n}thá*	upset and spilled	intr-s	CAUS
309	*ná-*	*náshtide_-the*	to warm up {x}	SE	tr	*shtíde*	to be warm	intr-s	no
310	*tha-*	*thashúde*	to puff out smoke	DT	intr-(a)	*shúde*	smoke	n	no
311	*tha-*	*thashúde*	to make {x} smoke; to puff out smoke from {*cigarette*}	SE	tr	*shúde*	smoke	n	CAUSb
312	*ba-*	*basíhi*	to scoop {*snow when icy*}	SE	tr	*sihí*	foot	n	CAUSb
313	*má-*	*másihixti*	to entirely cut off {x}	DT	tr	*sihí*	foot	n	CAUSb
314	*thi-*	*thisíhi*	to clean up {x}, to erase {x}	SE	tr	*sihí*	foot	n	CAUSb

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
315	*thi-*	*thiská*	to bleach out {x}, to whiten {x}	U	tr	*ská*	white	intr-s	CAUS
316	*tha-*	*thaskáskabe*	to stuck to {x}; to be stucked to {x}	RE, (U)	tr	*skaskábe*	sticky, miry	intr-s	CAUS
317	*no^n-*	*ugíno^{n}skábe*	to make one's own {x} to adhere to {y}	DT	tr	*skaskábe* ≈ *(+ u-)*	sticky, miry	intr-s	CAUS
318	*ná-*	*násko^n*	to melt; to saw	U	intr-(s)	*skó^n*	melted	intr-(s)	no
319	*bi-*	*ábisnathe*	to spread {x} on {y}	U	dtr **	*sná_the*	to put grease on {x}	tr ?	no
320	*ba-*	*basnúsnu*	to mash {x}	DT	tr	*snúsnu*	to be fluid, driping	intr-(s)	CAUS
321	*ná-*	*nát'e*	to die from heat, fire, etc	DT	intr-s	*t'é*	to die	intr-a	no
322	*no^n-*	*no^{n}t'é*	to be killed by a machine; {*a machine*} to kill {x}	DT	intr-s	*t'é*	to die	intr-a	no
323	*tha-*	*kigthát'e*	to kill oneself by crying	DT	intr-a	*t'é*	to die	intr-a	CAUS **
324	*tha-*	*thatádesaga*	to make wind with one's mouth	DT	intr-a	*tadé-sagi*	(strong) wind	n (VP)	CAUSb
325	*ná-*	*náthi^{n}ge*	to be destroyed by fire	DT	intr-s	*thi^{n}ge*	to be gone	bi-s	no
326	*má-*	*máthi^{n}ge*	to remove {x} (entirely) with a knife	DT	tr	*thi^{n}ge*	to be gone	bi-s	CAUS
327	*mú-*	*múthi^{n}ge*	to shoot until there is no more {x}	DT	tr	*thi^{n}ge*	to be gone	bi-s	CAUS
328	*no^n-*	*no^{n}thí^{n}ge*	to destroy {x} by trampling	DT	tr	*thi^{n}ge*	to be gone	bi-s	CAUS
329	*thi-*	*thithí^{n}ge*	to demolish {x}	U	tr	*thi^{n}ge*	to be gone	bi-s	CAUS
330	*ba-*	*kibáthi^{n}ge*	to destroy oneself by pushing	DT	intr-a	*thi^{n}ge*	to be gone	bi-s	CAUS **
331	*ba-*	*bathúto^n*	to push {x} straight	DT	tr	*thúto^n*	straight	intr-s	CAUS
332	*thi-*	*thithúto^n*	to straighten {x}	DD, U	tr	*thúto^n*	straight	intr-s	CAUS

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
333	*má-*	*mátube*	to cut {*meat, tobacco, etc*} fine; {*meat*} to be grounded **	DD, U	tr	*túbe*	ground, broken up	intr-(s) **	no
334	*bi-*	*bitúbe*	to rub {x} to powder	DT	tr	*túbe*	ground, broken up	intr-(s)	CAUS
335	*thi-*	*thitúbe*	to grind {x}	DT, SE, RE	tr	*túbe*	ground, broken up	intr-(s)	CAUS
336	*ná-*	*nátube*	to be cooked until falling apart; to be cooked tender	U	intr-s	*túbe*	ground, broken up	intr-s	no
337	*ná-*	*nátubthi*^{n}	to warp under the heat, the sun...	U	intr-(s)	*tubthí*^{n}	out of lines, slanted	intr-s	no
338	*ná-*	*nátutushi*	to pop with loud noise	SE	intr-(s)	*túshi*	to pop open with noise, to fire	intr-(s)	no
339	*thi-*	*thitútushi*	to snap {*fingers*}	SE	tr	*túshi*	to pop open with noise, to fire	intr-(s)	CAUS
340	*thi-*	*thit'úxa*	to make a hump of {x}	DT	tr	*túxa*	much bent, distorted, as a camel's hump	intr-s	CAUS
341	*má-*	*umá'ude*	to cut a hole in {x}	DT	tr	*u'úde*	hole	n	CAUSb
342	*tha-*	*uthá'ude*	to bite a hole in {x}	DT	tr	*u'úde*	hole	n	CAUSb
343	*thi-*	*uthí'ude*	to scratch/make a hole in {x}	DT, U	tr	*u'úde*	hole	n	CAUSb
344	*ba-*	*ba'úde*	to puncture {x}	U	tr	*u'úde* (≈)	hole	n	CAUSb
345	*ná-*	*unábixo*^{n} **	to raise; to float	DD, RE	intr-(s)	*ubíxo*^{n}	to blow into {x}	tr ?	no
346	*mú-*	*umúbixo*^{n}	to bloat; to be puffed up	DD, U	intr-s	*ubíxo*^{n}	to blow into {x}	tr ?	no

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
347	*ná-*	*unádatho^n*	to be accostumed to the heat	DT	intr-s	*udátho^n*	to become accostumed to anything	intr-s	no
348	*thi-*	*thiúdo^n*	to make good to {x}; to benefit to {x}	DT	tr	*údo^n*	to be good	intr-s	CAUS
349	*ná-*	*unágo^{n}be*	to be lightning	U	intr	*ugó^{n}ba*	light	n	no
350	*ná-*	*nágo^{n}be*	{*a fire, the sun*} to light up / to shine	DT, U	intr-(s)/imp **	*ugó^{n}ba*	light	n	no
351	*thi-*	*thió^{n}si*	to pull {x} to make them jump	DT	tr	*uó^{n}si* (≈)	to jump	intr-a	CAUS
352	*mú-*	*umúshte*	to remain alive after being shot at	DT	intr-(s)	*ushté*	to remain (alive)	intr-s	no
353	*ná-*	*unáshte*	to remain after a fire	DT	intr-s	*ushté*	to remain (alive)	intr-s	no
354	*tha-*	*ugíthashte*	to keep {*one's own x*} without eating **	DT	tr **	*ushté*	to remain (alive)	intr-s	CAUS
355	*tha-*	*uthásne*	to split {x} by bitting	DT	(tr)	*usné*	crack, split	n	CAUSb
356	*má-*	*umásne*	to split {x} with a knife	DT	tr	*usné*	crack, split	n	CAUSb
357	*ba-*	*ubáxpathe*	to make {x} fall by pushing	DT	tr	*uxpáthe*	to fall	intr-s	CAUS
358	*mú-*	*umúxpathe*	to make {x} fall by shooting at it/him	DT	tr	*uxpáthe*	to fall	intr-s	CAUS
359	*thi-*	*uthíxpathe*	to make {x} fall; to drop {x}	DT, SE, U	tr	*uxpáthe*	to fall	intr-s	CAUS
360	*bi-*	*ubíxpathe*	to make {x} fall by pressing, rubbing	DT	tr	*uxpáthe*	to fall	intr-s	CAUS
361	*no^n-*	*unó^{n}xpathe*	to make {x} fall by action of the feet	DT	tr	*uxpáthe*	to fall	intr-s	CAUS
362	*thi-*	*uthíxthaxtha*	to loosen {*a rope/knock*}	U	tr	*uxtháxtha*	to be loose or too large for one	intr-s	CAUS

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
363	*ná-*	*náwako^{n}dithe*	to become impatient because of the heat	DT	intr-(s)	*wakó^{n}dithe*	to be exited, impatient (from {x})	(intr-s)	no
364	*tha-*	*thawáthishná*	to make {x} appear by biting; to speak {x} plainly	DD, DT	tr	*wathíshna*	to be visible	intr-s	CAUS
365	*no^n-*	*no^{n}xáge*	to make {x} cry by kicking them	DT	tr	*xagé*	to cry	intr-a	CAUS
366	*tha-*	*thaxáxage*	to make {x} cry repeatedly by biting them	DT	tr	*xagé*	to cry	intr-a	CAUS
367	*no^n-*	*no^{n}xíxixe*	to crush {x} by walking on them	DT	tr	*xíxe*	broken in (DD)	intr-(s)	CAUS
368	*tha-*	*thaxíxixe*	to crush {x} with the teeth	DT	tr	*xíxe*	broken in (DD)	intr-(s)	CAUS
369	*ba-*	*baxó^n*	to break off {x}	U	tr	*xó^n* /x/	to be broken	intr-s	CAUS
370	*bi-*	*bixó^n*	to break {x} by pressing/bearing on it	DT	tr	*xó^n* /x/	to be broken	intr-s	CAUS
371	*má-*	*máxo^n*	to cut off {x} with a knife, etc	DT, U	tr	*xó^n* /x/	to be broken	intr-s	CAUS
372	*mú-*	*múxo^n*	to break {x} by shooting at it	DT	tr	*xó^n* /x/	to be broken	intr-s	CAUS
373	*tha-*	*thaxó^n*	to break {x} by bitting, etc	DT	tr	*xó^n* /x/	to be broken	intr-s	CAUS
374	*thi-*	*thixó^n*	to break {x} (with the hands)	(common)	tr	*xó^n* /x/	to be broken	intr-s	CAUS
375	*mú-*	*múxthu'a*	to shoot {x} empty **	DT	tr	*xthú'a*	to be hollow	intr-s	CAUS
376	*mú-*	*múxto^n*	to flow (e.g. water)	U	intr	*xtó^n*	to drop, as a liquid	intr-(s)	no
377	*ba-*	*baxtó^n*	to pour {x}	U	tr	*xtó^n*	to drop, as a liquid	intr-(s)	CAUS
378	*no^n-*	*no^{n}xtó^n*	to strain {x} (to pour out with a blockage)	U	tr	*xtó^n*	to drop, as a liquid	intr-(s)	CAUS
379	*tha-*	*thaxúbe*	to praise {x}	DD, U	tr	*xubé*	to be sacred	intr-s	CAUS
380	*ná-*	*náxude*	to be/get scorched	RE, SE, U	intr-s	*xúde*	gray	intr-s	no

Database: other instrumental verbs (continued)

Nb	Ins	Verb	Meaning	Source	Class	⇓ Base	Meaning	Cat.	CAUS
381	*thi-*	*thixú'e*	to make the sound **xu'é**	DT	intr-(s)	*xu'é*	to roar as water; sound of sand/grains falling	intr-(s)	no
382	*tha-*	*áthaza'e*	{*bird*} to make a great noise on {x}	DT	tr **	*za'é*	to make noise	intr-(a)	no **
383	*ná-*	*názhi*	to be extinguished	DT	intr-s	*-zhi*	[negation marker]	adv	no
384	*ná-*	*názhide*	to be red hot; to redden from the heat; to be ripe	DT	intr-s	*zhíde*	red	intr-(s)	no
385	*tha-*	*thazhí^{n}ge*	to belittle {x}	U	tr	*zhi^{n}ga*	to be small	intr-s	CAUS
386	*tha-*	*thazhúbazhi*	to speak contemptuously of {x}	DT	tr	*zhú(b)azhi*	to be inferior, unlucky	intr-s	CAUS
387	*thi-*	*thizhú(b)azhi*	to treat {x} ill; to injure {x}	DT	tr	*zhu(b)azhi*	to be inferior, unlucky	intr-s	CAUS
388	*thi-*	*thizhút'o^n*	to bring {x} to maturity, to raise {x}	DT	tr	*zhút'o^n*	to be mature	intr-s	CAUS
389	*ná-*	*názi*	to be toasted; browned / to singe {x}	SE	intr-(s) **	*zí*	to be yellow	intr-s	no
390	*ná-*	*názi*	to singe {x}	U	tr	*zí*	to be yellow	intr-s	CAUS

E.4 Verbs with oblique prefixes

A database of verbs with oblique prefixes is presented in Table E.4. The oblique prefixes are studied in Chapter 6. The verbs in Table E.4 are ordered first by "type" of function/lexicalization: from functional applicatives to completely opaque verbs with oblique prefixes (see §6.4.2). They are then listed in the alphabetical order of their bases.

List of comments. (signaled by ****** in the table)

2 *ubízho^n*. The base verb is not attested, but can be understood as a transitive instrumental verb composed of a root **zhó^n* and a causative instrumental prefix *bi-* 'by blowing'.

3 *ugíno^{n}skábe*. The base verb is not attested, but it is composed of an attested root *skaskábe* 'sticky' and productive derivational prefixes.

4 *íso^n_kithe*. The base verb is not attested, but it is composed of an attested root *só^n* 'pale, white' and productive causative derivation.

7 *ubáaze*. This verb is also attested with the possessive prefix: *ugípaaze* 'to scare $\{x\}$ into $\{$*their own y*$\}$'.

8 *ubádo^n*. Attested in ULCC (2015).

19 *íhitha*. The base verb *hithá* is attested both as an intransitive stative verb and as a transitive verb "to bathe $\{x\}$" (in DD).

36 *áo^n_the*. The base verb *ó^n_tha* is always attested with final *-a*, with no Ablaut, while the derived verb *áo^n_tha* is attested once in DT with final *-e*, suggesting that it undergoes Ablaut.

37 *íup'a*. Incorporation of the applicative object. See Chapter 8.

39 *íshko^n*. Incorporation of the applicative object. See Chapter 8. DD provides two translations for it: "to move by the fire" is semantically compositional, with *shkó^n* 'move' and *péde* 'fire'. It is intransitive active, and it is the translation and verb class reported in the database. Another meaning is "to be warmed by the fire", which is not semantically compositional, and which corresponds to an intransitive stative verb.

44 *uthúbado^n*. This verb is also attested in ULCC (2015).

52 *o^{n}b_ízho^n*. Incorporation of the applicative object. See Chapter 8.

60 *no^{n}de ígipiazhi*. Both the applicative verb and the base verb are considered lexical items incorporating *nó^{n}de* which has lost its argument status. Thus, *nó^{n}de* is not included in the valency. See Chapter 8.

66 *ík^{h}u*. The root **k^{h}ú* is not attested, but the dative *gík^{h}u* 'to invite $\{x\}$' is attested.

69 *umá'ude*. Also *umágude*. See §6.4.2 for an explanation why I categorize it as "lexicalized with applicative semantics".

77 *uxpáthe*. It also means "to get lost".

Table E.4: Database: oblique prefixes

Nb	⇓ Type	Obl. px	Obl. verb	Meaning	Source	Verb class	↓ Base	Meaning	Cat.
1	APPL	*u-*	*ubáxo^n*	to push {x} into/through {y}	DD, DT	dtr	**baxó^n*	to push {x}	tr
2	APPL	*u-*	*ubízho^n*	to blow {x} into {y}	DT	dtr	**bizhó^n*	to blow {x}	tr
3	APPL	*u-*	*ugíno^{n}skábe*	to put {x} on {*one's own y*} with the feet	DT	dtr	**ginó^{n}skabe* **	to make {*one's own*} sticky with the feet	tr
4	APPL	*í-*	*íso^n_kithe*	to whiten oneself with {x}	DT	tr	*só^n_kithe(†)* **	to whiten oneself	intr-a
5	APPL	*í-*	*í'i^n*	to carry {x} by means of {y}	DT	dtr	*'í^n*	to carry {x}	tr
6	APPL	*í-*	*ithágaxade*	to cover {x} with {y}	DT, RE, SE	dtr	*ágaxade*	to cover {x}	tr
7	APPL	*u-*	*ubáaze* **	to scare {x} into {y}	DT	dtr	*báaze*	to scare off {x}	tr
8	APPL	*u-*	*ubádo^n*	to push {x} into {y}	**	tr	*badó^n*	to push {x}	tr
9	APPL	*á-*	*ábaxu*	to write {x} on {y}	U	dr	*baxú*	to write {x}	tr
10	APPL	*ithá-*	*ithábet^{h}o^n*	to wrap {x} around {y}	DT	dtr	*bet^{h}o^n*	to roll up {x}	tr
11	APPL	*u-*	*ubét^{h}o^n*	to wrap {x} in {y}	DT, U	dtr	*bet^{h}o^n*	to roll up {x}	tr
12	APPL	*í-*	*íbibtháska*	to flatten {x} with {y}	RE	dtr	*bibtháska*	to flatten {x} by pressing	tr
13	APPL	*í-*	*íbika*	to rub {x} on/with {y}	DT	dtr	*biká*	to wipe {x}	tr
14	APPL	*á-*	*ábize*	to dry on {x}	DD	bi-s	*bíze*	to be dry	intr-s
15	APPL	*í-*	*ígaxe*	to make {x} with {y}; to value {x} as {y}	DD, DT, TA, RE	dtr	*gáxe*	to make {x}	tr
16	APPL	*á-*	*ágaxto^n*	to pour {*water*} on {y}	DD, DT	dtr	*gaxtó^n*	to pour out {x}	tr
17	APPL	*á-*	*ágthi^n*	to sit on {x}; to mount {x}	DT	tr	*gthí^n*	to sit	intr-a
18	APPL	*u-*	*ugthí^n*	to sit in {x}	DT	tr	*gthí^n*	to sit	intr-a
19	APPL	*í-*	*íhitha*	to bathe by means of {x}	DT	tr	*hithá*	to bathe {x}**	intr-a **
20	APPL	*á-*	*áho^n*	to become night on {x}	DD	intr-s	*hó^n*	night	n
21	APPL	*í-*	*ího^{n}bthe*	to dream about {x}	DT, TA	tr	*hó^n_bthe*	to have a dream	intr-a
22	APPL	*í-*	*ík^{h}o^{n}to^n*	to tie {x} to/with {y}	DD, DT	dtr	*k^{h}ó^{n}to^n*	to tie {x}	tr
23	APPL	*í-*	*íkide*	to shoot at {x} with {y}	DT	dtr	*kíde*	to shoot at {x}	tr

Database: oblique prefixes (continued)

Nb	⇓ Type	Obl. px	Obl. verb	Meaning	Source	Verb class	↓ Base	Meaning	Cat.
24	APPL	*í-*	*íkuhe*	to be apprehensive because of {x}	DD, DT	tr	*kú_he*	to feel apprensive	intr-a
25	APPL	*í-*	*ho^n_ímo^{n}thi^n*	to walk during night	DT	intr-a	*mo^n_thí^n*	to walk	intr-a
26	APPL ?	*í-*	*ínie_the(†)*	{*instrument*} to hurt {x}	DT	bi-s	*nié_the*	{*bodypart*} to be hurt	intr-s
27	APPL	*á-*	*ánon^{n}ge*	to run over {x}	DT, U	tr	*nón^{n}ge*	to run	intr-a
28	APPL	*í-*	*íno^{n}pe*	to fear {x} because of {y}	DT	dtr	*nón^n_pe*	to fear {x}	tr
29	APPL	*í-*	*íno^{n}shto^n*	to stop because of {x}	DT	tr	*no^{n}shtó^n*	to stop	intr-a
30	APPL	*á-*	*ánon^{n}zhi^n*	to rain on {x}	DD, SE	intr-s	*no^{n}zhí^n*	to rain	imp
31	APPL	*á-*	*ánon^{n}zhi^n*	to stand on {x}	DD, DT	tr	*nón^{n}zhi^n*	to stand	intr-a
32	APPL	*í-*	*íno^{n}zhi^n*	to stand {*with/during x*}	DD, DT	tr	*nón^{n}zhi^n*	to stand	intr-a
33	APPL	*u-*	*unón^{n}zhi^n*	to stand in {x}; to replace {x}	DT, U	tr	*nón^{n}zhi^n*	to stand	intr-a
34	APPL	*uthú-*	*uthúno^{n}zhi^n*	to depend on {x}	DT, U	tr	*nón^{n}zhi^n*	to stand	intr-a
35	APPL	*í-*	*ío^{n}he*	to flee because of {x}	DT	tr	*ón^{n}he*	to flee	intr-a
36	APPL	*á-*	*áo^n_the*	to leave {*disease*} on {y}	DT	dtr	*ón^n_tha* **	to abandon {x}	tr
37	APPL	*u-*	*íup'a* **	to be bitter in the mouth	DT	intr-s	*p'á*	to be bitter	intr-s
38	APPL	*í-*	*íshi^n*	to become fat by means of {x}	DT	bi-s	*shí^n*	to be fat	intr-s
39	APPL	*í-*	*íshko^n* **	to move by {x}	DD	tr	*shkó^n*	to move	intr-a
40	APPL	*í-*	*ít'e*	to die from/because of {x}	DD, DT	tr	*t'é*	to die	intr-a
41	APPL	*u-*	*ut'é*	to die from {*disease*}	DT	tr	*t'é*	to die	intr-a
42	APPL	*u-*	*utí*	to camp in {x}	DT	tr	*tí*	to camp; to pitch the tent	intr-a
43	APPL	*í-*	*íu*	to wound {x} with {y}	DT	dtr	*ú*	to wound {x}	tr
44	APPL	*í-*	*uthúbado^n*	to push {x} into {y} with {z}	DD, **	quadr.	*ubádo^n*	to push {x} into {y}	dtr
45	APPL ?	*í- ?*	*uthúhe*	to follow {x} into {*trail*}	DT	dtr	*uhé*	to follow {*a trail*}	tr
46	APPL	*í-*	*uthúho^n*	to cook {x} with {y}	DT, TA	dtr	*uhó^n*	to cook {x}	tr
47	APPL	*í-*	*uthúk^{h}ie*	to talk to {x} about {y}	DT	dtr	*uk^{h}íe*	to talk to {x}	tr
48	APPL	*u-*	*uthútho^n*	to hold {x} in {y}	TA	dr	*uthó^n*	to hold {x}; to catch {x}	tr

Database: oblique prefixes (continued)

Nb	⇓ Type	Obl. px	Obl. verb	Meaning	Source	Verb class	↓ Base	Meaning	Cat.
49	APPL	*í-*	*íwak^{h}ega*	to be sick because of {x}	DT	tr	*wak^{h}éga*	to be sick	intr-s
50	APPL	*í-*	*ízhahe*	to gore {x} with {y}	DT	dtr	*zhá_he*	to gore {x}	tr
51	APPL	*á-*	*ázho^n*	to lie on {x}	DD	tr	*zhó^n*	to lie; to sleep	intr-a
52	APPL	*í-*	*o^{n}b_ízho^n* **	to lie/rest by day	DT	intr-a	*zhó^n*	to lie; to sleep	intr-a
53	DERIV	*á-*	*ábaxu*	to write down {x}	U	tr	*baxú*	to write {x}	tr
54	DERIV	*í-*	*íbet^{h}o^n*	to pass around {x}	DT, TA	tr	*bet^{h}o^n*	to roll up {x}	tr
55	DERIV	*á-*	*ádo^{n}be*	to look after {x}	DT	tr	*dó^{n}be*	to see {x}	tr
56	DERIV	*uthú-*	*uthúdo^{n}be*	to examine {x}; to consider {x}	DT, U	tr	*dó^{n}be*	to see {x}	tr
57	DERIV	*uthú-*	*uthúgahi*	to stir {x}	DT, RE	tr	*gahí*	"to stir" (DD)	?
58	DERIV	*á-*	*áno^n'o^n*	to listen to {x}; to obey to {x}	DT	tr	*no^n'ó^n*	to hear {x}; to listen to {x}	tr
59	DERIV	*u-*	*unó^n'o^n*	to hear about {x}	DD, DT	tr	*no^n'ó^n*	to hear {x}; to listen to {x}	tr
60	DERIV ?	*í-*	*no^{n}de ígipiazhi*	to be sad because of {x}	DT	bi-s	*nó^{n}de gípiazhi*	to be sad	intr-s
61	DERIV	*í-*	*íshi*	to pay {x} with {y} for the work done	DD	dtr	*shí*	to ask {x} to do {y}	dtr
62	DERIV	*á-*	*áthade*	to read {x}	DT, ST, U	tr	*thadé*	to pronounce {x}; to call {*a name*}	tr
63	DERIV	*í-*	*uthúbaxo^n*	to push {*instrument*} into {y}	DT	dr	*ubáxo^n*	to push {x} into/through {y}	dtr
64	APPL SEM	*á-*	*ágaxade*	to cover {x}	DT, SE	tr	**gaxáde*	-	-
65	APPL SEM	*u-*	*ugthó^n*	to put {x} inside {y}	DD, DT, TA, U	dtr	**gthó^n*	(positional root)	-
66	APPL SEM	*í-*	*ík^{h}u*	to invite {x} to (have some of) {y}	DT	dtr	**k^{h}ú* **	to invite	-
67	APPL SEM	*u-*	*upé*	to enter into {x}	DT		**pé*	-	-

Nb	⇓ Type	Obl. px	Obl. verb	Meaning	Source	Verb class	↓ Base	Meaning	Cat.
68	APPL SEM	*í-*	*ít^{h}i^n*	to strike {x} with {y}	DT	dtr	**t^{h}i^n*	strike	-
69	APPL SEM	*u-*	*umá'ude* **	to cut a hole in {x}	DT	tr	*u'úde*	hole	n
70	LEX (OBJ)	*u-*	*ugásho^n*	to travel (in {x})	DT, U	tr/intr-a	**gasho^n*	-	-
71	LEX (OBJ)	*á-*	*ágazhade*	to make a stride; to step over {x}	DD, DT	tr/intr-a	**gazhade*	-	-
72	LEX (OBJ)	*í-*	*íkino^{n}xthe*	to hide (among {x})	DD, DT	tr/intr-a	**kino^{n}xthe*	-	-
73	LEX (OBJ)	*u-*	*uó^{n}si*	to jump (in {x})	DT	tr/intr-a	**o^{n}si*	-	-
74	LEX	*á-*	*ábite*	to touch {x}	SE, U	tr	**bite*	-	-
75	LEX	*u-*	*uhé*	to follow {*a trail*}; to go through {*a trail*}	DD, DT, U	tr	**hé*	-	-
76	LEX	*u-*	*uhó^n*	to cook {x}	(COMMON)	tr	**hó^n*	-	-
77	LEX	*u-*	*uxpáthe*	to fall **	DT, TA, U	intr-s/bi-s	**xpáthe*	-	-
78	OPQ	*í-*	*íbaku*	to be bothersome to {x}	SE	tr	**bakú*	-	-
79	OPQ	*í-*	*ída*	to be born	TA, SE	intr-s	**dá*	-	-
80	OPQ	*u-*	*uthó^n*	to hold {x}; to catch {x}	(COMMON)	tr	**hó^n*	-	-
81	OPQ	*uthú-*	*uthúk^{h}i*	to side with {x}	DT	tr	**k^{h}í*	-	-
82	OPQ	*u-*	*uk^{h}íe*	to talk to {x}	DT	tr	**k^{h}ie*	-	-
83	OPQ	*á-*	*ákipa*	to meet {x}; to meet together	DT, TA	tr/intr-a	**kipa*	-	-
84	OPQ	*uthú-*	*uthúk^{h}o^{n}pi*	to be beautiful	DT	intr-s	**k^{h}o^{n}pi*	-	-
85	OPQ	*u-*	*unábthi^n*	to sweat	DT, SE	intr-s	**nábthi^n*	- (with *ná-* 'by heat')	-
86	OPQ	*u-*	*uné*	to seek {x}; to hunt {x}	DT, SE, U	tr	**né*	-	-

Database: oblique prefixes (continued)

Nb	⇓ Type	Obl. px	Obl. verb	Meaning	Source	Verb class	↓ Base	Meaning	Cat.
87	OPQ	*á-*	*ápe*	to ask {x} to go with oneself	DT	tr	**pé*	-	-
88	OPQ	*ithá-*	*ithápe*	to wait for {x}	DT	tr	**pé*	-	-
89	?	*í-*	*ígio*^{n}	"while flying" ?	DD	?	*gió*^{n}	to fly	intr-(a)

E.5 Verbal and nominal forms with the prefix *wa-*

Table E.5 presents the fourteen texts that were integrally searched as part of the research on the functions of *wa-*. Table E.6 presents the database of nouns and verbs that include this prefix. Eight categories are identified for *wa-* functions, as well as several categories for ambiguous cases; they are presented in §7.6.1. The database contains 268 different form-meaning pairs with the prefix *wa-*, listed in alphabetical order of the Umóⁿhoⁿ headword[1]. When the same form is attested in various contexts which suggest different categories for *wa-*, it is repeated twice in the database, once for each category. Some forms are repeated up to four times to account for several functions of *wa-* (e.g., *wabáxu* and *úhoⁿ*).

I have generally excluded forms which are regular derivations from another form already listed. As an example, *wa'óⁿ* 'to sing an ordinary song' was included as OPQ, and *áwa'oⁿ* 'to sing in praise of {x}', which is an applicative derivation from the first, was not included. Derived forms were only included if they presented a special interest; for example if they corresponded to a textual example of one of the categories least attested (INDEF, ASP(?)), if they showed dubious / ambiguous cases, or if *wa-* was assigned a different function in the derived form than in the base form. Derived forms whose base is also included in the database are signaled by the letter D in the second column of the table.

List of comments. (signaled by ** in the table)

10 *noⁿbídawáthe*. This may be a deverbal noun with O3PL *wa-*.

17 *t'éwathe*. The presence of *wa-* here is difficult to analyze. As the verb takes a singular object, it can neither be antipassive/indefinite nor O3PL, but it is inserted in the O3PL slot.

36 *úthibthoⁿ*. This verb is glossed 'scent them' by Dorsey (1890: 109.7), but no referent is available.

51 *wa'í*. The only occurrence of this verb with an object is found in Dorsey (1890: 350.14).

60 *wábaha*. In the only occurrence found in texts (Dorsey 1890: 400.3), it is not certain whether *noⁿbé* is an argument or an adjunct.

90 *wagtháde*. This could be an antipassive verb taking *wa-* O3PL as its source.

93 *wahá*. This noun looks like a nominal compound where *wa-* would be a lexical morpheme meaning "animal".

108 *wakíwahoⁿ'e*. This verb is only attested once, in Dorsey (1891a: 22.19). Compare with *kiwáhoⁿ'e* and *wahóⁿ'e*.

121 *wanágthe*. Nominal component. Could arguably be considered a case of NMLZ.

131 *wanóⁿxe*. Also attested in Fletcher & La Flesche (1911: 489).

133/134 *wanóⁿzhu*. Lines 133 and 134 propose two possible interpretations of the same example (Dorsey 1890: 710.3).

[1] The Umóⁿhoⁿ alphabetical order starts with the glottal stop ʼ; ejective consonants (with glottal stop) precede plain voiceless consonants, which precede aspirated consonants (e.g., *t'*, *t*, *tʰ*). The nasal vowel *íⁿ* follows the oral vowel *í*.

135 *wáno^{n}'o^{n}*. Although this verb is considered an example of *wa-* acting as an indefinite object marker, there is no evidence that *wa-* stands for a syntactic constituent here.

168 *watháwagazu*. There is not enough documentation to understand the function of *wa-* in this verb. In some respects, it looks like *wa-* adds the object position that it fills: the base verb *thawágazu* means "to speak accurately" (DD); the verb *watháwazazu* could be decomposed as "to speak accurately about things" → "to translate".

173 *wáthiesa*. This verb is only attested once, in Dorsey (1891a: 33.4). The dictionary definition and context of use in text are not specific enough to understand what is the exact function of *wa-* here.

175 *wathígtho^{n}*. Verb attested in Fletcher & La Flesche (1911: 489).

184 *wathíto^{n}*. Another analysis is possible for this verb: it could be a noun converted from an ANTIP verb, referring to the process of working.

186 *wathíwagazu*. There is not enough documentation to understand the function of *wa-* in this verb.

197 *wawách^{h}igaxe*. There is not enough documentation to understand the function of *wa-* in this verb. In some respects, it looks like *wa-* adds the object position that it fills: the base verb *wach^{h}ígaxe* 'to dance' becomes "to dance in honor of some people/{x}".

198/199 *wawé'i*. Attested in ULCC (2015: 72).

203 *wawénaxitha*. Dorsey provides no detailed definition of this verb which would explain why there is an additional *wa-*, and what its function is. This verb is attested twice in Dorsey (1890: 233.12; 267.5). It is glossed "attack" the first time, and "attack them" the second time.

204 *wawéshi*. Also attested in ULCC (2015: 72).

207 *wawéwak^{h}ege*. Noun attested in (Dorsey n.d.a: 96).

237 *wégtho^{n}gtho^{n}*. Noun attested in (Dorsey n.d.a: 96).

240 *wého^{n}bthe*. The categorisation of *wa-* as an INDEF marker here is based on Dorsey's definition. Dorsey provides one example sentence in his dictionary entry.

265 *wéwak^{h}ege*. Noun attested in (Dorsey n.d.a: 96).

As specified in §7.6.1, the analysis of the functions of the prefix *wa-* is in part built on the thorough survey of 14 texts from Dorsey (1890) and Rudin et al. (1989-92). The texts surveyed are presented in Table E.5.

Table E.5: Texts integrally surveyed for the study of the prefix *wa-*

Title	**Source & Ref.**	**Type of text**	**Speaker**	**Words**
Wahó^{n}thishige's adventure as a Rabbit	DT, p. 107	legend	Mary La Flesche	169
The battle between the Omahas and the Pawnee Loups	DT, p. 402	historical	O^{n}p^{h}o^{n}-To^{n}ga	281
Maxpiya-xaga to Shakuthu-thakitawe	DT, p. 644	letter	Maxpiya-xaga	317
Monkey, the Turtle and the Wolves	RE, tape 16	legend	Clifford Wolfe	213
Two Ghosts story	RE, tape 6	story	Mary Clay	515
Discussion following Two Ghosts story	RE, tape 6	dialog	MC, CW, BW	367
A ponca ghost story	DT, p. 359	story	Frank La Flesche	90
Zhabe-ska to Gahige zhi^{n}ga, Waxa-nazhi^{n}, and Ashawage	DT, p. 505	letter	Zhabe-ska	63
Zhíde-to^{n} to Asháwage	DT, p. 506	letter	Zhide-to^{n}	44
Pathi^{n}-No^{n}pazhi to Tato^{n}ga-nazhi^{n}	DT, p. 510	letter	Pathi^{n}-No^{n}pazhi	95
My first buffalo hunt	DT, p. 466	1st person story	Frank La Flesche	172
The Coyote and the gray fox	DT, p. 570	legend	One Horn	136
The first battle of the Omahas and the Poncas after the death of Black Bird	DT, p. 399	historical	O^{n}p^{h}o^{n}-To^{n}ga	296
The lament of the fawn over his mother	DT, p. 358	legend	Joseph La Flesche	81

Table E.6: Verbs and nouns with the prefix *wa-*

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
1	O3PL		*éwagithó^n*	to say {*x*} to {*them*}	DD	
2	OPQ		*éwaki'o^n*	to bring trouble on oneself; to be the only one to be blamed; (...)	DD	
3	O3PL		*húwakiha*	to refuse to listen to the suits of {*men who reach middle age without courting any females*}	DD	
4	DERIV	D	*huwáthishna*	to have the voice heard, to have a clear or plain voice	DD	
5	O3PL		*kigthó^{n}wak^{h}ithe*	to make {*them*} marry one another	DT	
6	OPQ	D	*kiwáho^n'e*	to pray or petition for one special favor on his own account	DD, DT	
7	O3PL		*maxéwathe*	"to get the better of {*them*} in a conquest, etc"	DD	
8	O3PL		*mi^{n}xúwagtho^n*	"to match the assertions of {*rivals or opponents*}"	DD	
9	DERIV		*míwathixe*	bride (n.)	ST	
10	DERIV **		*no^{n}bídawáthe*	twins (n.)	DT	
11	O3PL		*shkó^{n}wathe*	to make {*them*} move	DT	
12	OPQ		*shó^{n}wak^{h}e*	to be tired of waiting (?)	TA6	
13	O3PL		*tha'éwathe*	to pity {*them, not his relations*}	DD	
14	DERIV	D	*thawágazu*	to speak accurately, correctly, honestly	DD	
15	O3PL		*thi^{n}géwathe*	to exterminate {*them*}	DD	
16	O3PL		*t'éthewáthe*	"to cause (accidentally) {*them*} (...) to kill {*x*} (...)"	DD	
17	ASP(?) **		*t'éwathe*	to be the slayer of {*x*} (sg)	DT	
18	O3PL		*t'éwathe*	to kill {*them*} accidentally	DD, DT	
19	ANTIP/NOUN **		*t'éwathe-shtó^n*	one who kills habitually; a murderer (n.)	DD	Antipassive from an O3PL source.
20	OPQ		*ú'o^n*	to put trouble on one, to be the cause of trouble, to be blameworthy	DD	
21	NMLZ		*úgaxe*	something made; a drawing or picture; a piece of carved work or statuary (n.)	DD	ap. obj.: INESS
22	ANTIP/NOUN		*úhi*	the winner, the conqueror (n.)	DD	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
23	ANTIP		*úho^n*	to cook	(common)	
24	ANTIP/NOUN		*úho^n*	cook (n.)	ST	
25	ASP(?)		*úho^n*	to cook {*some x*}(?) (one example)	DT	
26	NMLZ		*úho^n*	kettle (n.)	DT	ap. obj.: INESS
27	DERIV		*úhuhu*	dog's bark (n?); to bark (v)	ST, TA15	
28	DUB (ANTIP/O3PL)		*úk^{h}ie*	to pay a friendly visit to another tribe / them (?)	DD	Plural animate patient implied.
29	DERIV		*úkihó^{n}ge*	an end common to two; the boundary between two (n.)	DD	
30	DERIV		*úkuhe*	cause of fear (n.)	DT	
31	DERIV		*úshko^n*	deed, customs, habits (n.)	(common)	
32	OPQ		*úso^{n}ga*	without, without prospect; hopeless; barely, just about to	DT	
33	ANTIP/NOUN		*út^{h}i^n*	hitting (activity; n.)	DD	
34	DERIV		*útiha*	to be lonely; to feel lonely	SE, DT, ST	
35	DERIV		*út'e*	death (n.)	DT	
36	ANTIP		*úthibtho^n*	to scent game **	DT	Plural animate patient implied.
37	DERIV		*úthisne*	slit (n.), to make a slit	U	
38	DERIV		*úthito^n*	work (n.)	DT	
39	DERIV		*úthixe*	refugee (n.)	DD, DT	
40	O3PL		*úwagiho^n*	to cook for {*them*}	TA14	
41	O3PL		*úwagitha*	to tell something to {*several persons*}	DD, DT, TA6	
42	O3PL		*úwagithixide*	to look around for {*x*} for {*D3pl*}	DD	
43	DERIV		*úwak^{h}ege*	sickness (n.)	(Dorsey n.d.a)	
44	DERIV		*úwawéshi*	wages, pay, appropriation (n.)	DD, DT	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
45	NMLZ		*úxe*	cellar, tomb, grave (n.)	ST	ap. obj.: INESS
46	DERIV		*úxta*	good, desirable; funny, unusual	DD, TA14	
47	OPQ		*úzhawa*	to have a good time; pleasure, enjoyment	(common)	
48	ANTIP		*wa'é*	to farm; to plow	DT	
49	ANTIP/NOUN		*wa'é*	farmer (n.)	ST	
50	ANTIP		*wa'í*	to give {x} away; to give things to {x}	TA14	
51	ASP(?)		*wa'í*	to give {x} to {x} (one example)	DT **	
52	NMLZ		*wa'í^n*	bundle, package (n.)	DT	obj.
53	DUB (ANTIP/INDEF)		*wá'ï^n*	to transport goods	DT	
54	ANTIP		*wa'í^n_k^{h}ithe*	to make {x} carry loads	DT	
55	OPQ		*wa'ó^n*	to sing an ordinary song, not one for dancers	DD, DT	
56	OPQ		*wa'ú*	woman (n.)	(common)	
57	ANTIP		*wábagtha*	to draw back through shame of diffidence	DT	
58	OPQ		*wabágtheze*	letter, book (n.)	(common)	
59	ANTIP		*wabáha*	to make the signal of the discovery of a herd of buffalo by showing (*bahá*) the blanket from the top of a hill	DD	Plural animate patient implied.
60	DUB (ANTIP/INDEF/ASP)		*wábaha*	to brandish something; make a motion towards {x} (?) **	DT	
61	ANTIP		*wábano^n*	to witness (something aforementioned)	DT, TA14	
62	OPQ		*wabásno^n*	shoulder, roasting piece (n.)	DT	
63	OPQ		*wabáso^n*	shoulder blade (n.)	ST	
64	NMLZ		*wabáxte*	bundle (n.)	DT	obj.
65	ANTIP		*wabáxu*	to write, to write letters	DT	
66	ANTIP/NOUN		*wabáxu*	writer (n.)	DT	
67	INDEF		*wabáxu*	to write something	DT	
68	NMLZ		*wabáxu*	letter, book (n.)	(common)	obj.
69	OPQ		*wach^{h}ígaxe*	to dance	(common)	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
70	ANTIP		*wadó^{n}be*	to act as a scout	DT	
71	ANTIP/NOUN		*wadó^{n}be*	scout (n.)	DT	
72	ASP(?)		*wadó^{n}be*	to see {x} (to have a look at {x}?)	DT, TA	
73	OPQ		*wága*	slice (n.)	DT	
74	NMLZ		*wágaha*	raft (n.)	ST	sbj. of intr-s
75	OPQ		*wagáshо^{n}*	to travel	DT	
76	ANTIP		*wágat^{h}a*	to aim at the foe	DT	
77	DERIV		*wagáxe*	debt (n.)	DD	
78	DERIV		*wagáxtho^{n}*	servant, laborer (n.)	DT, ST	
79	DERIV		*wágazu*	straight, right, honest, upright	DD	
80	ANTIP	D	*wagíbaxu*	to write to {x}	DT	
81	ASP(?)	D	*wagíbaxu*	to write {x} to {y}	DT	
82	INDEF	D	*wagíbaxu*	to write to {x} about something	DT	
83	DUB (ANTIP/O3PL)	D	*wagímo^{n}tho^{n}*	to steal things from {x}	DT	
84	INDEF		*wagína(†)*	to beg something from {x}	DT	
85	ASP(?)		*wagío^{n}thá*	let {x} go / let anyone from {x} go(?)	TA6	
86	DUB (ANTIP/INDEF)	D	*wagío^{n}ze(†)*	to teach various things to {x}	DT	
87	DUB (ANTIP/INDEF)	D	*wagíthito^{n}*	to work at various things for {x}	DT	
88	ANTIP/NOUN		*wagó^{n}ze*	a teacher, a missionary (n.)	DD, DT	
89	OPQ		*wagthábaze*	paper, book (n.)	TA, SE, U	
90	DUB (ANTIP/O3PL) **		*wagtháde*	to creep up towards animals or persons in order to surprise (and kill) them **	DD, DT	Plural animate patient implied.
91	ASP(?)		*wágthi^{n}*	to sit on {x}	DT	
92	OPQ		*wagthíshka*	insect, reptile (n.)	DT	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
93	DERIV **		*wahá*	skin of animals (n.) **	DD	
94	OPQ		*wahéhazhi*	to be brave, stout-hearted,	DD, DT	
95	OPQ		*wahí*	bone (n.)	(common)	
96	OPQ		*wahó^{n}*	to remove (intr-a)	DT	
97	OPQ		*wahó^{n}'e*	to pray or petition for any special favor	DT	
98	ANTIP/NOUN **		*wahúkiha*	a woman or girl who refuses to listen to the suit of a middle-aged man (n.)	DD	Antipassive from an INDEF source.
99	OPQ		*wahúthe*	to respect, reverence, or honor another; to treat with respect by consulting	DD	
100	NMLZ		*wahúto^{n}thi^{n}*	gun; roaring weapon (n.)	(common)	sbj. of intr-s
101	O3PL		*wahúwathe*	to consult {*them*}, get their permission before doing anything	DD	
102	OPQ		*waií^{n}*	robe, tunic (n.); to wear {x} as a robe	DT	
103	NMLZ		*wáiugtho^{n}*	"something put into the mouth": a mouthful (n.)	DD	obj.
104	OPQ		*wak^{h}e*	to mean {x}, to refer to {x}	DT	
105	OPQ		*wak^{h}éga*	to be sick	(common)	
106	ASP(?)		*wakí'i^{n}*	to carry {x} (for oneself)	DT	
107	ANTIP	D	*wakígthito^{n}*	wakígthito	DT	
108	DERIV	D	*wakíwaho^{n}'e*	to pray or petition for <u>something special</u> on his own account	DD, DT	
109	OPQ		*wakízha*	not to believe	TA6	
110	OPQ		*wakó^{n}dithe*	to be exited, impatient, anxious for sth	SE, DD	
111	OPQ		*wáku*	awl (n.)	DT	
112	ASP(?)		*wámak^{h}azhi*	to get out of patience with {x}	DT	
113	ANTIP/NOUN		*wamáxethe*	victor (n.)	DD	
114	ANTIP/NOUN		*wamáxu*	carver (n.)	U	
115	OPQ		*wamí*	blood (n.)	(common)	
116	NMLZ		*wamó^{n}he*	one who dwells in a lodge not his own (n.)	DD	obj.

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
117	ANTIP		*wamó^{n}tho^n*	to steal	UNPS	
118	ANTIP/NOUN		*wamó^{n}tho^n*	thief (n.)	DT	
119	OPQ		*wamúske*	wheat (n.)	DT	
120	DERIV		*wamúxthi*	a poisonous root or medecine which makes sores on the flesh (n.)	DD	
121	DERIV		*wanágthe*	domestic animal (n.)	DT	
122	DERIV		*wanáko^{n}the*	light (n.)	U	
123	NMLZ		*waníde*	mush (n.)	DD	sbj. of intr-s
124	NMLZ		*waníta*	animal (n.)	(common)	sbj. of intr
125	ANTIP/NOUN		*waníthe*	healer (n.)	HA:36	
126	OPQ		*wanó^{n}de_gth-azhi(†)*	not to loath {x}?	DT	
127	ANTIP	D	*wáno^{n}no^{n}se*	to surround the herd many times/habitually	DT	Plural animate patient implied.
128	ANTIP		*wanó^{n}pe*	to fear from seen danger and ennemies	DD, DT	Plural animate patient implied.
129	ANTIP		*wanó^{n}se*	to surround the/a buffalo herd	DD, DT, U	Plural animate patient implied.
130	OPQ		*wanó^{n}she*	soldier, policeman (n.)	DD, U	
131	NMLZ		*wanó^{n}xe*	ghost, "a form that is transparent" (n.)	TA6 **	sbj. of intr-s
132	OPQ		*wanó^{n}xthi^n*	to hurry (away??)	DT	
133	ANTIP		*wanó^{n}zhu*	to threst cereals, to do threshing **	DT **	Plural animate patient implied.
134	ANTIP/NOUN		*wanó^{n}zhu*	thresher (n.) **	DT **	
135	INDEF **		*wáno^n'o^n*	to listen to something **	DT	
136	ANTIP/NOUN		*Wáno^n'o^n*	Listener (proper name)	DT	
137	O3PL		*waó^{n}tha*	"to abandon {*them*}, as aged persons or animals"	DD	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
138	O3PL		*wáo^{n}the*	"to throw it on {*them*}; to give, as a disease, to {*them*}"	DD	
139	DUB (ANTIP/INDEF)		*wapígizhi*	"to put a number of small objects in a place for safety; to lay up, as rice for drying"	DD, DT	
140	DUB (ANTIP/INDEF)		*wapízhi*	to put pieces away for safety	DT	
141	NMLZ		*Wasábe*	Black Bear (proper name)	(common)	sbj. of intr-s
142	OPQ		*waséko^n*	to be quick, active, swift	DT, U	
143	DUB (ANTIP/INDEF)		*washí*	to employ/ask {*x*} to do something for another	DD, DT	
144	NMLZ		*washí^n*	fat, bacon (n.)	DT, SE	sbj. of intr-s
145	DERIV		*washkó^n*	to make an effort or attemps; to persevere	(common)	
146	OPQ		*washó^{n}ge*	corn-patties (n.)	TA6	
147	DUB (ANTIP/INDEF)		*washpó^n_the*	"to soak, as a hide, in water"	DD	
148	OPQ		*washúshe*	to be brave	DD	
149	OPQ		*wasísige*	to be active, brisk, smart	DD, DT	
150	OPQ		*wáska*	cornmeal (n.)	TA6	
151	OPQ		*wasníde*	to be late	DT, TA, SE	
152	OPQ		*wáspe*	to behave, to be quiet, well-behaved	(common)	
153	ANTIP/NOUN	D	*wat'ék^{h}ithe*	"one who has killed game intentionally" (n.)	DD	
154	ANTIP/NOUN		*wat'éthe*	"one who has killed a person accidentally"; "a slayer; sometimes used in the sense of a murderer"	DD	
155	DERIV		*wat'éxe*	funeral (n.)	TA5	
156	OPQ		*wat^{h}é*	dress, skirt (n.)	(common)	
157	ANTIP/NOUN		*wathá'ethe*	pity (n.; denoting the emotion)	DT	
158	O3PL		*wathá'e_the*	"to be kind or merciful to {*them*}"	DD	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
159	NMLZ		*wáthaha*	cloth (n.)	DT	obj.
160	DUB (ANTIP/INDEF)		*watháhide*	to ridicule one	DT	
161	ANTIP		*wáthaho^n*	to pray to {x} about several things (often *Wakó^{n}da*)	DD, DT, SE	
162	ANTIP		*wathát^{h}e*	to eat	DT, SE	
163	ASP(?)		*wathát^{h}e*	to eat (from?) {x}	DT, TA	
164	INDEF		*wathát^{h}e*	to eat something	DT	
165	NMLZ		*wathát^{h}e*	food (n.)	(common)	obj.
166	NMLZ		*wáthat^{h}e*	table (n.)	(common)	ap. obj.: SUPESS
167	ANTIP	D	*wathát^{h}e_k^{h}ithe*	to cause {x} to eat	DT	
168	DERIV		*watháwagazu*	to translate ({x}?) **	ST	
169	ANTIP		*watháxte*	to bite (people)	SE	
170	OPQ		*watháxuxe*	raccoon (n.)	DT	
171	ANTIP		*wathá'e_the*	to be kind, to show pity	DD, DT, SE	
172	NMLZ		*wathíbaha*	paper, blank paper, playing cards (n.)	DD	obj.
173	DERIV		*wáthiesa*	"to spend more time than he once intended, in doing something" **	DD, DT	
174	DERIV		*wathígizhe*	a hoop, a ring to play the game *Páthi^n-zhahe* (n.)	DD, DT	
175	DERIV		*wathígtho^n*	to devine or foretell events (particularly approaching death)	**	
176	ANTIP		*wathíhi*	to scare off the game	DT	Plural animate patient implied.
177	DERIV		*wathí^{n}ge*	"to part with an ob. on account of the dead"	DD, DT	
178	ANTIP		*wathí^n_githe*	"to treat his [relation] well, as by giving him food, etc, continually	DD	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
179	O3PL		*wathí^{n}wagithe*	"to treat {*them, his [relations]*}, well, as by giving them food, etc, continually	DD	
180	ANTIP		*wathípi*	to do things well, to do things skillfully	DT	
181	DERIV		*wathíshna*	to be visible, clear, plain	DD, DT	
182	ANTIP		*wathíto^n*	to work	DT	
183	ASP(?)		*wathíto^n*	to work (some of / on?) {x}	DT	
184	NMLZ **		*wathíto^n*	work (n.)	DT	obj. **
185	ANTIP	D	*wathíto^n_k^{h}ithe*	to make {x} work	DT	
186	DERIV		*wathíwagazu*	to observe **	ST	
187	OPQ		*wathíxabe*	sacred bag (n.)	DD	
188	ANTIP	D	*wáthixazhi*	to be unmarried (Dorsey says "virgin")	DT	
189	ANTIP/NOUN		*wathíxe*	pursuer (n.)	DT	
190	ANTIP		*wáthixe*	to marry	DT	
191	ANTIP		*wathíxe thé*	to go in pursuit	DT	
192	ANTIP		*wathíxu*	to draw	TA15	
193	NMLZ		*wathízha*	laundry, washing (n.)	TA6	obj.
194	DERIV		*wáthuto^n*	correctly; with frankness	DT	
195	NMLZ		*wató^n*	goods (n.)	DT	obj.
196	OPQ		*wat^{h}ó^{n}zi*	corn (n.)	DT, ST	
197	DERIV		*wawách^{h}igaxe*	"to dance in honor of those warriors who have [returned?] after (...) killing (...) some of the foe" **	DD, DT	
198	ANTIP		*wawé'i*	"they gave various things to various people"	**	Plural animate patient implied.
199	ANTIP/NOUN		*wawé'i*	giving (n; denoting the act of giving)	**	
200	DERIV		*wawék^{h}it^{h}át^{h}a*	"a deceiver, one who deceives often, to deceive them often (?)" (n.)	DD, DT	
201	DUB (ANTIP/INDEF)		*wawémo^{n}xe*	to make questions to {x}	DT	

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
202	INDEF		*wawémo^{n}xe*	to ask something (a question) to $\{x\}$	DT	
203	DERIV **		*wawénaxitha*	to attack them **	DT	
204	ANTIP		*wawéshi*	check, paycheck	DD, DT **	Antipassive from an O3PL source.
205	DERIV		*wawéthigthó^n*	"he who governs or plans for his equals or inferiors (...)" (n.)	DD, DT	
206	NMLZ		*wawéthigthó^n*	"the plan, order, etc, given" (n.)	DD	obj.
207	DERIV		*wawéwak^{h}ege*	sickness (n.)	**	
208	DERIV		*wawéxaxa*	to laugh at often, to abuse or maltreat often	DD, DT	
209	DERIV		*wawí^{n}azhi*	not to be the only one (the first?)	DT	
210	ANTIP/NOUN		*wawíu'e (ak^{h}á)*	lawyer, he who gives councel or advice (n.)	DD	
211	NMLZ		*wawíu'e (t^{h}e)*	the advice, councel, law (n.)	DD	obj.
212	DERIV		*wáwo^n*	"to perform all the ceremonies connected with the calumet or pipe dance (the generic term)"	DD, TA14	
213	INDEF		*wáwo^n*	to sing for someone	DD	
214	OPQ		*waxága*	thirn, burr (n.)	DT, ST, U	
215	DERIV		*waxé*	cache (n.)	DT	
216	OPQ		*waxí^{n}ha*	paper, letter, cloth (n.)	DT, ST	
217	OPQ		*waxpáni*	to be poor	DD, DT	
218	OPQ		*waxtá*	flower, fruit, vegetable (n.)	(common)	
219	OPQ		*waxthí*	to be scared, afraid	DD, DT, U	
220	DERIV		*waxúbe*	to be mysterious	DT	
221	NMLZ		*waxúbe*	sacred thing (n.)	DT	sbj. of intr-s
222	DERIV		*wazáni*	*níkagahi wazáni* 'all you chiefs'	DD	
223	ANTIP		*wazé_the*	to doctor, to heal (people)	DT	
224	ANTIP/NOUN		*wazéthe*	doctor (n.)	DD, TA	
225	NMLZ		*wazhíde*	tomato, ketchup, buffalo berries (n.)	DT, ST, SE, U	sbj. of intr-s

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
226	OPQ		*wazhí^n*	disposition, temper (n.)	DT	
227	NMLZ		*wazhí^{n}ga*	bird, chicken (n.)	(common)	sbj. of intr-s
228	NMLZ		*wé'e*	hoe (n.)	DT	ap. obj.: INS
229	OPQ		*wé'uhi*	hide-scraper (n.)	DT	
230	OPQ		*wéaxthade*	"a kind of war club (...)" (n.)	DD, DT	
231	NMLZ		*wébaxu*	pencil, ink pen (n.)	ST	ap. obj.: INS
232	ANTIP		*wédathe*	to give birth	DT	
233	NMLZ		*wéganazhi*	fire extinguisher (n.)	ST	ap. obj.: INS
234	ANTIP		*wégat^{h}o^n*	to pound things/corn with {x}	DT	Plural animate patient implied.
235	ANTIP	D	*wégigthat^{h}o^n*	to pound one's own thing with {x}	DT	Plural animate patient implied.
236	NMLZ		*wégo^{n}ze*	rule, measure (n.)	DD	ap. obj.: INS
237	DERIV		*wégtho^{n}gtho^n*	curser (n.)	**	
238	OPQ		*wégtho^{n}thi^n*	to be bewildered, to have forgotten everything	DT	
239	DUB (ANTIP/O3PL)		*wého^{n}bthe*	to dream of them / to be dreaming	TA6	
240	INDEF **		*wého^{n}bthe*	"to dream of someone (…) with whom you used to talk in the past, and about whom you have not been thinking recently"	DD	
241	DERIV		*wék^{h}inaxthi^n*	"to hasten in order to anticipate another or others"	DD	
242	OPQ		*wéki'o^n*	ornament (n.)	DT	
243	NMLZ		*wémagixe*	cutting saw (n.)	ST	ap. obj.: INS
244	DERIV		*wémo^{n}xe*	to interrogate {x}, to ask {x} questions	TA14	
245	NMLZ		*wémo^{n}xe*	question (n.)	ULCC	obj.
246	ANTIP		*wénaxitha*	to attack the herd, to attack	DT	Plural animate patient implied.

Verbs and nouns with the prefix *wa-* (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
247	DERIV		*wénoⁿde*	to be full, to be satisfied	(DT), ULCC	
248	NMLZ		*wénoⁿzhu*	threshing machine (n.)	DT	ap. obj.: INS
249	O3PL		*wénudoⁿ*	to go on war against {*them*}; to go to war for {*them*}	DD, DT	
250	ANTIP		*wéshi*	to offer {*x*} as a reward	DT	
251	OPQ		*wéshnoⁿ*	to be pleased	DD	
252	ANTIP		*wéthe*	to find wood, to discover the approach or presence of enemies	DD, DT	Inanimate patient or plural animate patient implied
253	NMLZ		*wéthigthoⁿ*	thought, opinion, decision, judgment (n.)	DD	obj.
254	NMLZ		*wéthihide*	tool, ustensil, machine (n.)	DT, ST, TA	ap. obj.: INS
255	NMLZ		*wéthihoⁿ*	measure (n.)	RE	ap. obj.: INS
256	ANTIP		*wétʰiⁿ*	to strike	DT	
257	DUB (ANTIP/O3PL)		*wéthiⁿ*	to take {*x*} to give it to others	DD	
258	INDEF		*wéthiⁿ*	to take {*x*} for somebody	DT	
259	DERIV		*wéthiⁿwiⁿ*	to sell {*x*}	DD, DT, ST, SE	
260	NMLZ		*wéthishibe*	keyhole (n.)	TA6	ap. obj.: INS
261	NMLZ		*wéthitoⁿ*	right (hand, side, foot)	(ST), ULCC	ap. obj.: INS
262	ANTIP		*wéthizha*	to do washing with {*x*}	TA14	
263	NMLZ		*wéudoⁿ*	"what tends to make people good; goodness"	DD	ap. obj.: INS
264	DERIV		*wéushii*	useful	DT	
265	DERIV		*wéwakʰege*	sickness (n.)	**	
266	NMLZ		*wíugoⁿba*	window, "that through which light can be seen" (n.)	DD, ST	ap. obj.: INS
267	O3PL		*xéwathe*	to make {*them*} cry or weep	DD	

Verbs and nouns with the prefix ***wa-*** (continued)

Nb	Cat.	D	⇓ Headword	Translation	Sources	Specifications
268	O3PL		***xtáwathe***	to love {*them*}	DD	

E.6 Nominal incorporation

The database used for the analysis of nominal incorporation in Chapter 8 is shown in Tables E.7 and E.8. Table E.7 shows the incorporating nominals and the incorporating verbs with their meanings, category, and the function assigned to the incorporated nominal. Table E.8 focuses on the formal evidence of the N-V coalescence (§8.2).

The items are ordered by types, from "INC?" through "DISC+" (following the continuum presented in Table 8.1) and then by alphabetical order of incorporated nominals. The definitions, syntactic categories/verb classes, and sources use the same abbreviations as elsewhere in the dissertation (see Abbreviations). Verb classes or parts of verb classes in parentheses means that I do not have enough data to be certain of the class a verb belongs to: "intr-(a)" means that I know the verb is intransitive, and I suppose that it is intransitive active; "(tr)" means that I suppose that the verb is transitive, etc.

The nine features of N-V coalescence are numbered and spread over nine columns in Table E.8. Each cell is filled with "Y" for "yes", if the feature is attested, "N" for "no" if it is certain that the N-V sequence does not have this feature, and "-" if this feature is irrelevant, or if it is not possible to know. For feature 2, "inflection on the left edge of the N-V sequence", I also used the letter "B" for "both". This means that the verb is attested with person markers just before the V stem, and with person markers on the left edge of the nominal stem. "B" alone means that this depends on the person markers. For instance, *ní_wo^n* 'to swim' is attested as *a-niwo^n* 'I swim' (DD), *ní-o^n-wo^n* 'we swim' (DT), and *tha-niwo^n* 'you swim' (DD). Others are encoded with "B/c" for "both/contradictory", which means that the same person marker is attested in different places in different sources, as illustrated in (666) p. 437 and (732) p. 465.

List of comments. (signaled by ** in the table)

2 *hu_wáthishna*. This verb is only attested in Dorsey's dictionary, and presents contradictory data concerning wordhood: the head word is written with a hyphen and only one accent, while conjugated forms are written as separate words. As a result, I classify it as "INC?".

3 *íni_ubibixo^n*. This word is found as *ini ubibixon* in Stabler & Swetland (1991), and as *īni-ubíbiẓo^n* in Sanchez, Larson & Walker (in progress), which corresponds to *íniubibixo^n* in the spelling system used in this dissertation. Stabler & Swetland (1991) often write morphologically complex words as separate words (including instrumental verbs, for instance).

15 *hú_kika*. The complete definition provided by Dorsey (n.d.b) is the following: "to refuse to listen to a man's suit, because he has failed to court any female till late in life: said of the act of such a woman".

17/18 *hu_gási*, *hú_gasi*. These verbs and their base form *gasí* present a number of distinctive features.

- The base verb *gasí* 'to fish $\{x\}$' is used only when the object *huhú* 'fish' has modifiers,

according to Dorsey. He gives as an example: *Hu íniwo^n ási* 'I fish for a fish as he swims' (Dorsey n.d.b).

- The NI verb seems to be the default form, and this may be why it is used as a transitive verb in OLIT-UNL (2018: 553), in a new context: "to fish for a card" (in a card game).
- Dorsey opposes *hu_gási* 'to fish (a fish)' to *huwási* 'to catch fishes (more than one)'.

21 *mí^n_gthó^n*. An occurrence of this verb in Dorsey (1890: 86.8) shows it with a plural object, as illustrated in (843e) above. However, this example concerns various men presumably marrying one woman each; a distributive interpretation is possible and could explain why *wa-* is missing. An unambiguous example of the absence of *wa-* for this verb would be if one man married two women. Such an example is not attested.

22 *mí^n_thigtho^n*. The non-incorporating equivalent is the transitive verb *íthigtho^n* 'to think of/about $\{x\}$'.

26 *níah_ithé*. The incorporated *níaha* element is considered a noun; it contains a bound form *-aha* which apparently means "towards, into", and is used before verbs of motion. It could also be analyzed as a PP, if *-aha* is assimilated to a bound postposition like *-(a)ta* and *-(a)di* (cf. §2.4.4, also §6.2.4).

27 *ní^{n}ka_thixe*. Dorsey (n.d.b) notes that this verb is seldom used in singular. Indeed, all cases attested in his texts concern third person plural subjects, such as "The Ponkas went to chase the foe" (Dorsey 1890: 379.11). It is almost always followed by a verb of movement.

31 *pamó^{n}gthe*. Treated as an adverb by DD, and as a verb meaning "to bow" by ST.

33/34 *shi_áthi^n*, *shie t'éthe*. The form *shi(e)* is considered a bound form, because the lexical items it is attested in present other features of NI. It should be noted, however, that Saunsoci & Eschenberg (2016) write it as one word in the lexical entry *shie t'é_the* 'to abort' (literally, 'baby kill'). *Shie t'é_the* is considered a case of NI because the authors do not write any accent on *shie*, suggesting that it is phonologically bound to the following verb. Compare with *athí^n agthí^n* 'to bring $\{x\}$ back' where both words are accented (Saunsoci & Eschenberg 2016: 73).

37 *táxi_ch^{h}u*. I consider that *táxi* here is a spelling and/or pronunciation variant of *táxe* 'saliva'. (The latter is attested in Dorsey's dictionary.)

45 *ú_to^n*. This form is only attested with an adverbial function "having wounds" before the verb "to die".

46 *wazhí^n_ska*. This verb is attested with different conjugated forms in DD, TA and SE. While the forms in DD and the unique form attested in TA insert person markers between *wazhí^n-* and *ska*, SE present a mixed paradigm where the verb conjugates as an intr-s verb starting by *wa-* in some forms (see n°82 *wat^{h}ézugtho^n* below). See (666) p. 437.

57 *ití_zhi*. The complete definition provided by Dorsey (n.d.b) is the following: "to put a number of small objects in a blanket or buffalo robe next to the waist and above the belt".

58 *mi^n_áda*. This verb alternates with *mí^{n}wada*, which suggests that it can take the O3PL or ANTIP marker *wa-*. However, these verbs are mainly attested in Dorsey's dictionary, and the precise value of *wa-* is not clear. Dorsey (n.d.b) proposes the following two definitions: *mi^{n}áda*: "to be hurt by the jealous husband: refers to the man who seduces a woman"; *mí^{n}wada*: "(O.)

said of a man who has been deprived of his wife by another man. F. says: to hurt another man through jealousy". *Mí^{n}wada* is attested once in a text, and glossed "jealous" (Dorsey 1890: 199.2).

63 *pí_zhi*. The complete definition provided by Dorsey (n.d.b) is the following: "to put a number of small objects, not his own, in a safe place (not mentioned)".

65 *sní_t^{h}e*. This is an intr-s discontinuous verb, but DD gives *sniwat^{h}ai* for the third person plural form. Thus, it is an intransitive verb with an O3PL marker.

73 *zhó^n_'ó^{n}he*. Although this verb is difficult to analyze, I consider that the incorporated part *zhó^n* is a nominalization of the verb "to sleep".

74 *zhú_gthe*. This is a very frequent discontinuous verb. The derived verbs *zhú_gigthe* 'to live with {*one's own*}' and *zhú_kigthe* 'to be together' are transparent and therefore are not included in the database.

82 *wat^{h}ézugtho^n*. The diverse conjugated forms attested for this verb are contradictory. We cannot establish from Dorsey's data whether *zu* is in the prestem slot, or if it is part of the incorporating stem (see prefixal template in §3.4). Saunsoci & Eschenberg (2016) treat it as as an intransitive stative verb starting with *wa*: *o^{n}wó^{n}tezugtho^n* P1SG, *wathítezugtho^n* P2, *wawátezugtho^n* P1PL.

Table E.7: Database: NI and discontinuous stems - meanings and categories

Nb	⇓ Type	N-V	Meaning	↓ N	Meaning	Cat.	Function	V	Meaning	Cat.
1	INC?	*égo^n_gí'o^n(†)*	to do thus to {x} (?)	*égo^n*	thus	DEM	obj	*gí'o^n*	to do {x} to {y}	dtr
2	INC? **	*hu_wáthishna*	to have the voice heard	*hú*	voice	N	poss	*wathíshna*	to be visible	intr-s
3	INC?	*íni_ubibixo^n*	to drool	*íni*	breath, saliva	N	appl. obj	**ubíbixo^n*	to blow {x} out in {y} (?)	(dtr)
4	INC?	*í_u'o^{n}he_tó^n*	to have {x} placed/put in the mouth	*íu'o^{n}he*	"it is put in the mouth"	CL	obj	*tó^n*	to have {x}	tr
5	INC?	*mo^{n}ch^{h}ú_xáge*	crying like a Grizzly bear	*mo^{n}ch^{h}ú*	Grizzly bear	N	adjunct	*xáge*	to cry	intr-(a)
6	INC?	*ní_agihí*	to reach there to get water	*ní*	water	N	obj	*agíhi*	to reach there for {x}	tr
7	INC?	*nó^{n}de_uthát^{h}i*	to pain {x's} heart by talking	*nó^{n}de*	heart	N	poss	**uthát^{h}i^n*	to beat {x} by talking	tr
8	INC?	*tét^{h}i_gáxe*	to make {*animals*} approach (by calling)	*tét^{h}i*	animals come	CL	obj	*gáxe*	to make {x}	tr
9	INC?	*tó^{n}wo^n_gígtho^n*	to make a village for {x} (who is going to rule)	*to^{n}wó^n*	nation	N	obj	*gígtho^n*	to put {x} on {y}	dtr
10	INC?	*waí^n_'í^n*	to wear {x} as a robe	*waí^n*	robe	N	(obj)	*'í^n*	to wear {x}	tr
11	INC	*dudá_gthi^n(†)*	to sit on this side	*dúda*	on this side	DEM	appl. obj	*gthí^n*	to sit	intr-a
12	INC	*ga_'ó^n*	to do that	*gá*	that	DEM	obj	*'ó^n*	to do {x}	tr
13	INC	*ga_gí'o^n*	to do that to {x}	*gá*	that	DEM	obj	*gí'o^n*	to do {x} to {y}	dtr
14	INC	*ho^n_ímo^{n}thi^n*	to walk during the night	*hó^n*	night	N	appl. obj	*ímo^{n}thí^n(†)*	to walk by {x}	tr
15	INC	*hú_kiha*	to refuse to listen to {*a man's suit*}, ... **	*hú*	voice	N	poss	*kihá*	to turn {x} downward	tr/adv
16	INC	*hú_btho^n*	having a fishy odor	*hú-*	fish	N	obj	*bthó^n*	to smell of {x}	bi-s
17	INC	*hu_gási* (Um. form)	to fish	*hú-*	fish	N	obj	*gási*	to fish {x} **	tr
18	INC	*hú_gasi* (Pa^{n}ka form)	to fish	*hú-*	fish	N	obj	*gási*	to fish {x} **	tr

Database: NI and discontinuous stems - meanings and categories (continued)

Nb	⇓ Type	N-V	Meaning	↓ N	Meaning	Cat.	Function	V	Meaning	Cat.
19	INC	*i_úp'a*	to be bitter in the mouth	*í*	mouth	N	appl. obj	**up'á*	to be bitter in {x}	bi-s
20	INC	*í_ugtho^n*	to put {x} into the mouth, as food	*í*	mouth	N	appl. obj	*ugthó^n*	to put {x} inside {y}	dtr
21	INC	*mí^n_gthó^n*	to marry; to take a wife	*mí^n-*	female	N	obj	*gthó^n*	to marry {x}	tr
22	INC	*mí^n_thigtho^n*	to think of a woman	*mí^n-*	female	N	obj	*íthigtho^n* **	to think of {x}	tr
23	INC	*mo^n_nó^n'e*	to paw the ground	*mo^n-*	earth	N	obj	*'é*	to dig {x}	tr
24	INC	*mo^n_nó^n'u*	to paw the ground	*mo^n-*	earth	N	obj	**no^n'ú*	to paw {x}	(tr)
25	INC	*ni_áthit^{h}e(†)*	to cross {*river*} (in boat?)	*ní*	water	N	appl. obj	*áthit^{h}e*	to cross {x}	tr
26	INC	*níah_ithé*	to fall into the water	*níah-*	into water	N **	obj	*ithé*	to go {*there*}?	tr ?
27	INC	*ní^{n}ka_thixe*	to chase the foe	*ní^{n}ka-*	person	N	obj	*thixé*	to chase {x}	tr
28	INC	*ní^{n}kashi^{n}ga t'éthe*	= he indian-slays (slayer of indians)	*ní^{n}kashi^{n}ga*	person	N	obj	*t'é_the*	to kill {x}	tr
29	INC	*no^{n}b_útho^n*	to shake hands with {x}	*no^{n}b-*	hand	N	poss	*uthó^n*	to hold {x}	tr
30	INC	*o^{n}b_ízho^n*	to lie by day	*o^{n}b-*	day	N	appl. obj	*ízho^n(†)*	to sleep by {x}	tr
31	INC	*pamó^{n}gthe*	to bow; with bowed head	*pá*	head	N	poss	*mó^{n}gthe*	to be erect	intr-s/adv
32	INC	*ped_íshko^n*	to approach the fire; to be warmed by the fire	*péde*	fire	N	appl. obj	**íshko^n*	to move by {x}	tr
33	INC	*shi_áthi^n*	to be pregnant	*shi(e)-*	baby	N	obj	*athí^n*	to have {x}	tr
34	INC	*shie t'éthe*	to abord	*shi(e)-*	baby	N	obj	*t'é_the*	to kill {x}	tr
35	INC	*shiézhid_égo^n*	to behave like a child	*shiézhide*	child?	CL	obj	*égo^n, -gó^n*	to be like {x}	bi-s
36	INC	*sho^n_gáxe*	to stop ({*doing something*})	*shó^n*	enough	adv?	mod	*gáxe*	to make {x}	tr
37	INC	*táxi_ch^{h}u*	to spit, to expectorate	*táxe* **	saliva	N	obj	*ch^{h}ú*	to spit ({x}?)	(tr)
38	INC	*táxti_gíkidabi*	lit. "they shoot at the deer for him" (nominalized)	*táxti*	deer	N	obj	**gíkide*	to shoot at {x} for {y}	dtr
39	INC	*táxti ábae*	to hunt deer	*táxti*	deer	N	obj	*ábae*	to hunt {x}	tr
40	INC	*té_t^{h}i*	animals come	*té*	animal	N	subj	*t^{h}í*	to arrive here	intr-a

Database: NI and discontinuous stems - meanings and categories (continued)

Nb	⇓ Type	N-V	Meaning	↓ N	Meaning	Cat.	Function	V	Meaning	Cat.
41	INC	*té uné*	to hunt buffalo	*té*	buffalo	N	obj	*uné*	to seek {x}	tr
42	INC	*thé_gi'o^n*	to do thus to {x}	*thé*	this	DEM	obj	*gí'o^n*	to do {x} to {y}	dtr
43	INC	*ti_úpe*	to visit {*x's lodge*}; to visit {x}	*tí*	house	N	poss	*upé*	to enter {x}	tr
44	INC	*tígaxe*	to play	*tí*	house	N	obj	*gaxe*	to make {x}	tr
45	INC	*ú_to^n*	to have wounds; having wounds	*ú*	wound	N	obj	*tó^n*	to have {x}	tr
46	INC	*wazhí^n_ska*	to be wise, prudent	*wazhí^n*	temper	N	poss	*ská*	to be white	intr-s
47	INC	*wazhí^n_-pí(b)azhi*	to be in bad humor	*wazhí^n*	temper	N	poss	*píazhi*	to be bad	intr-s
48	INC	*wazhí^{n}ga kíde*	to shoot at birds	*wazhí^{n}ga*	bird	N	obj	*kíde*	to shoot at {x}	tr
49	INC	*wi^{n}dét^{h}o^n_hi*	{*half of x*} to have come	*wi^{n}dét^{h}o^n*	half	N	mod	*hí*	to arrive there	intr-a
50	INC	*zhú_t'o^n*	to be mature; to have a body	*zhú*	body	N	obj	*t'ó^n*	to have {x} (?)	tr
51	INC+	*á_igatha*	to carry {x} on the arm and in the hand, as a pipe	*á*	arm	N	-	**gatha + í-*	-	-
52	INC+	*i_átha*	to gape or yawn	*í*	mouth	N	-	**átha*	-	-
53	INC+	*ishtá_xo^{n}xo^n*	to slightly open the eyes; to squint	*ishtá*	eye	N	-	**xo^{n}xo^n* [ɣ]	-	-
54	INC+	*ití_gthe*	to carry {*a st. ob.*} in the blanket above the belt	*ití-*	above the belt?	?	-	**gthe*	-	(pos.)
55	INC+	*ití_gtho^n*	to carry {*food / cv. ob.*} in the blanket above the belt	*ití-*	above the belt?	?	-	**gtho^n*	-	(pos.)
56	INC+	*ití_'o^{n}he*	to put {*a lg. ob.*} in the blanket above the belt	*ití-*	above the belt?	?	-	**'o^{n}he*	-	(pos.)
57	INC+	*ití_zhi*	to put {*small objects*} in a blanket or buffalo robe (...) **	*ití-*	above the belt?	?	-	**zhi*	-	(pos.)
58	INC+	*mi^n_áda*	to be jealous of {x} (?)	*mí^n-*	female	N	-	**áda (da)*	-	-
59	INC+	*ámo^n_t^{h}i^n*	to strike {x}against {y}	*mo^n-*	earth	N	-	**t^{h}i^n* + á-*	to strike	?

Database: NI and discontinuous stems - meanings and categories (continued)

Nb	⇓ Type	N-V	Meaning	↓ N	Meaning	Cat.	Function	V	Meaning	Cat.
60	INC+	*mó^n_t^{h}i^{n}t^{h}i^n*	to jolt or jar by striking the earth	*mó^n-*	earth	N	-	**t^{h}i^{n}t^{h}i^n* (cf. *ut^{h}í^n*)	-	-
61	INC+	*ni_dó^n*	to overflow, to flood	*ní*	water	N	-	**dó^n*	-	-
62	INC+	*ní_wo^n*	to swim	*ní*	water	N	-	**wo^n*	-	-
63	INC+	*pí_zhi*	to put {*many small objects*} in a safe place **	*pí-*	away?	?	-	**zhi*	-	(pos.)
64	INC+	*pí_'o^{n}he*	to lay {*a toll of lg. ob.*} away	*pí-*	away?	?	-	**'o^{n}he*	-	(pos.)
65	INC+	*sní_t^{h}e*	{*person*} to be cold	*sní*	cold	?	-	**t^{h}e*	-	-
66	INC+	*tí_gthe*	to dwell in a lodge	*tí*	house	N	-	**gthe*	-	(pos.?)
67	INC+	*wach^{h}í_gaxe*	to dance	*wach^{h}í-*	dance?	-	obj	*gáxe*	to make {x}	tr
68	INC+	*wa'í^n_bo^n*	to give the attacking cry	*wa'í^n-*	-	-	-	*bó^n*	to call out	intr-a
69	INC+	*zhé_gigtho^n*	to cook {x} for {y} on the fire	*zhé-*	fire?	(N)	-	*gígtho^n*	to put {x} on a sitting position for {y}(?)	dtr
70	INC+	*zhé_gtho^n*	to cook {x} by putting it on a fire; to bake {x}	*zhé-*	fire?	(N)	-	**gtho^n*	-	(pos.)
71	INC+	*zhé_zhi*	to put {*x, plural small*} in hot ashes, to roast them	*zhé-*	fire?	(N)	-	**zhi*	-	(pos.)
72	INC+	*zhé_'o^{n}he*	to put {*a long object*} in a fire to roast	*zhé-*	fire?	(N)	-	**'o^{n}he*	-	(pos.)
73	INC+	*zhó^n_'ó^{n}he*	to recline on {x}	*zhó^n*	sleep	N**	-	**'o^{n}he*	-	(pos.)
74	INC+	*zhú_gthe*	to be with {x}	*zhú*	body	N	-	**gthe*	-	(pos.)
75	INC+?	*hó^n_bthe*	to dream an ordinary dream	*hó^n*	night?	N	-	**bthe*	-	-
76	DISC	*kú_he*	to fear an unseen danger	*kú-*	-	?	-	**hé*	-	-
77	DISC	*mi^{n}xú_gtho^n*	to match {*assertions of rivals and opponents*}	*mi^{n}xú-*	-	?	-	**gtho^n*	-	-
78	DISC	*nó^n_ka*	to be injured; to be in danger	*nó^n-*	-	?	-	**ka*	-	-
79	DISC	*no^{n}pé_hi^n*	to be hungry	*no^{n}pé-*	-	?	-	**hi^n*	-	-

Database: NI and discontinuous stems - meanings and categories (continued)

Nb	⇓ Type	N-V	Meaning	↓ N	Meaning	Cat.	Function	V	Meaning	Cat.
80	DISC	*tú_gtho^{n}*	to haul {x}	*tú-*	-	?	-	**gtho^{n}*	-	-
81	DISC	*wanó^{n}de_gth-azhi(†)*	not to loathe {x}	*wanó^{n}de*	-	?	-	**gthazhi*	-	-
82	DISC	*wat^{h}ézugtho^{n}*	to be pregnant	*wat^{h}é(zu)-* **	-	-	-	**(zu)gtho^{n}* **	-	-
83	DISC	*wí^{n}_k^{h}e*	to speak the truth	*wi^{n}-*	-	-	-	**k^{h}e*	-	-
84	DISC	*zhá_he*	to poke {x}; to stab {x}	*zha-*	-	?	-	**hé*	-	-
85	DISC+	*mo^{n}_thí^{n}*	to walk	*mo^{n}-*	earth	N	-	*thi^{n}*	moving	art.
86	DISC+	*mó^{n}gthe*	to be erect	*mó^{n}-*	earth?	N	-	**gthé*	-	-

Table E.8: Database: NI and discontinuous stems - formal evidence of coalescence

Nb	Type	N-V	Meaning	Source	Cat.	1	2	3	4	5	6	7	8	9	Total
1	INC?	*égo^n_gí'o^n(†)*	to do thus to {x} (?)	DT	tr	N	N	-	-	-	-	-	N	N	0
2	INC? **	*hu_wáthishna*	to have the voice heard	DD	intr-s	N	N	-	-	N	Y	-	-	N	1
3	INC?	*íni_ubibixo^n*	to drool	**	(intr-a)	N	-	-	-	-	-	-	N	N	0
4	INC?	*í_u'o^{n}he_tó^n*	to have {x} placed/put in the mouth	DT	intr-(a)	N	-	-	-	-	-	-	N	N	0
5	INC?	*mo^{n}ch^{h}ú_xáge*	crying like a Grizzly bear	DT	intr-(a)	N	-	-	-	-	-	-	N	N	0
6	INC?	*ní_agihí*	to reach there to get water	DT	intr-(a)	N	-	-	-	-	N	-	N	N	0
7	INC?	*nó^{n}de_uthát^{h}i*	to pain {x's} heart by talking	DT	tr	N	-	-	-	-	N	-	-	?	0-1
8	INC?	*tét^{h}i_gáxe*	to make {*animals*} approach (by calling)	DT	tr	N	-	-	N	-	N	-	N	N	0
9	INC?	*tó^{n}wo^n_gígtho^n*	to make a village for {x} (who is going to rule)	DD, DT	tr	N	N	-	-	-	-	-	N	N	0
10	INC?	*waí^n_'í^n*	to wear {x} as a robe	DT	tr	N	N	-	-	-	-	-	N	N	0
11	INC	*dudá_gthi^n(†)* (*dúdo^{n}gágthi^n* A1PL)	to sit on this side	DT	intr-a	N	N	-	-	-	?	?	Y	N	1-3
12	INC	*ga_'ó^n*	to do that	DD, DT	intr-a	N	-	-	-	-	Y	Y	N	N	2
13	INC	*ga_gí'o^n*	to do that to {x}	DD, DT	tr	N	N	-	-	-	Y	-	N	N	
14	INC	*ho^n_ímo^{n}thi^n*	to walk during the night	DT	intr-(a)	N	-	-	-	-	Y	-	-	N	1
15	INC	*hú_kiha*	to refuse to listen to {*a man's suit*}, ... **	DD	(tr)	N	N	-	-	-	Y	Y	N	?	2-3
16	INC	*hú_btho^n*	having a fishy odor	DD, DT	intr-(s)	Y	-	-	-	-	N	-	-	N	1
17	INC	*hu_gási* (Um. form)	to fish	DD	intr-a **	Y	N	-	N**	-	Y	N	-	N	2
18	INC	*hú_gasi* (Pa^{n}ka form)	to fish	DD	intr-a **	Y	N	-	N**	-	Y	Y	-	N	3
19	INC	*i_úp'a*	to be bitter in the mouth	DT	intr-(s)	N	-	-	-	-	Y	-	N	N	1

Database: NI and discontinuous stems - formal evidence of coalescence (continued)

Nb	Type	N-V	Meaning	Source	Cat.	1	2	3	4	5	6	7	8	9	Total
20	INC	*í_ugtho^n*	to put {x} into the mouth, as food	DD	(tr)	N	N	Y	-	-	N	Y	N	N	2
21	INC	*mí^n_gthó^n*	to marry; to take a wife	DT	intr-a	Y	N	-	?**	-	N	N	-	N	1
22	INC	*mí^n_thigtho^n*	to think of a woman	DT	intr-(a)	Y	-	-	-	-	N	-	-	N	1
23	INC	*mo^n_nó^n'e*	to paw the ground	ULCC	intr-(a)	Y	-	-	-	-	Y	-	-	N	2
24	INC	*mo^n_nó^n'u*	to paw the ground	DT	intr-(a)	Y	-	-	-	-	Y	-	-	N	2
25	INC	*ni_áthite(†)* (*niwó^{n}gathíte* A1PL)	to cross {*river*} (in boat?)	DT	tr	N	N	-	-	-	?	-	N	N	0-1
26	INC	*níah_ithé*	to fall into the water	DT	intr-(s)	N	-	-	-	-	N	-	Y	N	1
27	INC	*ní^{n}ka_thixe*	to chase the foe	DD, DT	intr-Ø **	Y	-	-	Y	-	-	-	-	?	2-3
28	INC	*ní^{n}kashi^{n}ga t'é_the*	= he indian-slays (slayer of indians)	DT	intr-a	-	-	-	Y	-	N	-	N	N	1
29	INC	*no^{n}b_útho^n*	to shake hands with {x}	DT	tr	N	N	-	-	-	?	-	Y	N	1-2
30	INC	*o^{n}b_ízho^n*	to lie by day	DT	intr-a	N	N	-	-	-	Y	-	Y	N	2
31	INC	*pamó^{n}gthe*	to bow; with bowed head	DD, DT, ST	intr-s **	N	-	Y	-	-	Y	-	N	?	2-3
32	INC	*ped_íshko^n*	to approach the fire; to be warmed by the fire	DD	intr	N	N	-	-	-	Y	Y	Y	N	3
33	INC	*shi_áthi^n*	to be pregnant	SE	intr-(a)	Y	-	-	-	-	Y	-	-	N	2
34	INC	*shie t'é_the*	to abord	SE	intr-a	Y	N	-	-	-	Y	-	-	N	2
35	INC	*shiézhid_égo^n*	to behave like a child	DD	intr-s	N	N	-	-	Y	-	-	N	N	1
36	INC	*sho^n_gáxe*	to stop ({*doing something*})	DD, DT	intr-a/tr	N	N	-	-	-	Y	-	-	-	1
37	INC	*táxi_ch^{h}u*	to spit, to expectorate	DD, ST	intr-a	N	N	-	-	-	-	Y	N	N	1
38	INC	*táxti_gíkidabi*	lit. "they shoot at the deer for him" (nominalized)	DT	(tr)	N	-	-	Y	-	-	-	N	N	1

Database: NI and discontinuous stems - formal evidence of coalescence (continued)

Nb	Type	N-V	Meaning	Source	Cat.	1	2	3	4	5	6	7	8	9	Total
39	INC	*táxti ábae*	to hunt deer	SE	intr-a	N	N	-	Y	-	N	-	N	N	1
40	INC	*té_t^{h}i*	animals come	DT	imp	?	-	-	-	-	Y	-	-	Y	2-3
41	INC	*té uné*	to hunt buffalo	DT	intr-a	N	N	-	Y	-	N	-	N	N	1
42	INC	*thé_gi'o^n*	to do thus to {*x*}	DD, DT	tr	N	N	-	-	-	N	Y	N	N	1
43	INC	*ti_úpe*	to visit {*x's lodge*}; to visit {*x*}	DD, DT, SE	tr	N	N	-	-	-	Y	?	N	N	1-2
44	INC	*tígaxe*	to play	DD, DT	intr-a	N	Y	-	-	-	Y	-	N	Y	3
45	INC	*ú_to^n*	to have wounds; having wounds	DT	intr-Ø **	N	-	-	-	-	Y	-	-	N	1
46	INC	*wazhí^n_ska*	to be wise, prudent	DD, TA, SE	intr-s	N	B/c **	Y	-	N	-	-	N	N	2
47	INC	*wazhí^n_-pí(b)azhi*	to be in bad humor	DD, DT, SE	intr-s	N	B/c	-	-	N	-	-	-	N	1
48	INC	*wazhí^{n}ga kíde*	to shoot at birds	DT	intr-a	N	N	-	Y	-	N	-	N	N	1
49	INC	*wi^{n}dét^{h}o^n_hi*	{*half of x*} to have come	DT	intr-(a)	N	-	-	-	-	Y	-	N	N	1
50	INC	*zhú_t'o^n*	to be mature; to have a body	DD, DT	intr-a	N	N	Y	-	-	Y	N	N	?	2-3
51	INC+	*á_igatha*	to carry {*x*} on the arm and in the hand, as a pipe	DD, DT, TA	tr	N	N	-	-	-	N	-	N	Y	1
52	INC+	*i_átha*	to gape or yawn	DD, DT	intr-a	N	N	-	-	-	Y	-	N	Y	2
53	INC+	*ishtá_xo^{n}xo^n*	to slightly open the eyes; to squint	DD, ST	intr-(s)	N	-	-	-	-	-	-	N	Y	1
54	INC+	*ití_gthe*	to carry {*a st. ob.*} in the blanket above the belt	DD	tr	Y	N	-	-	-	-	-	-	Y	2
55	INC+	*ití_gtho^n*	to carry {*food / cv. ob.*} in the blanket above the belt	DD	tr	Y	N	-	-	-	-	-	-	Y	3
56	INC+	*ití_'o^{n}he*	to put {*a lg. ob.*} in the blanket above the belt	DT, DD	tr	Y	N	-	-	-	-	-	-	Y	4

Database: NI and discontinuous stems - formal evidence of coalescence (continued)

Nb	Type	N-V	Meaning	Source	Cat.	1	2	3	4	5	6	7	8	9	Total
57	INC+	*ití_zhi*	to put {*small objects*} in a blanket or buffalo robe (...) **	DD	tr	Y	N	-	-	-	-	-	-	Y	5
58	INC+	*mi^n_áda*	to be jealous of {x} (?)	DD, DT	tr	Y	N	-	? **	-	Y	-	-	Y	3-4
59	INC+	*ámo^n_t^{h}i^n*	to strike {x}against {y}	DT	dtr	Y	-	Y	-	-	-	-	-	Y	3
60	INC+	*mó^n_t^{h}i^{n}t^{h}i^n*	to jolt or jar by striking the earth	DD	intr	Y	-	Y	-	-	Y	-	-	Y	4
61	INC+	*ni_dó^n*	to overflow, to flood	DD, SE	intr-Ø	N	-	Y	-	-	Y	-	N	Y	3
62	INC+	*ní_wo^n*	to swim	DD, DT	intr-a	N	B	Y	-	-	Y	N	N	Y	4
63	INC+	*pí_zhi*	to put {*many small objects*} in a safe place **	DD	tr	?	?	Y	-	-	Y	N	-	Y	3-5
64	INC+	*pí_'o^{n}he*	to lay {*a toll of lg. ob.*} away	DD	tr	?	N	-	-	-	Y	N	-	Y	2-3
65	INC+	*sní_t^{h}e*	{*person*} to be cold	DD, DT, SE	intr-s	N	N	-	N**	Y	Y	Y	N	Y	4
66	INC+	*tí_gthe*	to dwell in a lodge	DD, DT	intr-a	N	N	-	-	-	Y	N	N	Y	2
67	INC+	*wach^{h}í_gaxe*	to dance	(common)	intr-a	N	Y	-	-	-	-	-	N	N	1
68	INC+	*wa'í^n_bo^n*	to give the attacking cry	DD, DT	intr-a	-	N	-	-	-	-	-	-	Y	1
69	INC+	*zhé_gigtho^n*	to cook {x} for {y} on the fire	DT	dtr	Y	N	-	-	-	N	Y	-	Y	3
70	INC+	*zhé_gtho^n*	to cook {x} by putting it on a fire; to bake {x}	DD, DT	tr	Y	N	-	-	-	Y	Y	-	Y	4
71	INC+	*zhé_zhi*	to put {*x, plural small*} in hot ashes, to roast them	DD	tr	Y	N	-	-	-	Y	N	-	Y	3
72	INC+	*zhé_'o^{n}he*	to put {*a long object*} in a fire to roast	DD	tr	Y	N	-	-	-	Y	-	-	Y	3
73	INC+	*zhó^n_'ó^{n}he*	to recline on {x}	DD, DT	tr	N	N	-	-	-	N	N	N	Y	1
74	INC+	*zhú_gthe*	to be with {x}	(common)	tr	N	N	-**	-	Y	Y	Y	N	Y	4
75	INC+?	*hó^n_bthe*	to dream an ordinary dream	DD, DT, TA, U	intr-a	N	B	Y	-	-	Y	N	N	Y	4
76	DISC	*kú_he*	to fear an unseen danger	DD, DT	intr-a	Y	N	Y	-	-	Y	N	-	Y	4

Database: NI and discontinuous stems - formal evidence of coalescence (continued)

Nb	Type	N-V	Meaning	Source	Cat.	1	2	3	4	5	6	7	8	9	Total
77	DISC	*mi^{n}xú_gtho^n*	to match {*assertions of rivals and opponents*}	DD	tr	Y	N	-	-	-	Y	-	-	Y	3
78	DISC	*nó^n_ka*	to be injured; to be in danger	DD, U	intr-s	Y	B/c	-	N	Y	Y	N	-	Y	5
79	DISC	*no^{n}pé_hi^n*	to be hungry	(common)	intr-s	Y	N	Y	-	Y	Y	-	-	Y	5
80	DISC	*tú_gtho^n*	to haul {x}	DD, TA	tr	Y	N	-	-	-	Y	Y	-	Y	4
81	DISC	*wanó^{n}de_gth-azhi(†)*	not to loathe {x}	DT	tr	N	N	-	-	-	-	-	N	Y	1
82	DISC	*wat^{h}ézugtho^n*	to be pregnant	DD, DT, SE	tr/intr-s	Y	B**	-	-	N	-	-	-	Y	3
83	DISC	*wí^n_k^{h}e*	to speak the truth	DD, DT, SE, U	intr-a	Y	N	-	-	-	Y	N	-	Y	3
84	DISC	*zhá_he*	to poke {x}; to stab {x}	DD, ST	tr	Y	N	Y	-	-	Y	N	-	Y	4
85	DISC+	*mo^n_thí^n*	to walk	(common)	intr-a	Y	B	Y	-	-	Y	-	-	?	4-5
86	DISC+	*mó^{n}gthe*	to be erect	DT	intr-Ø?	Y	-	Y	-	-	Y	-	-	?	3-4

Index of speakers

All the examples of sentences in this dissertation are cited with the name of the speakers who provided them, when known. This mainly includes the speakers Dorsey worked with and contemporary elders who collaborated in documentation and teaching materials.

My work also relies on contemporary materials which result from teamwork: the Umó^{n}ho^{n} Language and Culture Center section of the 2018 textbook Umó^{n}ho^{n} Íye t^{h}e, Umó^{n}ho^{n} Úshko^{n}-t^{h}e results from a teamwork including the elders Marcella Woodhull Cayou, Donna Morris Parker, Patricia Phillips, and Rufus White (see full team in the Bibliography). The Omaha Language Instruction Team section of the same textbook results from a teamwork including the elders Alberta Grant Canby, Emmaline Walker Sanchez, Arlene Walker, Dolores Black (see full team in the Bibliography). All examples drawn from these sources are indexed here with the entries "ULCC" and "OLIT", respectively.

Citations from lexicons and dictionaries are not usually linked to any speaker, since they correspond to common knowledge of the Umó^{n}ho^{n} speaking community. However, when I cite definitions or translations as found in a particular work, the speaker's name is listed below. This includes words and definitions provided by Elizabeth Stabler in the *Umó^{n}ho^{n} Iye of Elizabeth Stabler: A Vocabulary of the Omaha Language*, and words and definitions from a dictionary project currently in progress, resulting from the work of the elders Emmaline Walker Sanchez and Arlene Walker with Rory Larson (entry 'SLW' in this Index).

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Index of Umó^{n}ho^{n} words

This index lists the Umó^{n}ho^{n} words cited in the main text, in tables, and in figures (not in examples). The following alphabetical order is applied:
' – a – b – ch – ch^{h} – d – e – g – h – i – i^{n} – j – k' – k – k^{h} – m – n – o^{n} – p' – p – p^{h} – s' – s – t' – t – t^{h} – u – w – x – y – z – á – é – í – í^{n} – ó^{n} – ú
The accented vowels are at the end of the alphabet here due to computering limitations in the Index automatic generation. All other alphabetical lists in this dissertation (especially the databases in App. E) treat accented and unaccented vowels together.
The symbol "†" added in parentheses after a word means that the verb is only attested in a conjugated form, or a verb which is supposed to exist but is not attested.
The symbol "_" marks a boundary between an incorporated nominal or preverb and the verb stem, between a verb and a causative stem, and between the first and the second root of a verb (cf. §3.4. This symbol is only used if person markers are expected to appear between these stems and roots.

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Valency-changing operations in Umóⁿhoⁿ: affixation, incorporation, and syntactic constructions

This dissertation presents a detailed study of valency-changing constructions in Umóⁿhoⁿ, a Native North American language. It contributes to a better description and understanding of this language and thereby also to the development of cross-linguistic research on argument structure, valency change, and the morphology-syntax interface. Part I includes a grammatical sketch of Umóⁿhoⁿ and a detailed description of its verbal morphology. It concludes with a general presentation of the existing valency alternations in the language, which take the form of derivations, complex predicates, and syntactic constructions. Part II presents case studies of some of these operations: the different types of causative and applicative constructions, the antipassive, and nominal incorporation. This work addresses in detail the difficult question of interpreting non-overt arguments in a language where some 3rd person arguments are never encoded. It also discusses the distinction between the morphological and the syntactic domains. The eight chapters in Parts I and II are supplemented by extensive appendices and a foreword on the socio-linguistic context of fieldwork.

Keywords: valency-change, morpho-syntax, Siouan languages, verbal morphology, complex predicates, causative, applicative, antipassive, noun incorporation

Les modifications de la valence verbale en Umóⁿhoⁿ: affixation, incorporation et constructions syntaxiques

Cette thèse propose une étude détaillée des constructions modifiant la valence verbale en Umóⁿhoⁿ, une langue amérindienne d'Amérique du Nord. Elle contribue à une meilleure description et compréhension de cette langue et, par ce biais, au développement des recherches typologiques sur la structure argumentale, le changement de valence et l'interface morphologie-syntaxe. La première partie comprend une esquisse grammaticale de l'Umóⁿhoⁿ et une description détaillée de sa morphologie verbale. Elle se termine par une présentation générale des alternances de valence existantes en Umóⁿhoⁿ, celles-ci se présentant sous la forme de dérivations, de prédicats complexes et de constructions syntaxiques. La partie II présente des études de cas de certaines de ces opérations : les différents types de constructions causatives et applicatives, l'antipassif et l'incorporation nominale. Ce travail aborde en détail le problème de l'interprétation des arguments non réalisés lorsque ceux-ci ne sont jamais codés à certaines personnes. Il examine également la distinction entre les domaines de la morphologie et de la syntaxe. Les huit chapitres des parties I et II sont complétés par d'importantes annexes et par un avant-propos sur le contexte socio-linguistique du travail de terrain.

Keywords: changement de valence, morpho-syntaxe, langues siouanes, morphologie verbale, prédicats complexes, causatif, applicatif, antipassif, incorporation nominale

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