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Persian Verbs in Spatial Events: with a Specific Focus on Complex Predicates

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Catherine Nouri. Persian Verbs in Spatial Events: with a Specific Focus on Complex Predicates. Linguistics. Université de Lille, 2019. English. NNT : 2019LILUH009 . tel-02378945

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UNIVERSITÉ LILLE III – CHARLES DE GAULLE

Ecole Doctorale Sciences de l'Homme et de la Société

THÈSE DE DOCTORAT

Discipline : Sciences du Langage

Thèse présentée et soutenue

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Le 2 Avril 2019

**Persian Verbs in Spatial Events:
with a Specific Focus on Complex Predicates**

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ACKNOWLEDGMENT

I would like to express my thanks to many people without whom this work would not have been possible:

First, I would like to express my sincere gratitude to my advisor Prof. Maarten Lemmens, whose continuous support and insightful comments helped me throughout my work. He gave me hope and spent his precious time and knowledge to guide me. I thank him for allowing me to grow and be a better researcher. I am also grateful to my co-supervisor prof. Pouneh Shabani-Jadidi for providing extensive hours of discussion while I was Graduate Research Trainee at McGill University. Pouneh was always willing to help and share her knowledge with me. I am also thankful for her precious feedbacks and her native judgment on the Persian data of the thesis.

My sincere thank goes to my Ph.D. committee members, professors Pollet Samvelian, Homa Lessan-Pezzechki, and Mahbod Ghaffari for spending their time to read and evaluate this thesis. I am also grateful to their valuable comments and feedbacks.

I would like to thank the STL laboratory and the École Doctorale at Lille University for providing the funding for my trips to various conference events across Europe which helped me to get precious feedbacks on my work.

Last but not least, it is a pleasure to thank my Family. I would like to express my special appreciation to my husband, Aria Isapour, whose insatiable curiosity and pivotal questions helped me complete this thesis. My deepest gratitude for his

technical assistance while I was producing the corpus. Also, thanks to my parents, my sister, and my brother for supporting me spiritually throughout my life.

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LIST OF ABBREVIATIONS

ADJ = adjective

ADV = adverb

AP = adjectival phrases

AUX = auxiliary

CP = complex predicate

CPV = complex pre-verb

DEF = definite

DES = descriptive morpheme

EZ = ezafe

GEN = genitive

GER = gerundive

HAB=habitual

IMP = imperative

INDEF = indefinite

LV = light verb

N = noun

NEG = negative

NOM = nominalization

NP = noun phrase

OM = object marker

PL = plural

PP = prepositional phrase

Prep = Preposition

List of Abbreviations

PREP = preposition

PROG = progressive

PRS = present

PST = past

PV = pre-verb

SG = singular

TTR = type token relativity

Q = question marker

TRANSLITERATION SCHEME

Consonants

z	ض	b	ب
t	ط	p	پ
z	ظ	t	ت
a, e, o	ع، ع، عُ	s	س
gh	غ	j	ج
f	ف	ch	چ
q	ق	h	ح
k	ک	kh	خ
g	گ	d	د
l	ل	z	ذ
m	م	r	ر
n	ن	z	ز
v	و	zh	ژ
h	ه	s	س
y	ی	sh	ش
		s	ص

Vowels

short	long
A (aks)	aa (aash)
E (kezb)	i (sabzi)
O (gol)	ou (kouh)

1. INTRODUCTION

This thesis studies the use of Persian verbs in spatial events. More specifically, using corpus data, the study, situated within the framework of cognitive linguistics, firstly investigates how differently simplex verbs and complex predicates (henceforth, CPs) behave in spatial events, and secondly it explores the semantic systematicity of CPs and their other features, namely, their causativity, their productivity, their aspect (duration), and their syntactical structure in spatial events. The study proceeds in two stages: firstly, we clarify verbs used in spatial events including both simplex verbs and CPs to compare and contrast their semantic behaviors in spatial events. Then, we proceed to a more fine-grained investigation on the semantic systematicity of CPs and their other characteristics based on their semantics.

The perception of space and spatial events has a profound effect on our understanding of the world. Although the physical properties of space exist in all languages, the way that they express this cognitive domain varies from language to language. There are certain studies about the interaction between language and thought; Whorf's (1956) 'Linguistic Relativity' is one of the most influential in the study of language and mind. He believes that a speaker's view of the world is affected by the structure of their language. A weaker version of his view is presented by Slobin (1987, 1996, 1997, 2000, 2004) and is known as 'thinking for speaking'. Slobin holds that speakers of different languages in the process of preparing content for their speech think differently.

On the other hand, a certain number of research criticize Linguistic Relativity. They claim that Whorf's description of how language influence thought is not clear enough

(Lenneberg, 1953, 1955; Pinker, 2003, among others). However, testing the Whorfian hypothesis or his opponents for Persian is beyond the scope of this thesis, which presents a linguistic analysis, not an experimental investigation into linguistic relativity effects. In our investigation, we follow Talmy's patterns in spatial events. Talmy (1991, 2000) discusses lexicalisation patterns, i.e., how languages preferentially express things lexically. He believes that languages of the world beside their commonalities differ in certain aspects.

Talmy, in his (1991, 2000) study of spatial events, proposes a binary typology of languages. In Talmy's definition of spatial events (motion and location), an object in space may have 'physical motion' (motion events) or tendency to rest (locative events). Based on this definition, each spatial event consists of four main components: an object moving or staying with reference to another object (Figure), the other object (Ground) that is the reference point of Figure's locatedness or motion, the path of motion, and the fact of motion. Talmy argues that languages express space differently and divides them into two groups: Satellite-framed languages (S-framed for short) and Verb-framed languages (V-framed). In S-framed languages, including the Germanic languages, the core of the event (motion and/or path) is lexicalised in a satellite, whereas in V-framed languages, like the Romance languages, this core is lexicalised in the verb. In S-languages, the verb typically expresses the manner of motion.

There have been numerous studies on Talmy's typology in several languages, but very little has been done on Persian. Feiz (2011) claims that Persian shows a mixed typology and has the characteristics of both S-framed and V-framed languages. Her study focuses exclusively on the position of Persian with regard to Talmy's binary typology, and very little is said about the semantic and syntactic differences between

simplex verbs and CPs in space. Feiz has not investigated how each type of verb plays a role in forming this mixed typology nor how differently they may express spatial events. Furthermore, she followed a discourse analytic approach in which other genres of spoken and written language are disregarded. Therefore, the diversity of verbs, specifically CPs, used in her analysis is limited mostly to the CPs that are formed with the most common and frequent light verbs (LVs), such as *kardan*, 'do', and *shodan*, 'become'. Other LVs that can form an infinite number of CPs in spatial events are considered rarely in her analysis, a shortcoming that this thesis aspires to remedy.

Speakers of Persian have two essential means at their disposal to encode events (including spatial events): either via simplex verbs or CPs. CPs are formed by combining around twenty so-called "light verbs" (LVs) such as *zadan*, 'hit'; *kardan*, 'do'; *shodan*, 'become'; *daadan* 'give' with certain elements that in traditional descriptions of Persian are called "pre-verbs" (PVs). A PV can be a noun, an adjective, an adverb, or a prepositional phrase. Typical examples of such CPs are *charkh-zadan*, lit. wheel_N-hit, 'stroll'; *pakhsh-kardan*, lit. scattered_{ADJ}-do, 'spread'; and *nazdik-shodan*, lit. close_{ADJ}-become, 'approach'. In Persian, simplex verbs cannot be derived from *adjectives* or *nouns*, unlike in languages such as English and French in which denominal simplex verbs (derived via conversion or zero-derivation) are quite frequent. For example, the word *lean* can be used either as a noun or as a verb in English. In French, the verb *cheminer* ('walk, stroll') is derived from the noun *chemin* ('road'). In Persian, however, simplex verbs cannot be created based on this rule. In contemporary Persian, morphologically simplex verbs are not productive, and since the 13th century, they have gradually been replaced by CPs, which are quite productive and frequent (Batani, 1989). Therefore, LVs such as *kardan*, 'do'; *zadan*,

'hit', etc. are used to create new verbs. Several reasons are mentioned in the literature for the gradual replacement of simplex verbs by CPs. Sharifi (1975), among others, argues that these predicates either replace verbs of Arabic origin, introduce new semantic concepts, or provide new ways to express concepts that already exist. Ashrafi-Sadeghi (1970) claims that the simplex verbs with difficult conjugations are replaced by CPs.

This thesis has a double goal. In the first place (section 5), it explains how space can be expressed by Persian verbal system and clarifies how we chose the analytic units for the second and main part (CPs analysis) of the thesis. It aspires to address some of the shortcomings of the previous study on Persian verbs in spatial events and to contribute to the analysis of the particular behaviors of two Persian verbal systems, simplex, and CPs. This has been done via a detailed analysis of a variety of verbs and constructions as used to encode spatial events. The restriction to spatial events has been motivated mainly by two methodological reasons: first, it allows us to keep the semantic focus on one particular domain of application; second, given the high frequency of CPs in the language, some constraints were necessary to keep matters manageable. The choice for the domain of space is well justified in view of the fact that it may allow comparison with the literature on the Talmian typology and how Persian occupies a special place in this (cf. also Feiz's work). Also, given the semantic unity of the domain of application, it would more easily allow later psycholinguistic testing of the findings discussed here, following previous studies of this kind. As far as we know, our study is the first corpus-based analysis comparing simplex verbs and CPs and showing how each type encodes spatial events semantically determining in the process, and if so, how, the mixed-type behavior of Persian in encoding spatial events (as defended by Feiz 2011) is the result of having such a dual verbal system.

We also compare the level of semantic richness between simplex verbs and CPs. Our analysis in the first part reveals the semantic richness of CPs and the various ways by which CPs express spatial events. The results of the study uncover a number of reasons why simplex verbs have been gradually replaced by CPs.

In part two of our study (sections 6), we explore the semantic systematicity in the formation of CPs by identifying their semantic extensions and by comparing the extensions of the LVs that have the most PVs in common in spatial events.

Due to their dual nature, Persian CPs act as a single word in certain cases yet as a multi-word phrase in others. There has been some controversy in the existing research on the behavior of these combinations. The majority of studies are based on traditional and formalist approaches that put a strict division between syntax and semantics. They mostly deal with the syntactic and morphological properties of CPs. Apart from these studies, Goldberg (1996), Family (2006, 2014), Samvelian & Faghiri (2013) consider Persian CPs in a cognitive linguistics framework. Adhering to a Construction Grammar approach, they propose to consider Persian CPs as constructions that are represented in the lexicon as a unit. Family (2006, 2014) focuses on the semantics of CPs and tries to find how these CPs are formed semantically. Our corpus-based analysis allows us to verify Family's analysis as well as to classify the CPs under study in a more systematic way. Furthermore, it provides a non-subjective selection of CPs; as a result, all kinds of CPs have been included in the analysis. In addition, the corpus allows us to analyse other components of a sentence which can in certain cases define why for example a specific PV can be used with two different LVs. Statistical analysis of CPs also allows us to generalize the semantic behaviors of CPs. To identify the semantic category of CPs we employ constructional schema developed in the Goldbergian Construction Grammar approach, which also helps us

to have a more systematic way of classification. Finally, while Family's analysis is highly insightful, our investigation of the use of CPs as occurring in a specific semantic domain (spatial events) analysis, allows for a more fine-grained complementary analysis and prevents us from misinterpreting data. Corpus-based studies have been done for multi-word expressions in several languages, including English, Chinese, Urdu, and Odia; these studies have been inspirational. As far as we know, this study is among the rare studies that have used a statistical and corpus linguistics method in analyzing Persian CPs semantically. One of the studies that consider CPs as constructions and show that these constructions should be listed in a dictionary is Samvelian & Faghiri (2013). In this regard, they have started a project called PersPred in which CPs are being annotated syntactically and semantically. For each CP they have defined a specific semantic group (semantic superclass) such as locatum, locative, etc. As they put it "some semantic classes can be grouped together into a more abstract class. In this case, the construction associated to them is the subtype of a less specific construction" (Samvelian and Faghiri, 2013: 221). Their classification is another inspiring element for our study to consider CPs in a specific domain (spatial) and explore their specifications with more details in that particular domain. For example, they have groups called locative, and movement which are divided to a variety of subclasses in our analysis. We will focus on these two classes and explore their subclasses and their behaviors. According to Samvelian & Faghiri (2013), the same construction (subclass) can be common among different LVs, and they mention valency variation as one of the reasons. For examples in their analysis, both CPs *rang-zadan* lit. color_N-hit 'color' and *rang-khordan* lit. color_N-eat 'be painted' are classified as *spreading* group in the semantic domain of *locatum*. They argue the PV *color* can build an active combination with *zadan* 'hit' and a passive one with

khordan 'eat'. We will do a complementary analysis to explore the reasons for which we can have common semantic categories between two LVs in spatial events.

Following the studies mentioned above, we consider CPs to be constructions. According to Goldberg (1995), constructions are form-meaning pairings whose meaning and/or form is unpredictable on the basis of the components. The detailed analysis presented in the second part of this thesis (sections 6) focuses on the semantic analysis of Persian CPs and their other properties, namely, causativity, productivity, duration of the activity and syntactical behavior of the CPs based on their semantics.

To do so, we have chosen the four most frequent LVs that also have PVs in common in our corpus. We compare and contrast the common and the different extensions between these LVs to figure out why a single PV can combine with different LVs. For the purpose of this thesis, we have created our own corpus since the available Persian corpora are few and their tagging options are not in line with our coding purposes, which are mostly semantic. With the help of this method, we can analyse all the components in a sentence, which allows us to consider the role of other components such as Figure and Ground in the semantics of the CP. We argue that different types of Figure or Ground may lead speakers to choose a different type of LV.

In Chapter 6, we also show and measure how productive CPs are semantically and how speakers can generalize about these combinations. Even for metaphorical forms, we have discovered a certain degree of productivity and generalization, which is in line with Samvelian's & Faghiri's findings, where they claim "The Construction-based approach we then proposed is based on the assumption that despite their idiomaticity, Persian CPs can be grouped upon their syntactic and semantic similarities. Productivity results in this account from the possibility to analogically extend the existing classes and can be compositionality-based or not" (Samvelian &

Faghiri, 2013: 225). Based on the semantics of combinations, we have further demonstrated that CPs constitute a family of resultative constructions in spatial events.

This thesis is structured as follows. Chapter 2 discusses the construction of LVs across languages, specifically in Japanese, Korean, Urdu, and Odia, as well as in Persian in order to clarify certain lexical and phrasal behaviors of Persian CPs and LVs in general. It also sets up the theoretical framework for the analysis of our research. It deals with concepts such as productivity, compositionality, construction, syntax, and semantics of constructions and Construction Grammar theory in general and discusses how they are employed to analyse Persian CPs.

In Chapter 3 we will provide an overview of spatial events in general. The concept of space and studies with respect to spatial events will be presented, focussing on static versus dynamic events and Talmy's binary typology of spatial events.

Chapter 4 is centered on the data and method. It is divided into two sections that relate to the two parts of our analysis. The first section explains the method of data extraction and coding for our general analysis of simplex verbs versus CPs as used in spatial events. The second part of this section deals with the data collection, the coding, and the analysis of four particular LVs *kardan* 'do', *zadan* 'hit', *daadan* 'give', and *bordan* 'take' as used in spatial events.

Chapter 5 and 6, respectively, present our general analysis of Persian verbs in spatial events, and the discussion of the four LVs, namely, *kardan* 'do', *zadan* 'hit', *daadan* 'give', and *bordan* 'take'. These LVs will be compared and contrasted to have a comprehensive analysis of the behaviors of CPs and to clarify why each PV can co-occur with different LVs.

Finally, Chapter 7, provides a general discussion of the outcome of our study, for both simplex verbs vs. CPs in spatial events and the analysis of CPs with more detail based on Construction Grammar approach and sketches some avenues for further research.

2. LIGHT VERB CONSTRUCTIONS

The term light verb was first introduced by Jespersen (1965: 117) subsequently taken up again by Cattell (1984). In their definition, this term refers to a semantically empty verb combined with a non-verbal element, such as *have a drink* or *take a nap* in English. In the literature, LVs are generally considered semantically weak, meaning that their contribution to the semantics of complex predicates is less than that of their use as a full verb. It is the non-verbal element that mostly contributes to the semantic information of the compound. It is, however, the LV that bears grammatical functions such as person and tense. Recently, certain scholars have argued that LVs may not be as light as they seem. These verbs can reflect lexical information and convey certain grammatical meaning pertaining to aspect, modality, voice, and diathesis (Tournadre & Lessan-Pezeshki, to appear). The term “light verb” has also been extended to other types of complex predicates, in other languages. For example, it is used to refer to complex verbal predicates in Indo-Aryan languages (such as Urdu or Odia) where they consist of two verbs where one verb is the main (lexical) verb, and the other is an LV.

In this chapter, we will briefly summarize certain studies on LVs in other languages to provide a general overview of the behaviors of these constructions across several languages. We also compare them with Persian CPs at certain points to show that these studies can provide some insights into Persian CPs analysis. We will also provide a presentation of the Persian CPs general characteristics and explain the application of Construction Grammar to Persian CPs.

2.1. *Light Verbs across languages*

LV is a term that refers to different types of verbs cross-linguistically. In certain languages, LVs can have semantic and event modulation values while in other languages they are considered highly light and have been grammaticalized totally. In this section we will briefly sketch some of these studies that are related to our thesis.

Grimshaw and Mester (1988) refer to the Japanese verb *suru*, 'do', as a LV that is used in combinations built with nouns. In this case, the LV *suru*, 'do', is semantically light. For Korean, Hale & Keyser (1997) and Kim (1994) also consider *hata*, 'do', as a LV that has a grammatical contribution to the construction rather than a semantic one. The following examples illustrate the usage of these LVs in Japanese and Korean respectively:

(1) *John-go Mary-ni hanasi-o sita*
 John-N Mary-to talk-ACC do-past
 'John talked to Mary.' (Grimshaw & Mester, 1988: 207)

(2) *Chelswu-ka malwu-lul chengso-ha-ass-taa*
 Chelswu-N floor-ACC cleaning-do-past
 'Chelswu cleaned the floor.' (Kim, 1994: 140)

Therefore, in these languages, LV is only considered as a verb marker and cannot contribute to the lexical content of the construction.

In Romance languages, the analysis of LVs can be extended to restructuring verbs. According to Rosen (1991) and Di Sciullo & Rosen (1990), these verbs have a fully specified meaning and are semi-light-verbs (called *verbes de support* in French). However, unlike lexical verbs, they do not have specified arguments. They believe that the main verb in a given sentence determines the type of auxiliary and is

responsible for the argument of the whole LVC. As is shown in the example (3) in Italian language, transitive and unergative verbs select *avere* 'have'. They claim that, unlike the LVs *hata* and *suru*, 'do', in Korean and Japanese, Romance LVs can combine with other full main verbs. However, the verb *faire* 'do, make' in French can build light verb constructions like other families of languages (*faire le ménage*).

As is illustrated by the following Italian example, the semi-LV *volere* 'want' type verb can combine with *parlare* 'talk,' and both verbs contribute to the meaning of the CP while *voluta* has no specified arguments:

- (3) *Giovanni* *lo avrebbe* *voluto-prendere*
 Giovanni it have want-fetch
 'Giovanni would have to fetch it.'

As Butt (2010), discusses speakers of Urdu, use LVs and combine them with a verb to express events. She argues that these LVs, in fact, provide some information about the event ("event modulation") as follows: "who did the causation, what the result was, whether the event was bounded or whether it was benefactive, sudden, agentive/volitional, accidental, etc." (Butt, 2010: 68). However, she distinguishes the LV *kar* 'do' from other LVs, and considers it as a "verbalizer" (Butt, 2010: 51). Based on her definition, this LV is only a device for creating new verbs and absorbing loan words into the language. Furthermore, *kar* 'do' differs from other LVs in Urdu since it co-occurs with nouns and adjectives instead of verbs. Lemmens & Sahoo (2017, 2018), also add that verbalizers cannot contribute to the event modulation, and they are only used to make new verbs. Although Persian LVs, at first sight, seem to be like verbalizers since their appearance is similar to these verbs (a noun or an adjective can combine with them), they clearly show different behaviors. For example, as we will

discuss in our analysis, Persian LVs can contribute to the meaning of the whole construction and also contribute to the duration of the events.

Butt considers CPs as predicates that occur within a monoclausal structure. We will consider them as constructions in which PV and LV together contribute to the meaning, and the aspectual values of the sentence. The following example is from Urdu where the verb *daal* ‘put’ is considered a LV:

- (4) *us-ne* *ciik* *daal-aa*
PRON-ERG scream put-PERF.SG
‘He screamed violently (on purpose).’ (Butt, 1995: 110)

LVs in Urdu can express certain aspectual information, such as completion and volitionality (semantic information). In her 2010 study, she claims, “Ability to carry tense/aspect is not a typical characteristic of light verbs” (2010: 51).

Butt and Lahiri (2002), demonstrate that light verbs and their corresponding full lexical verbs in Urdu are form-identical and are in a tight relationship semantically. Persian LVs and their corresponding main verbs also have a semantic relationship to a certain degree, and there are a large number of LVs and lexical verbs that are form-identical like *daashtan*, ‘have’. *Daashtan*, ‘have’, can act as a LV, an auxiliary, or a main verb. This phenomenon is evidence that LVs are not auxiliaries; when the verb ‘have’ appears as an auxiliary in Persian, it only carries tense and aspect. On the other hand, as we will explain in example (5) when it combines with PVs to build CPs, it contributes to the semantics of the construction. Examples (5), (6), and (7) show this verb as LV, auxiliary, and full lexical form respectively.

- (5) *man to-raa¹ doust-daaram*
 I you-OM affection_N-have.PRS.1SG
 'I like you.'
- (6) *man daaram mi-ram*
 I have.PROG.PRS.1SG HAB-go.PRS.1SG
 'I am going.'
- (7) *man in ketaab-raa daaram*
 I this book-OM have-PRS.1SG
 'I have this book.'

In example (5), 'have' is used as a LV; this verb combines with the PV 'affection' to build the CP *doust-daashtan*, 'like'. In such combinations, the LV contributes to the semantics of the CP. In this example, *daashtan* 'have' refers to the presence and stay of a state, in fact, it preserves its lexical meaning which is 'possession'; A person possesses affection in heart for another person. This PV cannot combine with any other LVs for expressing this notion. On the other hand, in example (6), 'have' is only used as a progressive auxiliary and the combination is distinct from the CPs in this study. In fact, in combinations such as (6), 'have' only appears to express the progressive aspect of the main verb (go) and is semantically bleached. Finally, in example (7), *daashtan* is used as a lexical verb and is the exact equivalent of the English 'have'. According to Butt and Lahiri (2002), crosslinguistically the semantic specification of verbs that have LV counterparts such as "go", "take", "give", "hit",

¹ *Raa* is an object marker in Persian. For more discussion about *raa*, among others, please refer to Lazard, 1982; Meunier and Samvelian, 1997; Karimi et al., 2009; Key, 2012; Jasbi, 2015. There exists a huge debate with respect to the semantic contribution of this marker, and it is considered as a specificity, definiteness, and topicality marker.

“come”, “throw”, “fall”, “do”, “make”, and “rise” is so general and they can “fit” any context. In our analysis we will show that verbs like *kardan* ‘do’, whose full counterparts are more flexible and have a variety of meanings, also have a higher number of semantic groups, while a verb such as *bordan* ‘take’ which is less flexible than *kardan* ‘do’ and has fewer definitions, also has fewer semantic groups when used in CPs.

Butt (2010), also adds that the combination of one PV with different LVs leads to different meanings, which is evidence that LVs contribute to the meaning of the construction. Concerning the semantics of LVs, Butt puts it as follows: “LVs neither retain their full semantic predicational content, nor are they semantically empty. Rather, they appear to be semantically light in the same manner that is difficult to identify” (2010: 48). As she mentions, there exist certain semantic differences between the combinations *take a bath* and *have a bath*. LVs in Urdu, unlike auxiliaries, add information to “an event predication”, like “who did the causation, what the result was, whether the event was bounded, sudden, agentive, accidental, forceful, benefactive” (Butt, 2010: 68).

On the other hand, auxiliaries only provide “a different perspective on the participants of the events” like expressing aspect and passivization. In this study, we will also discuss how LVs in Persian can add semantic information to CPs. For example, we will show how the LVs that share a common PV can lead to different degrees of quickness or forcefulness and eventually different meanings. On the other hand, auxiliaries in Persian, unlike LVs, cannot provide this information.

In Persian, as we will show, although LVs retain their core meaning in combination with different PVs, they show semantic differences that lead to several semantic

groups among CPs. LVs thus cannot randomly combine with PVs, and each LV combines with specific types of PVs to form specific types of semantic groups.

Lemmens & Sahoo (2017, 2018) and Sahoo & Lemmens (2017) discuss LVs in Odia, an Indo-Aryan language. Following constructionists' usage-based accounts, they focus on asymmetrical CPs, which consist of a lexical verb and a LV, Lemmens, and Sahoo (2017) argue that these CPs are constructions and some of them can express completion and the unexpectedness of the event. See the following example, which is taken from Lemmens and Sahoo (2017: 342):

- (8) *se bhaata-taka khaa-i-de-l-aa / khaa-il-aa*
 He rice-QUAN eat-CONJ-give-PST-3SG / eat-PST.3SG
 'He ate up all the rice (unexpectedly) / (expected).'

In this example, the LV *de*, 'give', expresses both "completion and surprise". According to Lemmens and Sahoo (2017), the semantics of LVs such as *de*, 'give', has taken distance from their form-identical counterparts; therefore, the meaning of the construction cannot refer to the original lexical meaning of the verb. They argue that Odia LVs are to be distinguished from auxiliaries, which are in the form of suffixes in Odia. Further, as they observed, these LVs are to be distinguished from "semi-light verbs", such as *pār* 'can' or *sār* 'finish' which can combine with any type of lexical verbs (transitive/intransitive) and semantically they retain their meaning (Lemmens & Sahoo, 2017, 2018).

We will follow their constructionist approach, although Persian LVs differ from Odia since Persian LVs have partially preserved their core meaning. They cannot be considered "semi-light verbs" either. "Semi-light verbs", as mentioned before, pertain their whole meaning and combine with any type of lexical verbs. Persian LVs

stand between verbalizers and semi-light verbs. In Persian, the meaning of the construction (CP) depends on the whole construction, and there exists a semantic interaction between PV and LV, which will be discussed in section 6. In addition, in Persian, as in Odia, when LVs are used in CPs, they may lose their argument structure. With respect to the semantic and grammatical systematicity of CPs, Persian and Odia behave in the same way. There is no random co-occurrence of LVs with lexical verbs (in Odia) and PVs (in Persian). For example, in Odia, the LV *de*, 'give', has the semantic constraint that it cannot co-occur with the verb *ne*, 'take'. In this study, we will also discuss semantic systematicity in forming Persian CPs. We will show that PVs cannot combine with LVs randomly.

According to Lemmens & Sahoo (2017, 2018), in Odia LVs add some semantic information to the event expressed by the main verb. This modulation is related to the aspectual perspective of the combinations. These LVs can express the onset, duration, or completion of the main verb's event. In certain cases, they may also express the mirativity (unexpectedness/unsupposedness) of the event. Persian CPs, as we will discuss in the future chapters also contribute to the event modulation. For example, CPs built with the LV *zadan* 'hit' in comparison with the CPs of LV *kardan* 'do', refer to the events with shorter duration and also can express events that are repetitive. Therefore, they cannot be considered mere "verbalizers".

Finally, Lemmens & Sahoo (2017, 2018) discuss that the transitivity depends on the entire construction and not just the LV. In fact, by adopting a constructional perspective, they consider LVs as form-meaning pairs that are stored in the grammar. In Persian also, the transitivity of CPs can be explained via such perspective. CPs built with a LV appear either as transitive like *aab-kardan* lit. water_N-do 'melt' or intransitive

like *nasht-kardan* lit. leaking_N-do ‘leak’ and both constituents contribute to this behavior.

In sum, by adopting a constructional approach Lemmens & Sahoo (2017, 2018) consider LVs as construction in their own right that has syntactic/semantic properties different from lexical verbs and auxiliaries.

2.2. *Light Verbs in Persian Complex Predicates*

In this section, we will introduce Persian LVs and present their lexical and phrasal properties. Unlike other languages, such as English and French, that have a large number of simplex verbs, in Persian, CPs dominate the verbal system. As discussed earlier, for centuries the use of simplex verbs has gradually diminished in Persian, such that in the contemporary language there exists only a small set of simplex verbs, about 279 (Khanlari, 1973). In addition, unlike English and French, CPs in Persian have no simplex verb counterparts. Therefore, these CPs are generally translated by simplex verbs in other languages.

These CPs, unlimited in number, are formed by the combination of two elements: one nonverbal the other verbal. The nonverbal element, also known as pre-verb (PV) in Persian, can be a noun, a noun phrase, an adjective, a prepositional phrase, or an adverbial phrase. The verbal elements are around 20 LVs such as *kardan* ‘do’, *zadan* ‘hit’, *daadan* ‘give’, *bordan* ‘take’, *khordan* ‘eat’, *daashtan* ‘have’, *keshidan* ‘pull’, *rikhtan* ‘pour’, etc. Followings are the examples of such CPs:

- | | | | |
|------|---------------------------|--------------------------------|-------------|
| (9) | <i>tekaan-khordan</i> | movement _N -eat | ‘move’ |
| (10) | <i>dast-be-sar-kardan</i> | hand-on-head _{NP} -do | ‘brush off’ |
| (11) | <i>boland-kardan</i> | tall _{ADJ} -do | ‘raise’ |

- | | | | |
|------|----------------------|-----------------------------|--------------------|
| (12) | <i>be-sar-bordan</i> | to-head _{PP} -take | ‘live, spend time’ |
| (13) | <i>aqab-keshidan</i> | back _{ADV} -pull | ‘pull back’ |

Persian CPs remain a difficult subject for analysis due to the dual behavior that they show with respect to their nature: these combinations can be treated either as a phrase or as a lexical unit. Studies of Persian CPs thus vary concerning the approach that they adopt. In certain studies, these constructions are considered syntactic phrases, while in others they are considered lexical units. These studies attempt to analyze the contribution of each element separately. Apart from a few studies, namely, Goldberg (1996), Family (2006, 2014), and Samvelian (2013) most studies adopt a generative approach. Although they do shed light on certain aspects of Persian CPs, their semantic productivity and systematicity is not discussed sufficiently exhaustively. In this study, we follow Goldberg (1996:144) when she says that “the Persian complex predicate is represented in the lexicon as a unit, despite the fact that it does not necessarily appear as a syntactically atomic lexical item.”

In the following section, we will briefly sketch general characteristics of Persian CPs.

2.2.1. General Characteristics

As explained in our introduction, Persian CPs consist of a non-verbal element and a light verb without any linking morpheme between them (in bare form). The LV may also carry tense, aspect, and mood marking. The non-verbal element can be nominal, adjectival, adverbial, or prepositional words or phrases. These constructions in languages such as English are interchangeable by their simplex counterparts (e.g., *take a walk* versus *walk*), while most of the time in Persian they do not have simplex counterparts. The characteristics of these constructions have been the center of

attention for several decades. Specifically, their lexical and syntactic properties have given rise to controversial discussions due to the dual behavior that they represent. In the following section, the major lexical and syntactic properties of Persian CPs are briefly explained.

2.2.1.1. Lexical and Phrasal Properties

In this part first we will present three reasons that indicate CPs act like lexical units: (i) the whole CP functions as a stem for morphological derivation, (ii) the PV and the LV cannot be separated by intervening constituents, and (iii) the stress pattern in CPs deviates from that of simplex verb and the CP has a single stress which falls on the PV. Furthermore, we will also present phrasal properties of CPs: (i) being inflected by certain prefixes attached to the LV, (ii) being intervened by modals between PV and LV, (iii) being intervened by adjectives between PV and LV, (iv) being relativized, (v) accepting direct object clitics either between PV and LV or after the LV as a suffix.

In many ways, Persian CPs behave like lexical verbs. For example, like lexical verbs, they can undergo several morphological derivations. CPs can go through derivational processes, such as nominalization. In this process, a word such as a verb, an adjective, or an adverb is transformed into a noun via regular derivation. Following example shows how a verb can turn into a noun through nominalization process:

- (14) *tazaahor-kon-**ande**-haa* *saaket* *shodand*
 demonstration-do-**NOM**-PL quiet become.PST.3SG
 ‘Demonstrators became silent.’

The agentive suffix *-ande* (the equivalent of *-er* in English) is added to the present stem of the LV (*kon*) to build an agentive noun.

Another type of nominalization occurs when a past stem (in this example *kard*) of LVs combines with the morpheme *-an* as follows:

- (15) *negaah-kard-an* *be* *ashae-ye*² *khoshid* *khatarnaak* *ast*
 Look-do-GER to ray-EZ sun dangerous is
 ‘Looking at the sun’s ray is dangerous.’

This type of nominalization is called gerundive nominalization in Persian.

Another derivational process that LVs can involve in is adjective (past participle) formation. As shown in the following example, past participle adjectives in Persian are formed by attaching the passive particle *-e* to the past stem of the verb and then be turned into adjectives via conversion:

- (16) *mesl-e* *Lashkar-e* *shekast-khord-e* *bargashtand*
 like-EZ³ army-EZ defeat_N-eat-e return.PST.3PL
 ‘They returned like a defeated army.’ [lit. ‘They returned like an army that has eaten defeat.’]

The last type of nominalization (example 17) is when the morpheme *-i* is added to the infinitive to form a relational adjective.

² The morpheme *-ye* is a genitive marker that is used after vowels; otherwise the morpheme *-e* is used as a genitive marker.

³ *Ezafe* in Persian constitutes an unstressed vowel *e* (*-ye* after vowels) that links syntactically related nouns and adjectives together, e.g., a series of attributive adjectives, two nouns, and possessive. In fact, it comes after the noun and before a possessive pronoun, a noun or an adjective as follows:

<i>Ketaab-e</i>	<i>man</i>	<i>pesar-e</i>	<i>khoub</i>
book-EZ	I	boy-EZ	good
‘my notebook’		‘good boy’	

- (17) *vasaayel-e in khaaneh dour-andaakhtan-i ast*
 stuff-EZ this house far_{ADV}-throw-**DES** be.PRS.3SG
 ‘The stuff of this house is useless.’ [Lit. ‘The stuff of this house is far-throw-away-ish.’]

Another lexical property of CPs is their potential to form adverbs. Persian CPs, like other lexical verbs, can undergo a morphological process through which the suffix *-aan* is attached to the stem of verbs, and a derived manner adverb forms as follows:

- (18) *man faryaad zan-aan biroun davidam*
 I shout hit-an out run.PST.1SG
 ‘I ran out shouting.’

It is worth mentioning that the majority of LVs can undergo such processes when they are attached to PVs and appear in CPs. In other words, the whole CP goes through such derivation processes, not LVs in isolation, which is a characteristic of lexical units.

In addition to the behavior above, CPs tend to resist separation by another morphological element or constituent. For example, PV and LV cannot accept a direct object or an adverb in between. As shown in the following examples, these elements precede the CP in a sentence:

- (19) a. **Maryam tamaam-proje-raa-kard*
 Maryam finish_{ADJ}-project-OM-do.PST.3SG
 ‘Maryam finished the project.’

b. Maryam proje-raa tamaam-kard
 Maryam project-OM finish_{ADJ}-do.PST.3SG
 ‘Maryam finished the project.’

(20) a. **ou ketaab-am-raa pas dir daad*
 he book-GEN-OM back late.ADV give.PST.3SG
 ‘He gave back the book too late.’

b. ou ketaab-am-raa dir pas-daad
 he book-GEN-OM late.ADV back_{ADV}-give.PST.3SG
 ‘He gave back my book late.’

In examples (19) and (20), the direct object ‘project’ and the adverb ‘late’ cannot be placed between the PV and LV.

Goldberg (1996), Vahedi-Langrudi (1996), and Megerdooonian (2002), among others, refer to CPs as constructions that have single main stress, which falls on the PV. They use this characteristic for considering CPs as single units in the lexicon. In simplex verbs, the stress falls on the final syllable of the verb stem. “In finite sentences with simplex verbs, primary stress is placed on the main verb. But in finite sentences with CPs, primary stress falls on the host (PV) instead” (Goldberg, 1996:133). This is illustrated by the following examples, taken from Goldberg 1996: 133. Stressed syllables are marked in boldface; (22) is a simplex verb construction and (23), a CP.

(21) *Ali mard-raa zad*
 Ali man-OM hit.PST.3SG
 ‘Ali hit the man.’

(22) *Ali baa Baabak harf-zad*
 Ali with Baabak talk_N-hit.PST.3SG

‘Ali talked with Baabak.’

However, in addition to these lexical properties, CPs also show certain syntactic behaviors such as being inflected for the imperative mood, for negation, and for the progressive, which each time are prefixed to the LV, as with regular verbs. In the following examples, these inflections are shown in bold type:

- (23) *taklif-at-raa* *anjaam-be-de*
 assignment-GEN-OM performanc_N-IMP-do.PRS
 ‘Do your assignment.’

In this example, the imperative inflectional prefix *be-* is added to the LV and intervenes between the PV and LV.

- (24) *ou* *baa* *man* *davaa-na-kard*
 he with me fight_N-NEG-do.PST.3SG
 ‘He didn’t fight with me.’

Like imperative inflection, the negative inflectional prefix *na-* also intervenes between the PV and LV.

- (25) *taklif-am-raa* *anjaam-mi-daham*
 assignment-GEN-OM performanc_N-PROG-give.PRS.1SG
 ‘I am doing my assignment.’

In this example, as in (23) and (24), the inflection *mi-* is prefixed to the LV. According to Karimi-Doostan (1997), since LVs have lexical verb characteristics, they accept inflections such as negation, progressive, and imperative. LVs, similarly to lexical verbs, behave independently.

Another phrasal behavior of CPs is that modals can intervene between PV and LV. For example, the future marker *khaastan*, which literally means ‘want’ but functions as a futurity marker (much like ‘will’ in English), always precedes the LV. The verb *khaastan*, ‘want’, has only grammaticalized fairly recently. According to Khanlari (1973), this verb was not used as an auxiliary in Old, Middle, and early modern Persian, but as a main verb. However, in modern Persian, *khaastan*, ‘want’, may be used either as a main verb (26a) or as the auxiliary ‘will’ (26b). The auxiliary form mostly appears in formal and literary Persian and is seldom observable in colloquial Persian. Example (26) shows how this auxiliary can intervene between PV and LV.

- (26) a. *madaarek-raa* *mikhaaham*
 documents-OM want-PRS.1SG
 ‘I want the documents.’
- b. *madaarek-raa* *negaah-khaah-am-kard*
 documents-OM look_N-AUX-PRS.1SG-do.PST
 ‘I will take a look at the documents.’

Karimi-Doostan (1997) argues that the intervention of an auxiliary between PV and LV shows that LVs have syntactic behavior and thus that they are identical to main verbs concerning functional categories. Due to their verbness properties, LVs can accept auxiliaries, which, however, intervene between the PV and the LV.

As mentioned above, adverbs cannot intervene between PV and LV; however, in certain cases, PVs can be modified by adjectives that follow them. These PVs are normally process nouns or abstract nouns (Karimi-Doostan, 1997). As shown in the example (27a), the PV *zarbeh* ‘strike.N’, combines with the LV without a modifier, while in (27b), the modifier *shadid-I*, ‘hard-DES’ appears between the PV and LV.

(27) a. *be dar-e machin-e maa zarbeh-zad*
to door-EZ car-EZ us strike_N-hit.PST.3SG
‘He hit the door of our car.’

b. *be dar-e machin-e maa zarbeh shadid-I zad*
to door-EZ car-EZ us strike_N hard-DES hit.PST.3SG
‘He hit the door of our car hard.’

Compare example (27) with the example (28) in which the PV cannot be modified since it is not a process noun:

(28) a. *pedar tamaam-e shab be harf-haa-yam goush-daad*
father all-EZ night to word-PL-EZ ear_N-give.PST.3SG
‘Father listened to my words all night.’

b. **pedar tamam-e shab be harf-haa-yam goush-e khoub-i daad*
father all-EZ night to word-PL-EZ ear-EZ well-DES
give.PST.3SG
‘Father listened well to my words all night.’

Karimi-Doostan (1997) also says that in CPs the PV can be relativized as in the example (29):

(29) a. *marg-e ou rou-ye maa tasir-gozaasht*
death-EZ him on-EZ us impact_N-put.PST.3SG
‘His death had an impact on us.’

b. *tasir-i ke marg-e ou rou-ye ma gozasht*
impact-DES that death-EZ him on-EZ us put.PST.3SG

'The impact that his death had on us.'

The last characteristic of CPs that reflects their dual nature with respect to lexicon and syntax is that transitive CPs accept direct object clitics either between PV and LV (30a) or after the LV as a suffix (30b). In colloquial Persian, direct object clitics are personal pronouns that can be suffixed to the simplex verb and play the role of object.

(30) a. *ghourt-esh* *daad*
swallow_N-3SG (clitic) give.PST.3SG

'He swallowed that.'

b. *ghourt* *daad-esh*
swallow_N give.PST.3SG-3SG (clitic)

'He swallowed that.'

According to Goldberg (1996), pronominal elements cannot appear in the middle of syllables in multisyllabic words. The possibility of clitics intervening in a CP thus shows that the CP can be analyzed as two separate words. However, clitics can also be suffixed to the LV, as in example (31b), which characterizes them as whole units. Therefore, as Goldberg (1996) argues, as clitics can in certain cases occur in both positions, this is evidence that there exist two constructions. It should be mentioned that the separability of PV and LV only occurs through the intervention of closed-class elements such as the clitic. According to Goldberg (1996), PV and LV are a lexical unit and cannot be separated by adjuncts, adverbs, or full direct objects.

In summary, the dual behavior of CPs has led to some controversy among scholars. Certain scholars, among them Heny and Samiian (1992), Ghomeshi and Massan (1994), and Vahedi-Langrudi (1995), have considered CPs to be phrasal elements; others such as Goldberg (1996), Family (2014), and Shabani-Jadidi (2014) believe that

these constructions are lexical units. In this thesis, we will follow Goldberg's Construction Grammar approach and mainly focus on the CP's semantic characteristics and explain certain features of these constructions, including their aspect, transitivity, and productivity. In such approaches, there is no strict division between lexical items and phrasal constructions, only constructions.

2.2.1.2. Noun-Incorporation vs Compounding

Another topic of interest in Persian CPs' studies is the morphological/syntactic processes through which these combinations are formed. In fact, in these studies (Karimi, 1996; Dabir-Moghadam, 1997; Samvelian, 2001; Shabani-Jadidi, 2014; among others) CPs has been grouped into two different classes. The first process is called noun-incorporation in which a noun argument (usually the direct object) incorporates into the predicate and may lead to an intransitive CP (e.g., *cigar-keshidan*, lit. cigar_N-pull, 'smoke'). The second process is called combination (compounding), which according to these studies results in non-compositional CPs (e.g., *khar-zadan*, lit. donkey.N-hit, 'study hard').

In this thesis, we consider LVs as constructions, and we will not discuss different morphological/syntactic processes through which CPs are built. We will mostly focus on the CPs' semantics rather than such processes, which according to Vahedi-Langrudi (1996), need not be kept separate to investigate the meaning. Our use of the terms 'combine' or 'combination' serves to ignore the difference between compounding and incorporation. By 'combination' we basically refer to the co-occurrence of non-verbal elements and LVs to build CPs. In cases that the number of arguments of a LV decreases, we refer to that construction as valency-decreasing construction. According to Hilpert (2014), valency-decreasing occurs when the

number of arguments of a verb is reduced. We will discuss this issue in detail in section 2.2.2.

2.2.1.3. Productivity

Persian CPs are quite productive in that it offers the language users a means to create new predicates. Productivity is, in fact, one of the preliminary characteristics of any language, and based on this feature humans are able to create new words and expressions. In generative grammar, productivity occurs when speakers master rules of their language. Chomsky (1975) refers to this phenomenon as “linguistic creativity”. According to Chomsky (1975), as forms are built according to certain rules in language, patterns emerge. He adds that patterns can appear at different levels of language, namely, at sentence, phrase, or word level. With respect to productivity, Pinker (1998) argues that “specifying kinds of words rather than a string of actual words, the rules allow us to assemble new sentences on the fly and not regurgitate preassembled clichés and that allows us to convey unprecedented combinations of ideas” (Pinker, 1998: 6). For example, although we expect roses to be red, we are also able to build a combination like violets being red if we desire to do so. He concludes that humans are able to convey unheard ideas based on this rule.

Generalization at the level of multi-word expressions also occurs. According to the corpus study by Stevenson et al.’s (2004), in the formation of English LVCs specific types of V combine with a particular LV following the structure “LV a V”, where V is a nominal verb (nominal complements derived from verbs), (e.g., *take a walk, give a talk*). Their statistical analysis shows that V cannot randomly occur with LVs so that if it occurs with a LV, it has a high degree of attraction to that particular LV. All the nouns that tend to combine with a specific LV have certain common characteristics.

For example, the LVCs *give a speech*, *give a talk*, or *give a howl* refer to producing words or sounds; therefore, speakers can generalize about such construction “*give a [SOUND]*” and form new combinations.

Persian CPs seem to follow the same generalization. There is a systematicity in the formation of the combinations, and each LV accepts specific types of PVs semantically. We will discuss this systematicity in the analysis of our corpus data.

Dressler (2006) defines productivity as the subconscious creation of new forms in a language. He adds that compounding rules are some of the most productive rules, specifically when used in creating loan words. As mentioned above, CP formation is a productive process in Persian to the extent that CPs have largely replaced simplex verbs. Among Persian loan words, CPs are the most productive; this phenomenon is compatible with Dressler’s (2006) claim. The following examples use new words that have been introduced to the Persian language via CPs:

- | | | |
|------------------------------|----------------------------------|------------------|
| (31) <i>telephone-kardan</i> | lit. telephone _N -hit | ‘telephone’ |
| (32) <i>fax-kardan</i> | lit. fax _N -do | ‘fax’ |
| (33) <i>virus-gereftan</i> | lit. virus _N -get | ‘get a virus’ |
| (34) <i>masazh-daadan</i> | lit. massag _N -give | ‘give a massage’ |

Samvelian and Faghiri (2013b) argue that the productivity of CPs is not necessarily compositionality-based. In other words, non-compositional constructions can also be productive. Furthermore, they claim, “new combinations are created on the basis of the meaning assigned to the contribution as a whole and to its components” (Samvelian and Faghiri, 2013b: 222).

The majority of CPs initially seem idiosyncratic to Persian learners. However, we will show that even the most idiosyncratic constructions can be productive.

According to Goldberg (1995), non-compositionality is one of the characteristics of constructions. In the following section, first, we will present a brief history of compositionality in multi-word expressions; and then we will discuss the compositionality of Persian CPs.

2.2.1.4. Compositionality

Language is full of meaningful expressions that are also related to each other, but where do these meanings and relations come from? The importance and complexity of this issue have given rise to a number of controversial discussions. There is a traditional view toward the meaning of complex expressions or structures, in which it is believed that the meaning of each expression is the result of the combined meanings of its constituents. Based on this view, the meaning of each constituent is determined, and then the meaning of the expression is the sum of these separated meanings, and there is no freedom with respect to the meaning of the whole. Frege (1951) is one of the pioneers of compositionality, and in his definition, the meaning of a complex expression is the semantical interpretation of its parts. In his view, an expression is compositional if the meaning of the whole is identical to its parts.

However, this view has been criticized on the grounds that certain words and expressions are not deconstructable. Considering only a compositional system for the meaning of multi-word combinations seems inadequate and has given rise to other complementary discussions about this issue. One of the alternative views developed by scholars is gestalt compositionality. This view was first developed by Fuchs and Victorri (1996). Gestalt compositionality is inspired by psychological and visual studies where language and other cognitive domains share certain mechanisms. In contrast to traditional compositionality, in which the meaning of an expression

results from the meaning of each constituent, in Gestalt theory, human knowledge and experience are involved. In other words, traditional compositionality can only be employed in deconstructable expressions, while Gestalt can be employed in all types of expressions. The recent framework of construction grammar is also in line with the Gestalt view in certain aspects. With respect to compositionality, Construction Grammar has ideas that are similar to those of gestalt compositionality as follows:

By recognizing the existence of contentful constructions, we can save compositionality in a weakened form: the meaning of an expression is the result of integrating the meanings of the lexical items into the meanings of constructions. In this way, we do not need to claim that the syntax and semantics of the clause is projected exclusively from the specifications of the main verb" (Goldberg, 1995: 16).

The inadequacy of traditional compositionality is also observable in the analysis of Persian CPs since the meanings of CPs in the majority of cases are not identical to the meanings of their parts. Several scholars such as Karimi (1997); and Shabani-Jadidi (2014) among others argue that the semantics of Persian CPs can range from opaque to transparent. Based on their definition, CPs that are compositional and whose meaning is predictable are considered transparent (e.g., *fekr-kardan*, lit. think_N-do, 'think'), while CPs whose meanings are non-compositional or are not predictable are considered opaque. Karimi (1997), even calls non-compositional combinations pure idioms (*jaa-khordan*, lit. plac_N-eat, 'be shocked'). In her 1997 study, Karimi claims that the majority of CPs are located in the middle of this continuum as "idiomatic combining expressions" (Karimi, 1997: 23). Once these expressions are learned the semantic relationship between their parts becomes vivid. Thus, the meaning of the

majority of expressions and CPs does not consist of the sum of the meaning of each part in Persian. As is shown in the following examples the meanings of Persian CPs are not predictable from its components in the majority of cases.

- | | | |
|---------------------------|---------------------------------|--------------|
| (35) <i>rokh-daadan</i> | lit. fac _N -give | ‘happen’ |
| (36) <i>shekam-daadan</i> | lit. stomach _N -give | ‘swell’ |
| (37) <i>dast-bordan</i> | lit. hand _N -take | ‘manipulate’ |

In these examples, the meaning of the whole construction is not identical to the meaning of its constituents.

It seems that the framework of Construction Grammar that underlies our study is compatible with non-compositional CPs. We consider Persian CPs as constructions with an internal built-up which makes them similar to deconstructable combinations. As discussed in section 2.2.1.1, CPs behave like constructions that occur within a lexical unit and mostly are not separable. In section 2.2.2 we will explain in detail the compatibility of Persian CPs with constructions.

To the best of our knowledge, the only scholars who discuss the compositionality of Persian CPs in detail within a constructional account are Samvelian (2014), and Samvelian and Faghiri (2013a, 2013b). They argue against radical compositional approaches for Persian CPs and claim that compositionality in Persian is a posteriori, in the sense of Nunberg et al. (1994). They compare Persian CPs with Idiomatically Combining Expressions in Nunberg et al. (1994). These types of expressions are “Idioms whose parts carry identifiable parts of their idiomatic meanings” (Nunberg et al., 1994: 496). According to Samvelian (2010; 2012), and Samvelian and Faghiri (2013a), the majority of CPs are opaque, and their lexical meaning is not fully predictable from their parts. However, within a constructional approach, these

combinations can nevertheless be grouped upon syntactic and semantic similarities. We will refer to their classification in section 2.2.2. Their argument is in line with Goldberg's (1996) and Family's (2006, 2014), for considering CPs as constructions.

2.2.1.5. Semantic and syntactic Contribution of PV and LV in CP

The semantic and syntactic contribution of the elements of CPs has continuously been the center of attention in Persian literature, which has given rise to some controversy. With respect to the semantic contribution of the components of the CP, Mohammad and Karimi (1992) suggest that in CPs, only PVs bear the semantics of the combination, and the LV is empty semantically, and only appears as a grammatical marker. To prove this claim, they consider CPs with identical PVs and different LVs; they argue that the alternation of LVs does not affect the meaning of the combination. However, there exist plenty of counter-examples where an identical PV and different LVs lead to different meanings. Karimi (1997) even claims that the meanings of the majority of Persian CPs are assigned to the combination. Once the expressions are learned, we can find the relation between their parts; she calls these types of expressions "idiomatic combining expressions" (1997: 295). Among other scholars who have refuted the semantic role of Persian LVs are Karimi-Doostan (1997) and Vahedi-Langrudi (1996). They claim that the PVs are the elements responsible for the semantics of combination.

Following their claim with respect to the PV's role in the semantics of CPs, Karimi-Doostan (1997; 2005) and Vahedi-Langrudi (1996) believe that causativity and transitivity of CPs are determined by PVs. "The verbal members of LVCs, light verbs (LVs), appear to be like auxiliaries in that they cannot independently predicate arguments as if they lack semantic force and argument structure of their own"

(Karimi-doostan, 1997: 11). To prove their claim, they retain the same LV in several CPs and change the PV, and show that not only the number of arguments but also the type of arguments are determined by the PV. Consider the following examples taken from Karimi-Doostan (2005: 2, 3):

(38) *John arousak-raa be Mary ehdaa-kard*
John doll-OM to Mary dedication_N-do.PST.3SG
'John dedicated the doll to Mary.'

(39) *Columbus Amrica-raa kashf-kard*
Columbus America-OM discovery_N-do.PST.3SG
'Columbus discovered America.'

(40) *John narmesh-kard*
John exercisen_N-do.PST.3SG
'John exercised.'

(41) *John fot- kard*
John death_N-do.PST.3SG
'John died.'

These examples show that by changing the PV, the number of arguments changes; (38) contains three arguments and (39) contains two arguments. In examples (40) and (41), by changing the PV the type of argument changes as well. The subject in (40) is agent and the subject in (41) is theme. However, this claim is not sufficient since there are plenty of counter-examples in Persian like (42) and (43), where by changing the LV also the number of arguments changes. For examples, the CP *shekast daadan* in (47) is causative and transitive while the CP *shekast khordan* in (43) is intransitive.

(42) *ou man-raa shekast-daad*
 he me-OM deception_N-give.PST.3SG
 'He deceived me.'

(43) *man shekast-khordam*
 I deception_N-eat.PST.1SG
 'I was deceived.'

In addition to the discussions above, certain scholars argue for the role of LVs in determining causativity and agentivity. Folli et al. (2005) and Megerdooian (2002), among others, believe that only the choice of LV determines agentivity and causativity. To prove their claim, they compare certain combinations that have the same PV and different LVs.

(44) *Minu bacheh-raa kotak-zad*
 Minu child-OM beat_N-hit.PST.3SG
 'Minu hit the child.'

(45) *bacheh kotak-khord*
 child beat_N-collide.PST.3SG
 'The child got hit.' (Folli et al., 2005: 9)

In examples such as (44), which are built with the LV 'hit', Folli et al (2005) claim that the presence of the LV *zadan* 'hit' leads to a transitive and causative combination, while in (45) by changing the LV to *khordan* 'collide', an intransitive and inchoative CP appears. However, not all the combinations of the verb *zadan*, 'hit', are transitive. Although the lexical verb *zadan* 'hit', is transitive, it can build intransitive

constructions when it functions as a LV in combination with PVs, as shown by our corpus data. The following example is from our corpus:

- (46) *ou rou-ye zamin ghalt-mi-zanad*
 he on-EZ ground rolling_N-HAB-hit.PRS.3SG
 ‘He is somersaulting on the ground.’

In addition to examples such as (46), there are certain situations where changing the PV leads to changes in causativity and/or agentivity. In such situations, it is the PV that seems to determine causativity and transitivity, not the LV.

- (47) a. *ou maa-raa az elm-ash mostafiz-kard*
 he us-OM from knowledge-GEN benefited_{ADJ}-do.PST.3SG
 ‘He gave us some benefits by transferring his knowledge.’

- b. *maa az elm-ash estefaadeh-kardim*
 we from knowledge-GEN use_N-do.PST.1PL
 ‘We benefited from his knowledge.’

- (48) a. *ou-raa saaket-kardam*
 him-OM silent_{ADJ}-do.PST.3SG
 ‘I quietened him.’

- b. *ou sokout-kard*
 he silence_N-do.PST.3SG
 ‘He became quiet.’

In example (47), the change of PV from adjective to noun leads to the change of the number of arguments; therefore, sentence (a) is causative while sentence (b) is

inchoative. Similarly, in example (48), by changing the syntactic category of the PV, from adjective to noun, the number of arguments changes. In (a), which is transitive, the adjective ‘silent’ is used as the PV and in (b), which is intransitive, the noun ‘silence’ is used. Using an adjective as the PV leads to a causative construction in such cases. These adjectives refer to a result or a change of state.

Folli et al. (2005), unlike in their discussion with respect to argument structure and transitivity, hold that telicity is assigned by the PV. They claim that the same LV may appear in different types of events depending on the type of PV with which it combines. As an example, the verb *gereftan*, ‘catch’, may occur in both accomplishment and achievement events. If the PV occurs as a noun, the whole construction is atelic like *dast-gereftan* lit. hand_N-catch ‘mock somebody’, while in case of prepositional PV, the CP is telic like *kenaar-gereftan* lit. beside_{PP}-catch ‘withdraw, resign’. In such cases, the category of PV determines the telicity of the whole CP. However, a noun PV can lead to a telic construction which shows that this claim is not entirely correct. As shown in the example (54), the LV *gereftan*, ‘catch’, can combine with the noun *barq*, ‘electricity’, to form a telic construction:

- (49) *kaargar-raa barq-gereft*
 worker-OM electricity_N-catch.PST.3SG
 ‘He got a shock by the electricity.’ [Lit. The electricity caught the worker.]

In contrast with Folli et al.’s (2005) study, Bashiri (1981) and Karimi-Doostan (1997) argue that the aspectual properties vary because of the LV. For example, Bashiri claims that with the PV *sar*, ‘head’, depending on the LV with which it combines, the duration of the CP varies.

- (50) a. *sar-keshidan*
head_N-pull
'pay a long visit'
- b. *sar-zadan*
head_N-hit
'pay a short visit'

In example (50a), the CP refers to a long visit, while in (50b) the CP expresses a visit in a short duration. Therefore, by substituting the LV, the duration of the activity varies from a longer to a shorter.

Shabani-Jadidi (2014) adopts a lexicalist approach to deal with the semantic features of CPs such as their agentivity and telicity. She argues that these specifications are determined by the combination of the CP's parts as a single unit. Megerdooian (2008) also argues that aspectual features are determined by both parts of the CPs. Her claim is supported by several examples where she keeps the LV constant and varies the PV and vice versa.

Goldberg (1996) argues against having a strict division between PVs and LVs. She believes that CPs should be considered single lexical units whose meaning and semantic features are derived from both PV and LV. She suggests using a Construction Grammar approach to account for Persian CPs. In this approach, neither the PV nor the LV is held responsible for the semantic features of the CP in isolation. In addition, she argues that PVs are semantically particular with respect to the type of LVs with which they combine.

Samvelian and Faghiri (2013a, 2013b) argue that taking a "radical" compositional perspective prevents us from considering the same LV or PV in different types of CPs

with respect to their agentivity and event properties. To prove their claim, they compare varieties of CPs built with the LV *zadan* 'hit' which in general is considered agentive. For example, this LV can co-occur with nominal elements to form "unaccusative"⁴ such as *zang-zadan*, lit. rust_N -hit, 'go rusty' (Samvelian and Faghiri, 2013: 214). They believe that Persian CPs are constructions whose meaning, agentivity, and event properties are assigned to the construction as a whole.

One of the goals of this thesis is precisely to identify the semantic systematicity in combinations of PVs and LVs and explain the causativity, transitivity, and duration of CPs within the framework of Construction Grammar. In the following section, we will clarify how Construction Grammar can be applied to Persian CPs.

2.2.2. *Constructional Account of Persian CPs*

The term "construction" as used in Construction Grammar has broader coverage than is traditionally understood by that term. It is defined as a form-meaning pairing which may include syntactic patterns (e.g., the ditransitive construction), semi-open expressions (e.g., the WAY construction), idioms, and even words. As Hilpert (2014: 23) puts it: "[a] construction is a generalization that speakers make across a number of encounters with linguistic forms." Hilpert (2014: 23, 57, 65) lists the following examples of constructions:

The comparative correlative construction:

the younger, the messier

⁴ Here unaccusative means intransitive verb whose subject is semantically similar to the direct object of a transitive verb.

the bigger, the better

The resultative construction:

John sneezed the napkin off the table

Mary hammered the metal flat

The way construction:

Frank cheated his way into Harvard

Frank dug his way out of prison

According to Goldberg (1995), any unit in language is considered a construction if its meaning or form is not strictly predictable from the properties of its parts. As she puts it: “a construction is posited in the grammar if it can be shown that its meaning and/or its form is not compositionally derived from other constructions existing in the language” (1995: 4).

One of the aspirations of Construction Grammar is to describe what speakers know when they know a language and thereby account for the cognitive processes that are involved in language understanding and processing.

In this thesis, we will adopt such a constructional approach to Persian CPs in which the strict division between lexicon and syntax is blurred and where one adopts a more encyclopedic view on meaning (real-world knowledge, cf. Langacker 1987; Lemmens 2015). In what follows, we will show how a constructional framework appears to be the most adequate approach for analysing Persian CPs.

Construction Grammar considers language as a body of form-meaning pairings (constructions) which are often non-compositional. Some constructions are easier to

identify because of their odd structure or non-predictable meaning like the *let alone* construction, while some others are more difficult to recognise as such, like resultative constructions. At first sight, resultative constructions, such as *He hammered the metal flat* or *John threw the ball over the fence*, give the first impression of being a regular and syntactic (i.e., compositional) combination; however, they are considered **argument structure constructions** by scholars such as Goldberg (1995). She points out that argument structure constructions (such as the resultative constructions) can lead to the addition or disappearance of the elements that are not or are present in the conventional argument structure of the verbs in question. For example, in the first sentence above the adjective *flat* and in the second sentence the phrase *over the fence* are added as arguments to the conventional argument structure of the verbs *hammer* and *throw*.

According to Goldberg (1995), constructions may vary from transparent to idiosyncratic, so that in certain cases, constructions have non-predictable meanings. In such cases, the meaning of the construction is more than the sum of its parts. As Goldberg (1995: 4) puts it, in Construction Grammar “C is a CONSTRUCTION iff_{def} C is a form-meaning pair <Fi, Si> such that some aspect of Fi or some aspect of Si is not strictly predictable from C’s component parts or from other previously established constructions.”

Another characteristic of constructions as posited by Construction Grammar is their productivity. Even idiomatic expressions, defined as constructions whose form and/or meaning deviate from regular grammatical patterns (as captured by phrase structure rules) are considered productive in the majority of cases. Expressions and constructions are not like fixed strings, which are supposed to be memorized or saved in speakers’ minds. Rather, speakers make generalization about constructions;

therefore, they can detect what can be used and what cannot. According to Hilpert (2014), speakers most likely do not memorize specific combinations such as *too big a shock* (which is considered idiomatic since it deviates from regular noun phrase structure rules stipulating a DET ADJ N structure); instead, they have constructions as abstract patterns in their minds, which allows them to understand or create other constructions like *quite useful a lesson*. Both are then considered instantiations of this abstract pattern which, Hilpert says, “you can think of [...] as a cognitive schema, that is, a mental representation that captures the construction’s general traits” (Hilpert: 17). As mentioned above, these schemata have open slots, which are filled with certain elements but cannot be filled with others. For example, in Persian CPs, each LV can only combine semantically with specific types of PVs. Hilpert (2014) also adds that assuming that speakers use idiomatic expressions in a productive way does away with the strict division between lexical and grammatical knowledge.

As discussed in the previous section, Persian CPs show a dual behavior and are non-predictable in both form and meaning. With regard to their non-predictable form, Persian CPs can behave either as a lexical unit or as a phrase. They are also non-predictable in meaning since their meaning of the whole is often not predictable from the meaning of the parts. In addition, their meaning ranges from transparent to opaque. The meaning of CPs is non-compositional in the majority of cases and is based on the whole construction. As Hilpert (2014: 28) puts it: “if the meaning of an expression cannot be inferred from the meanings of its parts, then there is simply no alternative to the conclusion that speakers must have learned this expression as a form-meaning pair in its own right, that is, as a construction.” Examples of transparent Persian CPs are the following:

- (51) *baalaa-bordan* lit. up_{ADV}-take ‘raise’

- (52) *paayin-andaakhtan* lit. down_{ADV}-drop 'drop'
 (53) *qaab-kardan* lit. frame_N-do 'frame'

Examples of opaque Persian CPs are the following:

- (54) *moj-zadan* lit. wave_N-hit 'overfilled'
 (55) *khar-zadan* lit. donkey_N-hit 'study hard'
 (56) *dam-zadan* lit. breath_N-hit 'say a word'

Persian idiom-like examples:

- (57) *sar-be-biaabaan-zadan* lit. head_N-to_{Prep}-desert_N-hit 'get upset and then escape to become tranquil'
 (58) *sar-be-falak-zadan* lit. head_N-to_{Prep}-sky_N-hit 'be too high, rise in something'

We will show that even non-compositional combinations follow certain rules and profit from a certain degree of productivity and generalization. This result is in line with Samvelian's and Faghiri's (2013b) findings which "defend the idea that productivity is not always compositionality-based and that non-compositional constructions can also be productive" (Samvelian & Faghiri, 2013b: 222).

Persian speakers can make generalizations about the CPs' (constructions) formation like making generalization about constructions in other languages. They know that each LV can only combine with specific types of PVs. See the following examples:

- (59) *dast-kardan* lit. hand_N-do 'put on a glove, bracelet, ring,...'
 (60) *sar-kardan* lit. head_N-do 'put on a hat, scarf,...'

(61) *paa-kardan* lit. foot_N -do ‘put on a shoe, sock,...’

As shown in these examples, the LV *kardan*, ‘do’, can combine with body parts and in all cases, the meaning of the combination is putting on body wear that relates to that part of the body. It is therefore quite likely that speakers have a generalization in their minds that generalize over these different types of combinations. This degree of productivity can also be extended to new concepts that are imported in Persian. For example, it is clear that when words (concepts) such as *email*, *fax*, and *telephone* (communication means) entered the language, they were combined with a limited numbers of verbs, namely, *zadan*, ‘hit’, *kardan*, ‘do’, *ferestaadan*, ‘send’ and *gereftan*, ‘receive’, but could not, and still cannot, combine with the other LVs for semantic constraints. Therefore, whenever a new concept related to communication means is imported into Persian, the new CP contains one of these LVs due to the generalizations that speakers have already made (based on previous CPs related to communication). They do not randomly combine with any LV. Speakers can generalize about these concepts as follows to make new forms:

(62) *email-zadan* lit. email_N-hit ‘email’

(63) *fax-zadan* lit. fax_N-hit ‘fax’

(64) *telephone-zadan* lit. telephone_N-hit ‘telephone’

The existing semantic constraint is vivid in the above examples. Since they are expressing a way of communication, the PV only co-occurs with LVs that can encode transferring, sending, receiving, or transmitting data. With respect to ‘hit’, in most ways of communication, normally at least a button should be hit to communicate. Therefore, this meaning of ‘hit’ contributes to the meaning of the whole combination.

In Construction Grammar, when a construction augments the argument structure of the lexical verb, it is called a valency-increasing construction. On the other hand, in valency-decreasing construction, the number of arguments can be reduced (e.g., resultative or imperative constructions). For example, according to Hilpert (2014), in imperative constructions like *call me* the agent is not explicit based on the lexical meanings of the words alone.

In this thesis, we treat certain Persian CPs as valency-decreasing constructions. For example, although the full counterpart of the LV *zadan* 'hit' is transitive, when it combines with a non-verbal element to form a CP, the resulting combination can be an intransitive construction. This type of CP can be considered a valency-decreasing construction. In fact, in certain cases, the LV loses one of the arguments; we will discuss certain reasons for this valency-decreasing in the analysis part of this thesis. As discussed before, Persian CPs can be considered constructions and lexical units. As Goldberg (1996:13) puts it:

The Persian complex predicate is represented in the lexicon as a unit, despite the fact that it does not necessarily appear as a syntactically atomic lexical item. This possibility is natural in theories like Construction Grammar and Cognitive Grammar, in which no strict division is drawn between lexical items and phrasal constructions.

Previous studies with lexical and morphological approaches rely on noun-incorporation and compounding to explain one of the reasons for CPs valency-decreasing feature. In certain studies, such as Shabani-Jadid (2014), among others, CPs are divided into two classes. One class of CPs consists of those where via noun-incorporation the direct object of the sentence is merged into the predicate to form an

intransitive verbal complex, such as illustrated in *ghazaa-khordan*, lit. food_N-eat, 'eat'. The other class of CPs are the result of compounding without noun-incorporation, as in *bahaa-daadan*, lit. price_N-give, 'care about something'. In a constructional approach, CP constructions are considered a deconstructable unit where it is not possible to divide them to two groups. Our focus in this study is on the fact that certain CPs are valency-decreasing constructions in that the combination of PV with a LV reduces the number of arguments of the LV in a given sentence. For example, certain LVs that are originally transitive when form intransitive constructions (CPs) are considered valency-decreasing constructions in our analysis. In certain cases where the CP expresses a spatial event, the location, which is a main argument in these events, may merge with the LV to build a CP and the overall result is a reduced valency. For example, in the CP *dast-kardan* lit. hand_N-do 'wear on hand', the location (Ground) of the event occurs in the predicate.

In Construction Grammar, constructions often occur in families, which may be productive semantically, pragmatically, or syntactically. Goldberg and Jackendoff (2004) discuss one of the most controversial families of constructions, the English resultatives. A family of constructions can share important properties but differ in certain aspects. Members (constructions) of this family are united by "related but not identical syntax and by related but not identical semantics" (Goldberg & Jackendoff, 2004: 563). In our analysis, we follow their approach in identifying Persian resultative constructions such as *aab-raa rou-ye zamin pakhsh-kard*, lit. water-OM on-EZ ground spread_{ADJ}-do.PST.3SG, 'he spread the water on the ground', in this example, the result is the existence of the water on the ground by spreading it. Our corpus data reveals how each LV belongs to the family of resultative constructions in spatial events.

Goldberg and Jackendoff, in contrast to other scholars, have considered resultatives a family of constructions in which the family members share important properties but still vary with respect to their syntactic and semantic characteristics (Goldberg 1995, Goldberg and Jackendoff, 2004). They believe that seeing resultatives as a family of constructions is cognitively more plausible: “We do not see it as a drawback that our analysis requires several different but related types of resultatives, but rather as an indication of a parallel with general cognition” (Goldberg and Jackendoff 2004: 542). They claim that other scholars consider resultatives as a unified phenomenon ‘THE resultative’.

In their study, Goldberg and Jackendoff classify resultatives in four main categories (examples are taken from Goldberg and Jackendoff 2004: 563):

a. Causative property resultative (transitive resultative)

Syntax: NP1 V NP2 AP/PP3

Semantics : X1 CAUSE [Y2 BECOME Z3]

‘The weights stretched the rope over the pulley.’

b. Noncausative property resultative (intransitive resultative)

Syntax: NP1 V AP/PP2

Semantics: X1 BECOME Y2

‘The rope stretched over the pulley.’

c. Noncausative path resultative (intransitive motion)

Syntax: NP1 V PP2

Semantics: X1 GO Path2

'She ran down the stairs.'

d. Causative path resultative (caused-motion)

Syntax: NP1 V NP2 PP3

Semantics: X1 CAUSE [Y2 GO Path3]

'Bill rolled the ball down the hill.'

As shown in these examples, the whole construction refers either to a change of state or to a change of place. Goldberg and Jackendoff argue that the meaning and notion of the actions is derived from the whole construction and not just the verb. They also argue that certain characteristics of these constructions, such as their argumental and aspectual properties, can be explained based on their meanings. With respect to aspectual features, they believe that the widespread view that all resultatives are telic is false and point out that telicity may vary based on certain factors. For example, they show that resultative *ADJ-er and ADJ-er* constructions can appear as atelic if they express a "non-bounded" change of state, as in "for hours, the mixture got hotter and hotter" (2004: 542). Another example showing that resultatives can be atelic is "non-end-bounded" spatial PPs, as in "Bill floated down the river (for hours)" (2004: 543). These types of examples express a path and manner of motion while the end is not specific.

On the contrary, the "end-bounded" PPs always appear as telic resultatives, as in "Bill floated into the cave (*for hours)" (2004: 543). Taking up an earlier claim made

in Jackendoff (1996), they say that “In English any spatial PP that can be construed as a path can be used as [Resultative Phrase], whether it be telic or atelic (65a,b) complex or simple (66a,b), goal-directed or source directed (67a,b)” (2004: 558). They illustrate this with the following examples (Goldberg and Jackendoff, 2004: 558):

- (65) a. Path ran into the room.
b. Path ran towards the room.
- (66) a. Path ran down the hall out the door into the alley.
b. Path ran outside.
- (67) a. Path ran to the river.
b. Path ran from the river.

In this study, we will use their constructional schemas to categorize our CPs semantically in spatial events systematically, and also to identify properties of each LV and to determine if each LV reflects a unique behavior in the formation of CPs. For example, we will analyse all the CPs built with the LV *kardan*, ‘do’ in our corpus, and will show that each Persian LV in spatial events has its specific semantic categories, that it accepts specific types of PVs and cannot combine with other PVs. Although not all the members of this family are identical, they share common semantic behaviors.

Another inspiring study for the analysis of Persian CPs was *have a V* construction in English. Wierzbicka (1982) considers all the constructions built with the above formula as a family. She examines why in these constructions with the light verb *have*, certain deverbals nouns such as *drink* (*have a drink*) or *try* (*have a try*) can occur but others cannot (**have an eat*). According to Wierzbicka, constructions built based on

this structure are not “a jungle of idiosyncrasies”, but show strict systematicity instead in their formation. As she puts it (1982: 754), “the structural description of syntactic constructions must include detailed semantic specifications, taking into account subtle aspects of conceptualization”. She classifies constructions semantically, identifying ten of these. These constructions share certain features, but each has one or more specific properties. She also claims that the meaning of the *have a V* construction depends on the whole construction. This construction allows for productivity since speakers can build new forms by retaining the overall structure and using similar complements. “AIMLESS OBJECTLESS INDIVIDUAL ACTIVITY WHICH COULD CAUSE ONE TO FEEL GOOD” is one of the ten sub-constructions that Wierzbicka (1982: 762) discusses. She postulates the following semantic formula for constructions such as *have a walk*, *have a swim*, *have a run*, *have a jog*, and *have a lie-down*:

X had a walk. =>

For some time, not a long time

X was doing something, which could cause him to feel good

He was doing it not because he wanted anything to happen to anything other than himself

It was something that he could do for as long as he wanted

He could do it again (Weirzbicka, 1982: 762)

This semantic formula reveals that constructions in this category are intransitive, atelic, repetitive activities which occur aimlessly to cause and create a good feeling in the agent.

In our study, we will also explore the semantic systematicity in the formation of Persian CPs. We will show that like the *have a V* construction in English, the Persian

CPs of each semantic category retain the overall structure. For example, if we consider the *configuration* category of the LV *kardan* 'do', all the CPs built in this category retain the schematic structure (sense) X CAUSE Y BE Z SHAPE LOC, and allow for fine-grained prediction of the meaning of all the CPs in this group (*louleh-kardan*, lit. pipe_N-do, 'roll'; *damarou-kardan*, lit. prone_{ADJ}-do, 'reverse'). In other words, all the speakers and learners know that CPs that express *configuration* of an entity can be built with this LV based on a schematic structure. Therefore, the LV combines with several non-verbal elements that share many of the same properties while having certain differences. Using constructional schemas allows us by considering the whole combination as a construction in its own right to discuss their particular behaviors, including their causativity, their duration, and their syntactic features. Core structures (senses) of these constructions play a pivotal role to explain their behaviors.

So far, only a few studies on Persian present a constructional analysis of CPs; Goldberg (1996), among others, has discussed Persian CPs based on Construction Grammar. She argues that since Persian CPs behave in certain cases as a single word and in some others as a multi-word expression, we should consider them constructions, for which the strict division between syntax and semantics no longer applies. Dealing with these combinations from a constructional viewpoint allows a degree of flexibility in the syntactic and semantic constraints that they undergo. She considers Persian CPs as a unit that has both lexical and phrasal properties depending on the type of construction with which it interacts. As she puts it: "one implication of this proposal is that words and phrasal constructions are treated as the same basic type of entity in that one and the same stored item can appear either as a lexical item or as a phrasal entity depending on what other constructions it interacts with" (Goldberg 1996:132). However, she also claims that although we consider CPs single

units in the lexicon, the components of CPs can be separated by certain elements. As she explains: “elements can only intervene if there is an independently motivated higher ranked constraint that conflicts with the preference for treating the PV and LV as a single simple word” (Goldberg, 1996: 140). In Goldberg’s words, elements such as future auxiliary marker and direct object clitic can outrank CPs structure and be located between PV and LV.

Goldberg’s focus is mostly on the word or phrasal status of the CPs; however, we will discuss some of their properties, namely their semantic systematicity, their aspect, and their causativity. We will show that they act not only like constructions, but also can form a family of constructions.

Family (2006, 2014) considers Persian CPs as constructions to classify them semantically in general. She argues that it is unlikely that Persian speakers store each CP as an entity in the lexicon. By classifying CPs semantically, she describes the mechanism that prevents redundant entries in the lexicon. She emphasizes the generalizations that speakers make based on their previous knowledge. When speakers learn a specific CP, they can produce more CPs based on the core structure and meaning of the first one. Although her analysis is inspiring and illuminates the area of semantic investigation of Persian CPs, she only considers CPs in general.

On the other hand, we consider CPs in a specific semantic domain, namely, spatial events which results in a more fine-grained analysis. We identify CPs semantic categories through a core structure for each category (e.g., X CAUSE Y BE Z SHAPE LOC). Our classifications are more specific and include more detail. Besides the specific domain, our corpus-based analysis helps us to find all-embracing properties for the combinations of each LV to a certain degree. Since each LV can have a variety of meanings, we will show that CPs of each semantic category can reflect one of these

specific meanings. Family's focus is mostly on the semantic classifications of CPs while as a complementary study our goal is also to explain their other properties, namely, their causativity, their aspectual properties, and their syntactic features via naturally occurring and corpus-based data, which leads to a more systematic analysis.

Samvelian (2012), and Samvelian & Faghiri (2013a, 2013b) also employ a constructional account to deal with the compositionality of Persian CPs. They have started a project called PersPred in which CPs are being annotated syntactically and semantically. For each CP they have defined a specific semantic superclass such as *locatum*, *locative*, etc., which is inspiring for our study to consider CPs in a specific domain (*locative* and *motion*) and explore their specifications. According to Samvelian & Faghiri (2013), two LVs in a common semantic super-class can have a common semantic class, and they have mentioned valency variation as one of the reasons. For example, both LVs *zadan* 'hit' and *khordan* 'eat' co-occur with the PV *rang* 'color'. They consider both combinations in superclass of *locatum*. One of the subtypes of *locatum* is *spreading* where *rang-zadan* 'to paint' and *rang-khordan* 'to be painted' belong to. According to their classification, the difference between these two CPs is their valency. The CP *rang-zadan* is active while *rang-khordan* is passive. We will do a complementary analysis to explore the reasons for which we can have common semantic categories between two LVs in spatial events.

Samvelian (2012), and Samvelian & Faghiri (2013a, 2013b) agree with Goldberg (1996) and Family (2006, 2014) to consider CPs as constructions and the fact that the meaning of the CP falls on the whole construction. However, they believe that CPs are multiword expressions, which have conventional meanings, and their conventional meanings need to be stored. They argue that the majority of CPs are

opaque and even in cases that they are transparent the meaning of CPs are not fully predictable from the meaning of their parts: “The meaning of Persian CPs, even the transparent ones, is conventional in many cases and consequently has to be learned, in the same way that one has to learn the meaning of the simplex verbs in English, for instance” (Samvelian and Faghiri, 2013b: 218). In their analysis of Persian CPs compositionality, they argue against “radical” compositional approaches. They believe these approaches are “built on the wrong assumption that the contribution of the CP components can be defined a *priori* and is consistent through all their combinations to form CPs” (Samvelian and Faghiri, 2013b: 225). They claim that even the argument and event structure of CPs cannot be determined only based on one component of the CP but should be determined based on the combination as a whole. With respect to productivity, they consider it either compositionality-based or not. “Productivity results in this account from the possibility to analogically extend the existing classes and can be compositionality-based or not” (Samvelian & Faghiri, 2013b: 225). New combinations are built based on the meaning assigned to the whole construction. Provided that the number of nouns that can fit in the construction is limited, that construction is considered less productive. In our corpus-based study, we will verify the degree of productivity of each LV (*kardan*, *zadan*, *daadan*, *bordan*).

To show the productivity of CPs, Samvelian and Faghiri (2013) classify the CPs formed with N+*zadan*. Examples of their classification are as follows: spreading-*zadan* (e.g., *kare-zadan*, butter-hit, ‘butter’), instrument-*zadan* (e.g., *jaarou-zadan*, broom-hit, ‘broom’), forming-*zadan* (e.g., *javaaneh-zadan*, blossom-hit, ‘blossom’), slandering-*zadan* (e.g., *tohmat-zadan*, slander-hit, ‘slander’) (Samvelian and Faghiri, 2013b: 220). Certain categories of *zadan* ‘hit’ can be associated with a more general category and shape its subtypes. Samvelian and Faghiri discuss the *locatum* construction, which

includes *locatum* verbs mentioned in Clark and Clark (1979). “Locatum verbs incorporate a Figure (i.e., the noun to which the verb is morphologically related) and have a Ground argument realized as an NP or a PP: ‘to paint sth = ‘to put paint (Figure) on sth (Ground)’” (Samvelian and Faghiri, 2013b: 221). The locatum construction has three specific subtypes: spreading-*zadan* (e.g., *rang-zadan*, ‘paint’), incorporation-*zadan* (e.g., *namak-zadan*, ‘salt’), putting-*zadan* (e.g., *dastband-zadan*, ‘handcuff’).

In their constructional analysis of Persian CPs, Samvelian and Faghiri consider CPs that are built with nouns and they focus on compositionality of CPs. In our analysis, we consider CPs built with all kinds of PVs: nominal, adjectival, prepositional, and adverbial. Our analysis includes a complementary semantic classification.

2.3. Summary

In this chapter, we presented some of the main characteristics of CPs, namely, their dual behavior, the degree of their productivity, their compositionality, and their constructional properties. As discussed in the literature, Persian CPs have both lexical and phrasal properties. As lexical properties, they can undergo derivational processes like nominalization, adjective (past participle) formation, adverb formation. In addition, they tend to resist separation by another morphological element. Finally, they also take single main stress on the PV, which makes them like single units in the lexicon.

On the other hand, as their phrasal behaviors, CPs accept imperative, negation, and progressive inflections that are prefixed to the LV. Modals can also intervene between PV and LV which is the characteristic of phrases. Finally, the direct object clitics can occur either between PV and LV or after the LV as a suffix. According to

Goldberg (1996), Persian CPs are represented in the lexicon as a unit, despite the fact that they do not necessarily appear as a syntactically atomic lexical item. This possibility is unproblematic in Construction Grammar, which does not adhere to a strict division drawn between lexical items and phrasal constructions. Therefore, Construction Grammar allows for a coherent account as it characterizes these complex patterns called “constructions”.

CPs, as discussed in the literature, are considered productive. However, the degree of their productivity may vary among LVs and even among semantic categories of each LV. Their productivity also finds a logical explanation in a constructional account, which sees these CPs as low-level schematisations, built on analogy.

Moreover, Persian CPs are valency-decreasing in certain cases. This characteristic of CPs has been discussed as noun-incorporation in the literature. In this study, we consider them as valency-decreasing constructions.

Finally, constructions in Construction Grammar are often non-compositional and non-predictable form-meaning pairings, which is the case for many of the Persian CPs.

3. AN OVERVIEW OF SPATIAL EVENTS

3.1. Language and Everyday Experiences

In recent decades, the relationship between language, thought, and everyday experiences has been discussed frequently. As discussed in the previous section, expressions that are related to cognitive categories such as space, motion, and location exist universally, while the way they are expressed may vary from language to language.

The semantics of words are only comprehensible and explainable in terms of schematic mental imagery. As Dehaene (1997) puts it, our brain system needs images to function properly at an intuitive level. Kuhn (2007) defines image schemas as follows: “Image schemas are patterns abstracting from spatio-temporal experiences” (Kuhn, 2007: 155). Through our repeated experience of concepts such as motion, support, containment, or contact, image schemas capture the basic common structures. “Image schemas are often spatial, typically topological (e.g., CONTAINMENT, PATH, CENTER-PEREPHERY) or physical (e.g., SUPPORT, ATTRACTION, BLOCKAGE, COUNTERFORCE)” (Kuhn, 2007: 155).

Everyday experiences and image schemas are used to generalize and categorize the expressions of spatial events. For example, we will show how the shapes of entities (Figure/Ground) and the relationship between them play a role in the selection of appropriate LVs, and subsequently, a generalization can be made for all the entities with such specifications. For example, the LV *bordan* ‘take’ in comparison with *zadan* ‘hit’ is mostly used when a strong force (antagonist) is required to move the entity (agonist).

Cognitive linguists believe that language is experience-dependent and the articulation of our linguistic system forms is based on physiological and cultural factors (Langacker, 1990; Fauconnier, 1997; Talmy, 2000; Chatterjee, 2001). They claim that language cannot be considered as an independent system as it is in engagement with our mind. They reject the innateness of grammar and the universal nature of grammatical structure (Lemmens, 2015). In other words, these linguists believe that linguistics and encyclopedic knowledge are interrelated. As Lemmens (2015: 92) puts it: “[Cognitive linguistics] rejects a strict dichotomy between linguistics and encyclopedic knowledge.” Such a dichotomy has characteristics of the “dictionary” view where the meaning disconnects its relation with the world’s knowledge. Cognitive linguistics, in contrast, Lemmens points out, “takes an experiential view on conceptualisation and meaning, observing that many of our concepts are grounded in our experience — cultural and physical” (Lemmens, 2015:92).

Researchers have come to realize that humans start to categorize events and objects in infancy (Casasola, 2002; Baillargeon and Wang, 2002; Bowerman and Choi, 2003; Choi, 2006; Kuhn, 2007; Casasola, 2008; Park et al. 2012; Casasola and Park, 2013; Pruden et al. 2013). However, semantic categorization is language specific and as Jessen (2014: 57) puts it: “the features applied for categorization differ across languages”. For example, with respect to “cut” events, English speakers may use different verbs with slight differences. In other words, they distinguish *cut* from *break* or *slice* (Majid et al., 2007). On the other hand, in the same study, Majid mentions that certain languages such as Swedish only have *skära*. English speakers thus benefit from a higher number of semantic categories to express more detail. Bowerman’s 2005 study on “cut” events also suggests that dependent on the dimensions and rigidity of the destructed entities; speakers use different verbs. For example, the verb *break* is

used for rigid objects or the one-dimensional and three-dimensional flexible objects such as rope, but it cannot be used for the destruction of flexible two-dimensional objects like a 'blanket'. Instead, in such situations, the verb *tear* is needed.

In our study, we will show that in the combinations of CPs the shape of Ground plays an important role in choosing the appropriate LV. For example, in combination with the PV *dast* 'hand' the LV *kardan* 'do' appears in cases where the Ground is a container (e.g., pocket, gloves) and the LV *zadan* 'hit' appears when the Ground is a surface (e.g., painting), and they create different meanings (wear versus touch). Another example is in motion and location events where certain languages such as German use a variety of verbs to express a specific manner. For instance, German speakers have a variety of hyponyms of *gehen*, 'walk', such as *schlendern*, *bummeln*, and *trotten*, while other languages do not show varieties in this regard (Slobin, 2006).

Persian also behaves the same way in certain cases, for example, two hyponyms of the walk are *qadam-zadan* lit. step_N-hit 'walk', and *charkh-zadan* lit. wheel_N-hit 'stroll'.

In Persian, the dominant verbal system is CPs, which is highly productive. A wide variety of CPs can cover an unlimited range of semantic categories to express actions with fine-grained details in several semantic domains. However, we will only focus on the spatial domain, and we will show that each LV can make an infinite number of CPs, which can be classified in several semantic groups based on their semantic features. In the second section of our analysis, we classify CPs semantically to explore the systematicity in the combination of CPs. In other words, we will show how these constructions are formed based on a certain degree of generalization.

3.2. Concept of Space

Due to the considerable cross-linguistic variation in the spatial system and also in how humans conceptualize space, the spatial domain has become one of the centers of attention with respect to semantics. As Regier (1995) mentions, since Whorf's 1956 study, several studies have been done on the concept of cross-linguistic variation in conceptual systems such as the one pertaining to space. Several cross-linguistic studies have proven that the expression of spatial events varies from culture to culture and people do not use the same spatial terms to describe a unique content (Bowman and Choi, 2001; Feist, 2000; Levinson and Wilkins, 2006). As Hickmann and Hendriks (2006: 103) put it: "It is argued that languages invite speakers to rely on different linguistic means (information locus) and to pay attention to different types of information (information focus), thereby inducing different ways of organizing underlying spatial categories". However, as Feist (2008) mentions there are certain common factors such as "geometric, functional, and qualitative physical aspects of spatial scenes" in all cultures; these are considered parameters that influence how humans talk about spatial events. These factors give rise to image schemas that are abstract cognitive representations formed by our experience in the real world (Hampe, 2005). In other words, geometric and physical factors play a pivotal role in expressing the meaning of spatial events.

Human's mind starts the process of generalization of spatial relations from infancy. "By the age of 12 months, infants know about many kinds of relations from which to generalize about spatial relations connecting objects and places" (Clark, 2005: 462). Around this age, humans are responsive to several spatial concepts and terms. For example, they distinguish differences between tight-fit containments and loose containments. They can generalize about spatial events and objects; therefore, a

degree of generalization forms from that age onwards (Choi et al., 1999; Casasola and Cohen, 2002; McDonough, Choi, and Mandler, 2003). These findings are in line with our research since we also consider spatial concepts and their relations to identify Persian CPs' semantic categories and found that the spatial semantic groups are based on the semantic categories that humans distinguish since childhood. We will show, for example, how different levels of tightness between entities may lead speakers to choose different verbs to express similar content.

3.2.1. *Spatial Events*

Our understanding of the world (objects and events) depends to a large extent on how we conceive space and spatial events. As Choi and Bowerman (1991: 83) put it:

Spatial meanings are clearly fundamental to human cognition, and the system for encoding them is important not only in its own right but also because it provides the core structuring principles for many meanings that are not fundamentally spatial.

Levinson, among others, has shown that spatial conception is central to human thinking and has a fundamental role in our cognitive development. One of the reasons that spatial conception is considered central to human cognition is that it has a great effect on our conceptualization systems (Levinson, 1996, 1997, 2003). In every spatial event, there exists a spatial relation between two entities such that one is located or moving relative to the other. This relationship between the entities (x , y) is locative if x is located relative to y , and is motion if x is moving relative to y .

According to Talmy, spatial events are situations "containing movement or the maintenance of a stationary location". Based on this definition, a spatial event (motion

or location) is made up of four elements: the Figure (the moving or located object), the Ground (the object in relation to which the Figure is moving or is located), the path, and the manner or cause of the activity. The former two components are internal while the latter two are considered external co-event components. Jackendoff (1983) also claims that an event is considered spatial if there is a relationship between two entities in which one of the entities is located or moving relative to the other one. These definitions are limited to location or motion events with motion or location verbs, such as *he ran into the room* or *the cup is on the table*. There are certain spatial events in which locative or motion verbs do not appear necessarily, and some other criteria play a role in distinguishing them. Herskovits (1985) calls locative expressions “any spatial expression involving a preposition, its object, and whatever the prepositional phrase modifies (noun, clause, etc.), such as “Jenny is at the playground; there is a green house on the left of the church; he is washing the dishes in the sink”. Despite the universality of spatial events, languages differ in how they talk about space (Cienki, 1989; Feist, 2000; Levinson and Meira, 2003; Levinson and Wilknis, 2006). For example, Clark (1987) and Grinevald (2006) discuss how languages may express spatial events via perceptive, possessive, or existential constructions. It is argued that these constructions have no verb of motion or location but still refer to spatial events, as in the following examples: *I saw a man in the car* (perceptive); *she has a ring on her finger* (possessive); *there is a book on the shelf* (existential). Certain scholars such as Heine (1997) even consider possessive constructions whose locative elements are normally human as existential. In our study, we consider all spatial events regardless of their having motion or location verbs. Post (2008) has divided languages into two categories as follows:

In some languages, existential, locative and possessive predications are handled by verbs, verbal auxiliaries or copulas with tailored existential, locative or possessive meanings such as ‘be (at)’, ‘live’, ‘have’ or ‘exist’. In other languages, some or all of these functions may be coded by verbs of posture or orientation such as ‘sit’ ‘stand’ and ‘lie down’, among others” (Post, 2008: 1).

Based on Post’s categorization, languages may differ in how they encode space semantically. In certain languages, speakers only use existentials and copulas while in others they may use posture verbs, which add extra information with respect to the location or movement of the entities.

3.2.2. *Static vs. Dynamic Events*

Based on Talmy’s definition of spatial events, static locative events are one type of Motion (dynamic) event. That is, “we treat a situation containing motion and the continuation of a stationary location alike as a Motion event (with a capital M).” (Talmy, 2000: 25). In his 1991 and 2000 studies, Talmy claims that a motion event expresses the “physical motion” or “locatedness” of an object.

With respect to locative (static) events, Hendriks et al. (2004) classify them in three different groups as follows:

- a. Static general localisation

The boy is at the edge of the lake.

- b. Dynamic general localisation

The boy is sailing on the lake.

c. Change of localisation

The boy came out of the pool.

In this thesis, we consider both static and dynamic events, and while discussing characteristics of Persian CPs we refer to Hendriks et al.'s classifications in certain cases.

As mentioned before, dynamic and static events consist of four basic components: the motion, the Figure, the path, and the Ground. In Talmy's definition, the co-events of Cause and Manner can also be included in motion events. As Slobin (2006: 3) puts it:

"Manner" is a cover term for a number of dimensions, including motor pattern (e.g., *hop, jump, skip*), often combined with rate of motion (e.g., *walk, run, sprint*) or force dynamics (e.g., *step, tread, tramp*) or attitude (e.g., *amble, saunter, stroll*), and sometimes encoding instrument (e.g., *sled, ski, skateboard*), and so forth."

Talmy's concept of force-dynamics, which we regularly will use in this thesis for the analysis of CPs concerns the way in which objects interact with reference to force. Talmy's studies (1985 b, 2000) apply force-dynamic parameters in various meaning structures. He claims that in force dynamic expressions there exist two elements that exert force. One of the forces, the undergoer, is the agonist and the one opposing this force is the antagonist (actor). The agonist has a tendency either toward action or toward rest. The interaction between antagonist and agonist results in a force-dynamic configuration.

3.2.3. Talmy's Binary Typology: S-Framed vs. V-Framed Languages

The possible relationships between linguistics and conceptual diversity have been suggested by studying different ways in which languages express spatial events. With regard to these varieties, Talmy (1991, 2000), presents a binary typology for languages. He categorizes all languages of the world into two types: Verb-framed and Satellite-framed. In this typology, V-framed and S-framed languages encode path and manner of spatial events differently; therefore, speakers of V-framed and S-framed languages follow specific patterns in their languages. In the former, the path of motion is encoded in the verb, and the manner of motion is encoded in an optional adjunct that, in most cases, is omitted. In S-framed languages, the path is expressed in a satellite, which leaves the verb free to express something else, usually the manner of motion. For example, in English, an S-framed language, speakers would typically say *He ran into the house* (where *run* expresses the manner and *into*, the path). In the same situation, French speakers, a V-framed language, would rather say *il entra dans la maison (en courant)*, where *entrer* refers to the path and the adjunct *en courant* (which is mostly omitted), to the manner.

In addition, according to Hickmann (2006), in static events, French speakers mostly pay attention to the attachment of entities, and focus on contact and support between Figure and Ground, while English speakers mostly use posture verbs to express static events. Dutch is also an S-framed language and tends to conflate manner, instead of path, with location or change of location. In Dutch, according to Lemmens (2002), the use of posture verbs, namely, *zitten*, 'sit'; *liggen*, 'lie'; and *staan*, 'stand', is obligatory in locative events. Slobin's experimental studies show that speakers of S-framed languages pay more attention to manner and have a more diverse and elaborate

lexicon to express it, while speakers of V-framed languages are more inclined to express path and pay less attention to manner. According to Ibarretxe-Antunano (2012), another difference between S-framed and V-framed languages is the extent to which they pay attention to “dynamics of movement” and “physical description of the setting”, such that S-framed languages are more likely to focus on the former and V-framed languages on the latter. In addition, cross-linguistic studies with regard to S-framed and V-framed languages suggest that in S-framed languages the number of manner verbs is higher than path verbs, while in V-framed languages it is the opposite (Slobin, 2004; Verkerk, 2013, 2014b).

Verbs do not behave the same in different languages with respect to the semantic information that they can reflect. According to Gennari et al. (2002) and Slobin (2001), the Romance languages are more inclined to conflate path of motion with the verb and to use adverbial phrases or separate clauses to express manner of motion. On the other hand, one of the specifications of verbs in S-framed languages is that since they encode manner, they can express more fine-grained semantics, and accordingly, they are considered semantically richer than V-framed languages (Slobin, 1997, 2006; Özçalışkan, 2002). In this study, we will show that CPs in Persian are richer than simplex verbs semantically since they mostly refer to manner while simplex verbs are mostly neutral or behave like verbs in V-framed languages.

Talmy’s binary typology has however been criticised by certain studies claiming that a binary typology may be insufficient. For example, there are certain cases in which an S-framed or V-framed language may not follow Talmy’s patterns. In his (2004) study, Berthele claims that “within the S-framed German varieties [the] Muotathal dialect rarely expresses manner, in some cases even less frequently than French” (Berthele, 2004: 93). In several languages such as Chinese and Thai, a third

category has also been suggested where manner and path are expressed via serial verb constructions (Chen and Guo, 2009; Zlatev and Yangklang, 2004). In languages that have a pervasive serial verb construction, at least two verbs can occur in a single clause. In such situations, one verb may express the manner and the other one the path. See the following example from Chen and Guo (2009:1751), in which the verb ‘run’ refers to the manner of motion and the verb ‘exit’ expresses the path.

(68) Wǒ pǎo chū le chúfáng
I run exit PFV kitchen
‘I ran out of the kitchen.’

According to Feiz (2011), Persian also behaves differently with respect to Talmy’s binary typology and has the characteristics of both S-framed and V-framed languages. We will discuss the details in the following sections, and we will show that since Persian has a twofold verbal system, namely CPs and simplex verbs, it cannot follow Talmy’s typology. We will explore whether this duality in the verbal system leads to a mixed typology and meanwhile will discuss CPs vs. simplex verbs in spatial events.

3.3. Summary

This chapter has outlined a number of studies on spatial events. Studies in this domain argue that cognitive categories such as “space” are universal; however, the way that they are expressed varies from language to language. In this chapter, we explained that humans start to categorize events and objects in infancy; this phenomenon also occurs in acquiring and processing the language. From these explanations then we moved to present different definitions of spatial events and

accordingly different ways that exist for expressing them. In line with these definitions, static and dynamic events were also explained. Finally, Talmy's binary typology and the position of a variety of languages were explained with respect to this typology. In chapter four, we will explain our corpus data and the methods by which we extracted the data. Our corpus study will not allow us to test psychological hypotheses like Whorf's for which psycholinguistic experiments are required.

4. DATA AND METHOD

In this chapter, we will present how we extracted and coded our data for the analysis. Since the existing Persian corpora and their tagging options were not in line with our analysis, we created our own corpus and the coding. The data extraction and analysis in this study consists of two parts. The first data set was created and coded to verify the behaviour of verbs (simplex/CPs) used in spatial events. For the second part of our analysis, we needed another data set with different coding to classify CPs in spatial events semantically and to investigate their behaviors.

Part One

The unit of our analysis for the first part of the study consists of the spatial events, typified as motion and location events. To identify these events, we consider two types of definitions. First, Talmy's definition, in which spatial events are situations where one entity (Figure) is moving or is located with respect to another entity (Ground). Accordingly, four elements are involved in spatial events: Figure, Ground, manner, and path. These last two can be encoded in motion or location verbs such as *davidan* 'run' or *khaarej-shodan* lit. *exit_N-do* 'exit'. However, this definition is verb-centered, and other constructions and possibilities that encode spatial events are not included in it. We also employ Herskovits's (1985), Grinevald's (2006), and Clark's (1987) definitions of spatial events, where a spatial event is any spatial expression that involves a preposition, its object, and whatever the prepositional phrase modifies (noun, clause, etc.), or any other construction such as perceptive, possessive, or

existential used to refer to a spatial event. Based on this latter definition, the verbs used in spatial events are not necessarily spatial verbs.

In order to identify the verbs used in spatial events, we established a large and varied set of data from online sources. Two types of online sources are used: Persian news websites and novels that are accessible online. In total, 17,216 sentences were extracted from these sources and imported into a spreadsheet. We subsequently reduced the total number of sentences to be analysed to a more manageable set via random selection. The method we used was as follows. We first assigned a random number to all the sentences using the random function in excel. We then sorted the sentences from the smallest to the largest random number and selected the first 2500 sentences. From these 2500 sentences, 2304 were eventually kept for analysis, since we disregarded units shorter than a sentence, such as a single word, a marker, etc. Finally, of the 2304 sentences, we identified 816 of them as spatial. This selection was subsequently coded manually. Each row in our coded spreadsheet thus represents a spatial clause; we considered a sentence as a spatial clause if there was a spatial element in it. This element could be a spatial verb, as in (69) and (70) or only spatial prepositional or adverbial phrases such as "on the table" in (71):

(69) *ketaab* *oftad* *rou-ye* *zamin*
 book fall-PST.3SG on-EZ ground
 ‘The book fell on the ground.’

(70) *vasaayel-ash-raa* *az* *jelo-ye* *dast* *kenaar-zad*
 stuff-GEN-OM of front-EZ hand side_N-hit.PST.3SG
 ‘He put his stuff out of access.’

(71) *ghazaa* *rou-ye* *miz* *ast*

food on-EZ table be.PRS.3SG

‘The food is on the table.’

Neutral verbs (‘be’) and existential constructions (‘there is’) are considered spatial if the clause contains some spatial information (a prepositional phrase, an adverb, etc.). For example:

(72) *yek ghalat dar in matn vojoud-daarad*

one mistake in this text existence-have.PRS.3SG

‘There is a mistake in this text.’

On the other hand, if there is no spatial information preceding the verb as in example (73), then it is not considered spatial and is considered “purely” existential, and has consequently not been included for more detailed analysis.

(73) *qavaanin-e sakhti baraye mohaajerat vojoud-daarad*

rules-EZ strict for immigration existence-have.PRS.3SG

‘There are strict rules for immigration.’

The set of spatial sentences was subsequently coded for the following parameters (22 in total): location, motion, LV, agent, agent animacy (animate/inanimate), agent physical reference (concrete/abstract), Figure, Figure animacy, Figure physical reference, preposition, Ground (location), Ground animacy, Ground physical reference, transitivity, verb type (simple, CP), verb (Persian), verb (English), category, manner (yes/no), path (yes/no), genre. The verbs were coded either as simplex or CP (see Appendix A for a list of simplex verbs and LVs used in spatial events).

The variable *category* was analysed as having five different types: specific, neutral, existential, perception, and possession. These types show the semantic information

expressed by each verb. The type “specific” is further divided into two subtypes, manner and path, which were coded separately. Verbs such as *boudan*, ‘be’, were coded as neutral since they express no specific information in locating or moving entities. The members of the existential group are constructions such as *vojoud-daashtan*, ‘there is’. Recall that only existential constructions that are preceded by an adverb or a prepositional phrase (spatial information) have been considered in our coding. Verbs such as *didan*, ‘see’, and *hes-kardan*, ‘feel’, which are accompanied by spatial information, are coded as perception verbs. See the following example:

- (74) *yek ankabout rou-ye pust-am hes-mi-konam*
 one spider on-EZ skin-GEN feel_N-HAB-do.PRS.1SG
 ‘I feel a spider on my skin.’

In this example, the perception verb *hes-kardan*, ‘feel’, is accompanied by a locational phrase, ‘on my skin’; therefore, it is coded as spatial.

Finally, verbs such as *daashtan*, ‘have’, that occur in sentences containing spatial information are also coded in our data as spatial, for example:

- (75) *ou yek kolah bar-sar-daarad*
 he one hat on_{Prep}-head_N-have.PRS.3SG
 ‘He has a hat on his head.’

The approach that we used in the annotation of our data was inspired by Atkin’s (1987) and Gries’ (2010) where they annotate morphological, syntactic, semantic, and other characteristics of linguistic elements (such as number, clause type, adverbial modification) and refer to them as ID tags. In our analysis, we mostly focus on the semantic and syntactic characteristics of the elements under study.

Example sentence 1:

eynak-ash-raa be-cheshm-zad

Glass-GEN-OM to_{Prep}-eye_N-hit.PST.3SG

'He put his glasses on his eyes.'

- location: no
- motion: yes
- LV: hit
- agent: human
- agent animacy: animate
- agent physical reference: concrete
- figure: glasses
- figure animacy: inanimate
- figure physical reference: concrete
- preposition: to
- ground (location): eye
- ground animacy: inanimate
- ground physical reference: concrete
- transitivity: transitive
- verb type: CP
- verb (Persian): be-cheshm-zadan
- verb (English): put on glasses
- category: specific
- specific category: body part
- manner: no
- path: yes
- genre: novel

Example sentence 2:

moalem posht-e dar bud

teacher back-EZ door be.PST.3SG

'The teacher was behind the door.'

- location: yes
- motion: no
- LV: no
- agent: human
- agent animacy: animate
- agent physical reference: concrete
- figure: human
- figure animacy: animate
- figure physical reference: concrete
- preposition: no
- ground: door
- ground animacy: inanimate
- ground physical reference: concrete
- transitivity: intransitive
- verb type: simple
- verb (Persian): boudan
- verb (English): be
- category: neutral
- specific category: no
- manner: no
- path: no
- genre: novel

A frequency count of these different features in our coded data set (giving around 18,000 data points in total) allowed us to observe differences in the behavior of simplex verbs and CPs. We compared the semantic classifications of each type and accordingly analysed how each type behaves with respect to transitivity, motion/location events, and animacy of the other elements in the sentence (whether

they accompany animate figure/ground or vice versa). We also compared the differences between news and novel data.

Part Two

The second part of our data analysis focuses on the characteristics of the CPs used in spatial events. In this part, we selected four LVs, namely, *kardan*, 'do'; *daadan*, 'give'; *zadan*, 'hit'; and *bordan*, 'take' for further analysis. The reason why these four were selected is that (i) LVs *kardan* 'do' and *daadan* 'give' were the most frequent ones⁵ and (ii) *zadan* 'hit' and *bordan* 'take' share the highest number of common PVs with these two LVs. By comparing the schemas of CPs that have common PVs and common semantic groups, we have managed to unveil the semantic systematicity, similarities, and differences between CPs. This allows us to explain why the same PV can combine with different LVs, or why two LVs can share one semantic group.

To identify CPs containing these four LVs, we searched for collocations that these LVs can form in combination with non-verbal elements. For this step, we used the same 17,216 randomized data set used in part one; however, here we chose the first 5,000 sentences. Among these, 1,680 contained *kardan*, 'do'; 987 *daadan*, 'give'; 631 *zadan*, 'hit'; and 232 *bordan*, 'take'. Afterward, we applied the same restriction to consider only to those containing spatial events. Ultimately, 264, 148, 112, and 66 sentences remained containing these four LVs.

⁵ The LV *shodan* 'become' also has a high frequency. However, since this verb according to literature, among others Family (2006), is the intransitive counterpart of the LV *kardan* 'do', we do not expect the result of the analysis to be that much different from transitive *kardan* 'do' semantically. Therefore, we considered *zadan* 'hit', which is another high frequent verb, in our corpus, to have the possibility to discuss more semantic properties of the verb. Further analysis of the verb *shodan* 'become' is planned for the future.

According to McEnery and Hardie (2011), the definition of a collocation also encompasses the frequent co-occurrence of two non-adjacent items. Since Persian CPs can be separable, we also considered collocations that are non-adjacent. We searched for the intended LV and then manually extracted all the CPs that contain this LV, either separable or inseparable, referring to spatial events. Although it was a time-consuming process, it gave us the opportunity to extract all types of CPs (separable/inseparable, with all tenses and aspects).

In this data set, we analysed the syntactic and semantic properties of CPs as follows. Syntactic tags identify the type of verb (transitive/intransitive) and adpositions (prepositions); semantic tags include properties of the Figure/Ground (animate, inanimate, abstract, concrete, surface, container), strength of agonist and antagonist, the CP's meaning (semantic category captured by the meaning of the whole CP), the CP's construction (valency-decreasing, transitive resultative, intransitive resultative, caused-motion, intransitive motion), connotation (negative/positive), direction of image schema, rapid event (yes/no/NA), type of construction (metaphorical, metonymical). As in part one, the way that we coded our data was inspired by the behavioral profile approaches of Atkins (1987) and Gries (2010). Through our coded data, we identified the CPs that have the most common behaviors. The ultimate purpose of our coding was to find out how similarly CPs in the same semantic category, or on a larger scale, CPs of a LV, behave. For example, we can generalize about the type of Figure and Ground (animate/inanimate, concrete/abstract, etc.) that each LV can co-occur with and see the result of this co-occurrence in the semantics of CP, or in the syntactic and semantic type of PV with which it can combine.

Using corpus data in analysing CPs, specifically with respect to their semantic features, has proven to be a promising method in classifying LVs and uncovering patterns that hitherto have remained unobserved. The corpus data gives us the opportunity to do a collocation analysis to compare the LVs. Following Gries & Stefanowitsch (2004), Stefanowitsch & Gries (2003, 2005), and Lemmens & Sahoo (2018) we run a two-tailed Fisher Exact test (a pair-wise analysis) to measure the degree of attraction of each LV to specific semantic categories.

The next two chapters present our data analysis. Chapter 5, clarifies which verbs are used in spatial events and compares simplex verbs and CPs behaviors in such events. In Chapter 6, we will address semantic systematicity of CPs in spatial events, and explain their causativity, their aspect, and their syntactic structure based on their meaning.

5. GENERAL TENDENCIES OF SIMPLEX VERBS VS. CPs IN SPATIAL EVENTS

The purpose of this section is to explore the semantic information expressed by each type of verb (simple/CP) in view of Talmy's typology and definition of spatial events in general. We also discuss the distinctions between simplex verbs and CPs in expressing manner and path. We will show if, in both systems manner, path and neutrality occur on an equal footing. We will also pay particular attention to simplex verbs and CPs frequencies and the factors that influence their use. Looking at our data, we also noticed a meaningful difference between the transitivity of simplex verbs and that of CPs, which we will explore further as well. We will argue that all the differences mentioned above can be regarded as the factors that contributed to the replacement of simplex verbs by CPs, at least in spatial events.

5.1. Semantic Information Expressed in Spatial Events

In this section, we will discuss how spatial events are encoded in Persian semantically, and how simplex verbs and CPs behave differently. Spatial events in Persian are expressed via two different systems, simplex verbs, and complex predicates. Unlike other languages such as English and French in which the use of simplex verbs predominates, modern Persian has less than 200 simplex verbs. Karimi-Doostan (1997), examined the list of 279 simple lexical verbs collected by Khanlari (1973) and claims that the number of simplex verbs used in modern and standard

Persian hardly reaches 150. In another study conducted by Mohammad and Karimi (1992), the number of simplex verbs used in standard Persian is said to be 115.

Figure 1 indicates semantic groups of simplex verbs and CPs in our data set. According to this Figure, five categories were found, namely existential, possessive, neutral, perceptual, and specific (these categories and their characteristics will be explained in detail in the following section). The percentage of CPs that express additional and specific information (manner/path/other) is 94.62% (492), while only 54.05% (160) of the simplex verbs express specific information. The remaining 5.38% (28) of CPs are neutral and existential, and 45.95% (136) of simplex verbs are existential, neutral, perceptual, and possessive that provide no specific information.

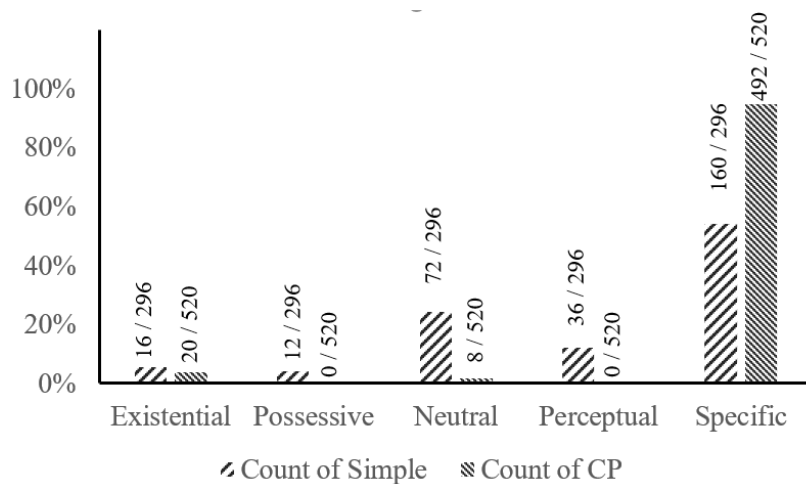


Figure 1: Semantic Groups in Simplex Verbs and CPs

5.1.1. Existential Verbs

As in other languages, in Persian, the location of an entity can be expressed by using an existential construction. Existential verbs only occur in locative events and cannot appear in motion events. Based on our analysis, this type of construction in

Persian can occur with both CPs and simplex verbs. The simplex verb (*hastan* 'exist', 'there is') accompanies animate and inanimate entities as follows:

(76) *aayaa aab dar in mantagheh hast*
 Is water in this region exist
 'Is there any water in this region?'

(77) *ghavaanin-e ziadi dar in baazi hast*
 Rules-EZ a lot in this game exist.PRS.3SG
 'There are lots of rules in this game.'

The LV *daashtan* 'have' combines with the noun *vojoud* 'existence', functioning as a PV, to build the existential CP *vojoud-daashtan*, lit. existence-have, 'there be'. While the simplex verb of existential can co-occur with both human and non-human entities in spatial events, the existential CP only co-occurs with non-human entities.

(78) *tab'iz-e jensiati dar in keshvar vojoud-daarad*
 discrimination-EZ sexual in this country existence-have.PRS.3SG
 'There is sexual discrimination in this country.'

In this example, the CP *vojoud-daarad* is the equivalent of *there is* in English. As mentioned earlier, in such constructions if there is locative information, for example, a locative phrase following the verb, then it is considered as a locative clause. In Persian, this construction is formed as follows:

NP + locative phrase+ vojoud (PV)+ daashtan (LV)

Locative existential constructions should not be confused with the pure existential construction where no locative information is mentioned, as in example (79).

- (79) *hamchin chizi vojoud-na-daarad*
 such thing existence-NEG-have.PRS.3SG
 ‘There is no such thing.’

In example (79), no locative phrase is used; therefore, this type of sentence is considered pure existential without locative information.

The subject of an existential CP mostly appears as an inanimate entity in spatial events, which is either individual or multiple.

- (80) *aayaa khodaa-yi dar in donyaa vojoud-daarad*
 Q god-INDEF in this world existence.N-have.PRS.3SG
 ‘Is there any god in this world?’

- (81) *akhlaaq-haa-ye ajib dar ensaan-haa vojoud-daarad*
 behavior-PL-EZ strange in human-PL existencEN-have.PRS.3SG
 ‘There are strange behaviors in humans.’

As indicated in examples (80) and (81), the subject appears as a non-human entity, and cannot be human.

5.1.2. Neutral Verbs

In our data set, neutral verbs constitute a large portion of verbs describing locative events. These verbs such as *boudan* ‘be’ provide no specific information beyond the mere fact that the events with this verb consist of simply remaining in a position. In verb-framed languages, locative events are mostly expressed by neutral verbs. Romance languages such as French use neutral verbs (e.g., *être* ‘to be’ or *se trouver* ‘to find oneself’) in most situations to encode the location of an entity. In our data set,

among simplex verbs 24.32% (72) are neutral such as *boudan* ‘be’; however, only 1.54% (8) of the CPs, including *hozour-daashtan* ‘attend’ and *baaqi-maandan* ‘remain’, are neutral. Either construction (simplex or CP), encodes the location of all kinds of entities, be they animate, inanimate, concrete, or abstract. The location of these entities can be either a real place or an abstract location, even if the latter normally appears with abstract subjects.

(82) *rouh-ash dar behesht ast*⁶
 spirit-GEN in heaven be.PRS.3SG
 ‘Her spirit is in heaven.’

(83) *seda-yash dar khaater-am ast*
 voice-GEN in mind-GEN be.PRS.3SG
 ‘Her voice is in my head.’

In examples (82) and (83), the subjects and the locations are abstract concepts. Examples (84) and (85), in contrast, have concrete subjects and locations.

(84) *qalyaan kenaar-e takht-ash boud*
 hookah next to-EZ bed-GEN be.PST.3SG
 ‘The hookah was next to his bed.’

(85) *angoshtar-ash zir-e sang boud*
 ring-GEN under-EZ rock be.PST.3SG
 ‘Her ring was under the rock.’

⁶ *Ast* is 3SG of *boudan* ‘be’ in present tense

The number of LVs that make neutral CPs is also low. Only the LVs *daashtan* 'have', *maandan* 'remain' build neutral CPs as follows:

(86) *man dirouz dar jalaseh hozour-daashtam*
 I yesterday in meeting presence_N-have.PST.3SG
 'I was present at the meeting yesterday.'

(87) *meqdaari aaludegi dar aab baaqi-maand*
 some pollution in water rest_N-remain.PST.3SG
 'Some pollution remained in the water.'

The first CP, *hozour daashtan* 'attend' only appears with animate entities, particularly human, and *baaqi maandan* 'remain' mostly appears with inanimate entities; in fact, this CP is a neutral unaccusative form mostly for inanimate entities. The construction *baqi-maandan* lit. rest_N-remain 'remain' consists of the noun (PV) *baaqi* 'rest' and the LV *maandan* 'remain'.

5.1.3. Possessive and Perceptual Verbs

Possessive and perceptual verbs are infrequent in comparison with other groups, constituting only 4.05% (12) and 12.16% (36) of locative simplex verbs, respectively. These two groups only appeared among simplex verbs and were not observed in CPs in our data set; however, perceptual CPs also exist in spatial events in Persian. CPs such as *hes-kardan* lit. feeling_N-do 'feel', or *bou-daadan* lit. smell_N-give 'smell' are examples of this type.

Although possessive verbs are not location or motion verbs intrinsically, they are preceded by locative phrases, which gives them the property of spatial constructions.

Examples of possessive verbs are as follows:

- (88) *negaraani-haa-yi dar zehn-ash daasht*
 worry-PL-INDEF in mind-GEN have.PST.3SG

‘He had some worries in his mind.’

- (89) *kolaah-i bar sar daash.*
 hat-INDEF on head have.PST.3SG

‘He had a hat on his head.’

The subject of the sentences with locational *have* can be either animate or inanimate. The Figure of this transitive verb in all the cases appears as an inanimate entity.

Although perceptual verbs occurred in 12.16% of the occurrences of simplex verbs, the only verb used in our data-set is *didan* ‘see’. This verb is used in a variety of contexts, and the agent in all the cases is human as follows:

- (90) *ketaab-e monaasebi dar ketaabforoushi didam*
 book-EZ suitable in shop see.PST.1SG

‘I saw a suitable book in the bookstore.’

- (91) *Jelo saakhtemaan ostaad-am-raa didam*
 in front of building professor-GEN-ACC see.PST.1SG

‘I saw my professor in front of the building.’

- (92) *saal-haa-ye gozasht-e-raa jelo cheshm didam*
 year-PL-EZ past-EZ-ACC in front of eye see.PST.1SG

'I saw my past before my eyes'.

As shown in examples (90), (91), and (92), the Figure can be either animate or inanimate, and in certain cases such as (92), it may appear as an abstract entity.

5.1.4. Specific Verbs

Specific is the most common category of the verbs used to express spatial events. CPs in 94.62% (492) of cases give specific information about the activity, and 54.05% (160) of simplex verbs can be classified in the specific category as well. In line with Talmy's observations, the specific information can range from the position of the Figure (typical of S-framed languages) to the direction of the activity (typical of V-framed languages). Our findings are in line with Feiz's (2011) study where she claims that Persian is a mixed type language and contains the characteristics of both S-framed and V-framed languages. However, CPs and simplex verbs do not show the same behavior with regard to specific information in our data. Simplex verbs express no specific information in approximately half of the cases, while CPs refer to manner in 40.77% of the cases, path in 31.54% of the cases, and other types of information in 22.31% of the cases. Figure (2) shows the distribution of specific information among CPs in spatial events.

As Figure (2) shows, CPs have the characteristics of both S-framed and V-framed languages; however, the frequency of verbs expressing manner is higher than that of verbs expressing path. In the following examples, all the CPs refer to the manner of activity.

(93) *tou khiyabaaan-haa kami dor-zadim*
in street-PL a bit strollN-hit.PST.3PL

‘We strolled in the streets.’

- (94) *vasat-e* *hayaat* *deraaz-keshideh*
 middle-EZ yard long_{ADJ}-pull.PRS.3SG

‘He is lying in the middle of the yard.’

In both of these examples, the manner of movement is expressed in the CP. The PV is responsible for the manner of motion. However, CPs may also express path of motion as follows:

- (95) *pedar-am* *az* *dar-e* *hayaat* *vaared-shod*
 father-GEN through door-EZ yard enter.N-become.PST.3SG

‘My father entered through the yard door.’

- (96) *kam kam* *be* *man* *nazdik-shod*
 little little to me close_{ADJ}-become.PST.3SG

‘He approached me little by little.’

In (95) and (96), the path of motion is encoded in the CP. In example (95), the path of motion (from outside to inside) is encoded in the verb *vaared-shodan* ‘enter’, and in (96) the path is expressed by the verb *nazdik-shodan* ‘approach’.

The last bar of Figure 2 represents the percentage (5.38%; 28) of the CPs that do not express any specific information; verbs of this type are the ones classified as existential and neutral constructions discussed in the previous sections.

Contrary to CPs that mostly contain specific information, simplex verbs in spatial events show different behavior. Although overall they still manifest the dual characteristics of both S-framed and V-framed languages, they often (45.33% of cases)

do not express any specific information, as opposed to CPs (only having 5.43%). Figure (2) indicates the frequency of each group.

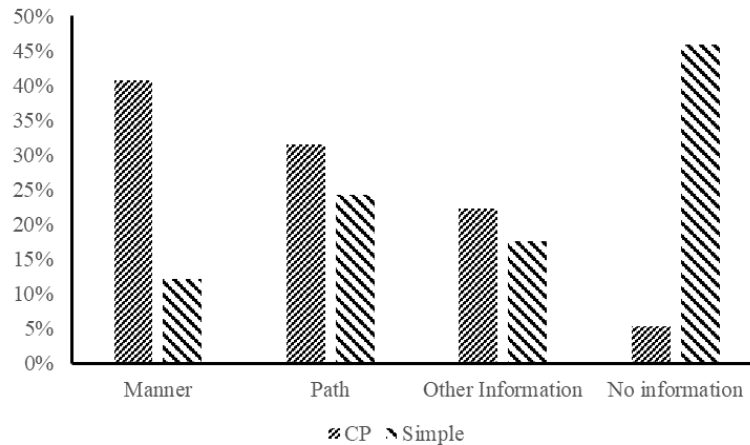


Figure 2: Type of Information in Simplex Verbs and CPs

In the next two examples, the simplex verbs *davidan* ‘run’ and *paridan* ‘jump’ express the manner of motion.

(97) *bacheh-ye sheytoun david tou otaagh*
 kid-EZ naughty run-PST.3SG into room
 ‘The naughty boy ran into the room.’

(98) *saaregh az divaar parid tou khouneh*
 thief from wall jump-PST.3SG in house
 ‘The thief jumped off the wall into the house.’

However, as shown in Figure (2), the frequency of simplex verbs that express path of motion is higher than that of manner. In the following example, the path of motion, which is downward, is encoded in the verb *oftaad* ‘fall’.

(99) *az baalaa-ye tappe oftaad*

from up-EZ hill fall.PST.3SG

‘He fell from top of the hill.’

Based on what we have discussed and what is represented in Figure (2), a comparison between CPs and simplex verbs semantic behaviors in spatial events can be summarised as follows:

Simplex verbs: None > Path > Other Types of Information > Manner

CPs: Manner > Path > Other Types of Information > None

According to this comparison, CPs and simplex verbs behave differently. CPs are shown to have the highest frequency of manner, while for simplex verbs, manner is expressed least often. Instead, neutral verbs have the highest frequency among simplex verbs. CPs thus play a pivotal role in expressing manner and other types of specific information, and they can draw from a diverse and elaborate lexicon to do so. It should be noted that in most cases, there are no counterparts for these verbs among simplex ones. According to Slobin (1997), and Özçalışkan (2002), verbs that can encode manner are semantically richer. In this view, CPs in Persian can be considered semantically richer than simplex verbs when it comes to expressing spatial events. This semantic difference also leads to syntactic differences. Since simplex verbs tend not to encode manner and other specific information as frequently as CPs can, they need another element in a sentence such as an adverbial clause to encode them. Consequently, sentences containing simplex verbs are longer and more complex syntactically. This would be a violation of Martinet’s ‘economy of language’ law (Martinet 1966), which stipulates that human language, like other social behaviors and organizations, follows rules of economy. He claims that the ‘economy of language’ is the consequence of two forces, minimal effort, and maximal efficiency.

The following examples illustrate the syntactic differences between CPs and simplex verbs.

(100) a. *ketaab-raa be man hediye-h-daad*
 book-OM to me gift_N-give.PST.3SG
 ‘She gifted the book to me.’

b. *ketaab-raa be onvaane hediye be man daad*
 book-OM to as gift to me give.PST.3SG
 ‘She gave me the book as a gift.’

(101) a. *ou-raa dafn-kardand*
 him-OM burial_N-do.PST.3PL
 ‘They buried him.’

b. *ou-raa dar khaak gozaashtand.*
 him-OM in soil put.PST.3PL
 ‘They buried him.’

In examples (100) and (101), the sentences (a) and (b) are expressing the same situation; however, the syntactic distribution of the components in the (b) version, where simplex verbs appear, is more complex. In example (100a), the extra (specific) information, is encoded in the CP (gift_N-give), which is gifting the book to somebody. The way and the reason for which the book is given to somebody is expressed by the CP. However, in (100b), in order to express the same information with a simplex verb a more complex syntactic distribution is required since there is no counterpart for the CP *hediye-h-daadan* lit. gift_N-give ‘gift’ among simplex verbs. As is shown in (100b), an adverbial clause should accompany the simplex verb to complete the meaning. In

example (101a), the CP *dafn-kardan*, lit. burial_N-do is the exact equivalent of English *bury*. This verb in Persian means to put somebody or something in the soil, and it expresses this meaning without the intervention of any adverb or prepositional phrase. However, if we use a simplex verb, in this situation, the only alternative is the verb *gozaashtan* ‘put’ which cannot convey the same semantic information; therefore, a prepositional phrase ‘in the soil’ is required to complete the meaning. Consequently, CPs –much like compounding– can lead to the ‘economy of language’.

The followings are also some examples of CPs that express specific information and have no simplex counterparts.

(102) <i>faraar-kardan</i>	lit. escape _N -do	‘escape’
(103) <i>khaali-kardan</i>	lit. empty _{ADJ} -do	‘empty’
(104) <i>telo-telo-khordan</i>	lit. stumble-stumble _N -eat	‘stumble’

As discussed, CPs and simplex verbs are classified into several categories based on the semantic information that they can express. These classifications and their frequency rates differ between CPs and simplex verbs. In fact, among CPs, the rate of the constructions in which the manner and specific information are encoded is very high, while among simplex verbs the group that expresses no specific information (“none”) has a high frequency rate. Economically expressing varied semantic information seems to be the main motivation for the replacement of simplex verbs by CPs.

Although Persian has a mixed typology with regard to Talmy’s definition, since the CPs are more frequent than simplex verbs, there is a possibility that Persian speakers consider manner of activity more than they do path. See the following figure comparing the frequency of CPs and simplex verbs in the two genres in our corpus.

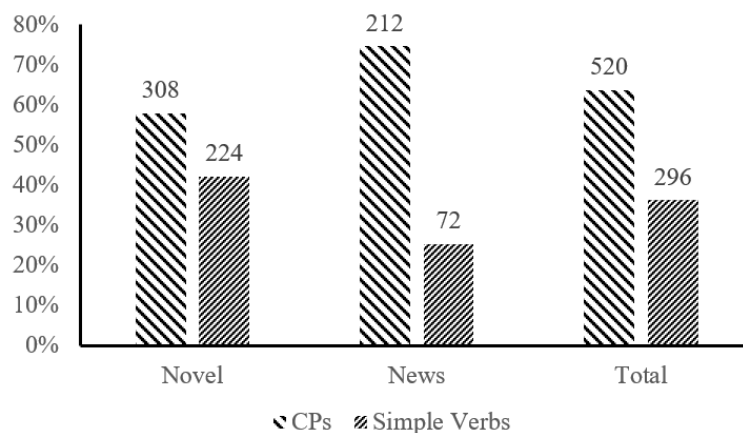


Figure 3: Frequency of CPs and Simplex Verbs in News, Novels and Total

As indicated in Figure (3), in total 63.24% (516) of all the verbs appearing in spatial events are CPs, and 37.76% (300) are simplex verbs. However, this behavior also depends on the genre of the text and the percentage of simplex verbs in novels is drastically higher than that of simplex verbs in news; in fact, in the novels, 42.54% (228) of the verbs are simple, and 57.46% (308) are CPs, while in the news, only 25.71% (72) of the verbs are simplex and 74.29% (208) are CPs. One of the reasons for this increase is that as is discussed in the literature, sentences in Persian novels are longer and syntactically are more complex in comparison with news (Khazayi-Farid and Fathollahi, 2010; Zolfaghari, 2008). Based on our previous discussion, the syntactic distribution of simplex verbs in spatial events is more complicated and heavier in a sentence due to the usage of extra adverbial clauses, prepositional phrases, and multiple verbs. In addition to these findings, with respect to the increase of CPs in the news, we can hypothesize that since the language of news needs more lexical innovation in its confrontation with a changing world, the usage of CPs rises in the news (in comparison with novels). As discussed previously, CPs are more productive in modern Persian, and new verbs are made through this system.

5.2. Transitivity Differences

A transitive verb involves at least two participants, agent (subject) and patient (direct object). Transitivity expresses an action carried or transferred from agent to patient (Hopper and Thompson, 1980). A striking difference between the transitivity of simplex verbs and that of CPs is observable in our data, as shown in Figure (4): simplex verbs are mostly intransitive (68.92%), while CPs occur in both transitive (47.69%) and intransitive (44.62%) constructions with comparable frequency.

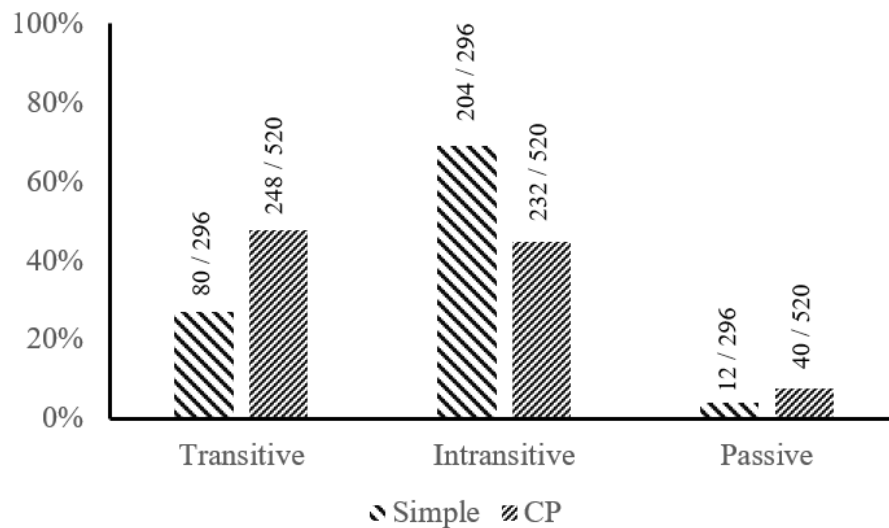


Figure 4: Transitivity in Simplex Verbs and in CPs

In addition, our findings show that the highest frequency of simplex verbs concerns the verb ‘be’. Hence, these results reflect the fact that simplex verbs mostly refer to locative events rather than motion events. Furthermore, Figure (4) shows that CPs can be considered more productive than simplex verbs in transitive, agentive, and causative constructions (motion events). As discussed above, CPs replace simplex verbs in contemporary Persian. We suggest that, at least in spatial events,

one of the reasons for the replacement of simplex verbs by CPs is the shortage of transitive verbs in the simplex verbs system.

5.3. Discussion

In this section, we compared simplex verbs and CPs behaviors in spatial events. In line with Feiz 2011, we argued that Persian is a mixed-typology language with regard to Talmy's typology. However, based on our corpus analysis we showed that there are certain semantic and syntactic differences between these two systems, which can lead to the replacement of simplex verbs by CPs in spatial events. CPs are mostly used to express manner of the activity and other specific information while simplex verbs in half of the cases express no specific information and appear as neutral constructions. Furthermore, the syntactic distribution of CPs helps with the 'economy of language' since all the semantic information is mostly encoded in the construction itself. On the other hand, simplex verbs require dependent clauses (such as adverbial clauses) or adverbial phrases to express specific information (like V-framed languages).

As a rule, the frequency of CPs is higher than that of simplex verbs, and since CPs mostly express manner, we can conclude that the Persian language in the majority of cases behaves like S-framed languages, where the manner is expressed by the verb, and in certain cases as V-framed languages in which the manner is encoded by dependent clauses or phrases. This frequency, however, is influenced by the genre of the text, as simplex verbs are more frequent in novels than in news. Based on our analysis, simplex verbs in spatial events require a more complex syntactic constellation, which may explain the higher frequency of simplex verbs in novels compared to news language.

Finally, CPs encode both motion and location events, while simplex verbs are mostly intransitive and encode locative events where the ground is expressed prepositionally like in the sentence *ketaab rou-ye miz ast* lit. book on-EZ table be.PRS.3SG ‘the book is on the table’.

The outcome of our analysis shows that certain syntactic and semantic shortages of the simplex verbs are the reasons for the replacement of simplex verbs by CPs, which is a focus of interest in Persian literature. To wrap up the discussion, we insist on the importance of exploring a larger data collection. Feiz’s (2011) study based on a limited set of data in spoken language revealed interesting patterns, but the CPs in her study are mostly limited to two LVs, *kardan* ‘do’ and *shodan* ‘become’. Consequently, a large variety of verbs that can express manner via CPs, as we have observed in our data, is disregarded in her study.

6. VERB-SPECIFIC ANALYSIS

In this section, we discuss the semantic extensions of the CPs built with the four LVs *kardan* ‘do’, *zadan* ‘hit’, *daadan* ‘give’, and *bordan* ‘take’. These LVs are among the most frequent LVs in our data set (see Appendix A). They also have the most PVs in common among other LVs in spatial events. We show that each LV combines with specific types of PVs (semantic systematicity) yet also have PVs in common. We suggest that causativity, duration, and syntactical generalizations of the CPs can be explained by the meaning of the constructions.

To do so, we consider the combinations that occur in spatial events. According to Samvelian & Faghiri (2013 a; b), Persian CPs can be categorized in specific semantic classes (locative, locatum, etc.) and then they can be divided into several subtypes.

Since we consider CPs as constructions, their semantic categorization is based on the meaning of the whole combination (CP). Our data pertaining to the domain of spatial expressions show that each LV builds a family of constructions with similar but not identical behaviors.

6.1. *Kardan* ‘do’

According to several Persian dictionaries, *kardan* ‘do’ as a simplex verb has several but related meanings such as ‘do,’ ‘make,’ ‘arrange,’ ‘fix,’ ‘perform,’ ‘practice,’ ‘copulate,’ and ‘prepare.’ The primary meaning can be characterized by verbs such as ‘do’ and ‘make’ in English. According to Karimi-Doostan (1997), this verb can appear with a different number of arguments and different types of arguments. The two-argument structure possibilities are as follows:

Verb-Specific Analysis

(105)	NP1	NP2-raa			<i>kardan</i>
	<i>man</i>	<i>in kaar-raa</i>			<i>kardam</i>
	I	this work-OM			do.PST.1SG
	'I did this work.'				
(106)	NP1	NP2-raa	for	NP3	<i>kardan</i>
	<i>man</i>	<i>in kaar-raa</i>	<i>baraa-ye</i>	<i>to</i>	<i>kardam</i>
	I	this work-OM	for-EZ	you	do.PST.1SG
	'I did this work for you.'				

The first NP in examples (105) and (106) is agent (Subject), the second NP is patient (Object), and the third one in example (106) is an experiencer (indirect object). The LV *kardan* 'do' is the most frequent simplex verb in Persian. In our data set, the CPs built with this LV also have the highest frequency among others. *Kardan* 'do' preserves its core meanings when combined with PVs to form a complex predicate, and contributes to the meaning of the construction. As mentioned before these LVs can have several meanings and in each semantic category, one of them may be activated. Karimi & Mohammad (1992) suggest that LVs in Persian have no semantic value. They propose that while the whole semantic content refers to the PV, the LV is only a verbal marker.

Table (1) indicates the PVs that co-occurred with the LV *kardan* 'do' in our data-set.

Table 1: Categories and Frequencies 'PV-kardan'

Semantic category	Sub-category	Persian PV	English PV	Frequency
path		<i>montaqel</i>	transfer	3
		<i>nasht</i>	leak	2
		<i>obour</i>	crossing	2
		<i>safar</i>	trip	2
		<i>part</i>	throw	2
		<i>rad</i>	passing	2
		<i>aavaareh</i>	displaced	1
		<i>Jaa be jaa</i>	place-to-place	1
	direction	<i>boland</i>	long	13
		<i>vaared</i>	importing	7
		<i>soqout</i>	fall	4
		<i>biroun</i>	out	2
		<i>ezaam</i>	dispatch	2
		<i>tark</i>	leave	2
		<i>mohaajerat</i>	immigration	2
		<i>forou</i>	inside	1
		<i>kasb</i>	gaining	1
		<i>khaarej</i>	out	1
		<i>baalaa</i>	up	1
		<i>raahi</i>	way	1
<i>ravaaneh</i>	running	1		

Verb-Specific Analysis

		<i>tou</i>	inside	1
body part		<i>dast</i>	hand	9
		<i>sar</i>	head	3
		<i>paa</i>	foot	2
		<i>tan</i>	body	2
		<i>angosht</i>	finger	1
	path	<i>dast-deraaz</i>	hand-long	7
		<i>sar-boland</i>	head-tall	5
		<i>be-halq</i>	to-throat	1
	surrounding	<i>baghal</i>	bosom	9
		<i>mosht</i>	fist	3
		<i>chang-be-chang</i>	claw-to-claw	1
	configuration	<i>angosht-be-dahaan</i>	finger-to-lip	1
		<i>dast-be-sar</i>	hand-on-head	1
		<i>gardan-kaj</i>	neck-crooked	1
<i>sar-kham</i>		head-bent	1	
presence		<i>ehzaar</i>	summon	5
		<i>peydaa</i>	visible	5
		<i>haazer</i>	presence	4
		<i>aashkaar</i>	obvious	3
		<i>barmalaa</i>	obvious	1
		<i>borouz</i>	appearance	1
		<i>matrah</i>	proposed	1
		<i>zohour</i>	appearance	1

		<i>raah-peydaa</i>	way-find	1
	disappearance	<i>paak</i>	clean	6
		<i>penhaan</i>	hidden	5
		<i>jam</i>	removing	2
		<i>jam-aavari</i>	removing	1
		<i>naaboud</i>	destroyed	1
	full	<i>por</i>	full	4
	empty	<i>khaali</i>	empty	3
configuration		<i>deraaz</i>	long	6
		<i>pahn</i>	wide	5
		<i>ezaafeh</i>	extra	4
		<i>koutaah</i>	short	3
		<i>damarou</i>	prone	2
		<i>khord</i>	crushed	2
		<i>motemarkez</i>	centralized	2
		<i>aab</i>	water, melting	1
		<i>baad</i>	wind, swollen	1
		<i>deformeh</i>	deformed	1
		<i>dombe asbi</i>	tail pony	1
		<i>ghouz</i>	hunch	1
		<i>hamaayel</i>	hang	1
		<i>jam</i>	crumpled	1
	<i>kham</i>	bent	1	

Verb-Specific Analysis

		<i>leh</i>	crushed	1
		<i>louleh</i>	roll	1
		<i>mochaaleh</i>	crumpled	1
		<i>pof</i>	puff	1
		<i>tableh</i>	tabor	1
		<i>tekieh</i>	lean	1
		<i>vaazhgoun</i>	upside-down	1
		<i>qand-aab</i>	sugar-water	1
Connection/disconnection		<i>joft</i>	connected	6
		<i>jodaa</i>	detached	3
		<i>vasl</i>	connected	3
		<i>molhaq</i>	connected	2
		<i>motasel</i>	adjoining	3
		<i>baaz</i>	open	1
		<i>band</i>	band	1
		<i>cheft</i>	tight	1
		<i>hefz</i>	keeping	1
		<i>mohkam</i>	firm	2
		<i>rahaa</i>	release	1
		<i>seft</i>	tight	1
		<i>vel</i>	release	1
action		<i>montasher</i>	published	3
		<i>paark</i>	park	3

		<i>dorost</i>	fix	2
		<i>nasb</i>	installation	2
		<i>savaar</i>	mounting	2
		<i>baaz-nevisi</i>	rewriting	1
		<i>chaap</i>	print	1
		<i>josto-jou</i>	search	1
		<i>paarou</i>	shovel	1
		<i>sourakh</i>	hole	1
		<i>tasavor</i>	imagination	1
		<i>yadasht</i>	note	1
arrangement		<i>jam</i>	arranged	6
		<i>dasteh</i>	group	3
		<i>pakhsh</i>	scattered	2
		<i>pakhsh-o-pala</i>	scattered-and-broad	1
	pile	<i>kope</i>	wad	1
		<i>koumeh</i>	pile	1
		<i>poshteh</i>	pile	1
		<i>tape</i>	hill	1
surrounding		<i>doreh</i>	surround	1
		<i>ehaateh</i>	surround	1
		<i>mohaasereh</i>	blockade	1
	instrument	<i>hesaar</i>	fence	1
		<i>qaab</i>	frame	1

Verb-Specific Analysis

		<i>sim-pichi</i>	wire-twist	1
cover		<i>chaal</i>	hole	1
		<i>dafn</i>	burial	1
		<i>khaak</i>	soil	1
onomatopoeia		<i>khesh-khesh</i>	onomatopoeia	1
		<i>pet-pet</i>	onomatopoeia	1
		<i>shalap-shouloup</i>	onomatopoeia	1
perception		<i>hes</i>	feel	1
		<i>jaa-khosh</i>	place-joy	1
		<i>nezaareh</i>	watching	1
retaining		<i>asir</i>	captive	1
		<i>habs</i>	shutting	1
		<i>zendaani</i>	captive	1
Total				264

Certain categories in this Table have more specific subcategories (subtypes). For example, in the group called *connection*, the CPs only refer to a simple connection, while other CPs that are classified as *instrument/connection* express a kind of connection that occurs with the help of an instrument. These subcategories clarify subtle semantic differences.

The following section describes each extension in detail; we provide several examples of CPs, all drawn from our corpus (possibly slightly edited or simplified).

6.1.1. Configuration

Complex predicates of this group encode the configuration of an entity in a location. In fact, there is a change of shape or size in such events. Combinations whose semantic category is distinguished as configuration appear as transitive resultative in 92.5% of cases.

SEM: X CAUSE Y BECOME Z SHAPE/SIZE LOC

SYN: NP1 NP2 PrepNP3 ADJ.[configuration]-do

Paraphrase: agent cause⁷ change of location of patient by changing its shape

In these cases, the CP expresses the change of state of an entity, which more precisely is a change of shape that leads to a change of location.

(107) *damarou-kardan* lit. prone_{ADJ}-do 'reverse'

(108) *deraaz-kardan* lit. long_{ADJ}-do 'stretch'

(109) *pahn-kardan* lit. wide_{ADJ}-do 'lay, widen'

(110) *koudak zarf-e-ghazaa-raa rou-ye zamin damarou-kard*

kid plate-EZ-food-OM on-EZ floor prone_{ADJ}-do.PST.3SG

'The kid reversed the plate on the floor.'

In this sentence, the kid causes the plate to be on the floor by reversing it on the floor. In examples such as (108) and (109), the notion of a change of size is included as well. Such change of configuration and size is nicely illustrated by the following example:

⁷ We use bare form of verbs in the paraphrases.

- (111) *ghaali-raa rou-ye zamin pahn-kard*
 rug-OM on-EZ floor wide_{ADJ}-do.PST.3SG

‘He laid the carpet on the floor.’

The CP *pahn-kardan* lit. wide_{ADJ}-do ‘lay’ refers to the change in size that occurs in width. Via expressing this change of size, it becomes clear that the rug is laid open on the floor.

In addition to the transitive resultative construction, CPs of this group in 7.5 % of the cases appear as intransitive resultative with the following semantics:

SEM: X BECOME Z SIZE/SHAPE LOC

SYN: NP1 PrepNP2 N.[size]-do

Paraphrase: theme be in a location by changing size and shape

In this sense, the shape and size of an entity changes and indicates the existence of the entity in a location. Although these CPs are intransitive, they act as unaccusative verbs since the subject of the sentence does not actively initiate the action nor is responsible for the action. Complex predicates of this construction are as follows:

- (112) *baad-kardan* lit. wind_N-do ‘swell, bulge’

- (113) *tableh-kardan* lit. tabo_N-do ‘swell, bulge’

- (114) *yek joush rou-ye sourat-ash baad-kardeh*
 one rash on-EZ face-GEN wind_N-do.PRS.3SG

‘A pimple has swelled on his face.’

In examples (112) and (113), an entity’s size changes (becomes bigger) and leads to its appearance in a location. As discussed in sections 2.2.1.4 and 2.2.2 Persian CPs are

opaque in the majority of cases, and the meaning of the whole combination cannot be derived of each part (one aspect of CPs for which we consider them constructions). In these two combinations the meaning of the whole construction is 'swell'; however, it may not be reflected directly by its parts. These CPs are classified as a subtype of configuration which is *size*. In other words, entities of this group have a change of shape in accompany with a change of size (in these two examples the entities get bigger in size after swelling). Example (114) indicates how a pimple exists on one's skin, and in fact, a change in the size of skin can result in the appearance of a pimple. In these constructions, the PV appears as a noun.

In sum, CPs of this semantic category mostly appear, as a transitive resultative, and the subject of the intransitive ones are semantically similar to the direct object of a transitive verb. PVs in this semantic group appear as an adjective or a noun which can express a change of configuration.

6.1.2. *Body Part*

The CPs of this group consist of a body part as their PV, and the LV *kardan* 'do.' Therefore, in this group, all the PVs appear as a noun. These CPs express how an entity can be located on a body part (location), and all cases of this group are considered as a caused-motion construction with the following constructional schema:

SEM: X CAUSE Y BE on BODY PART

SYN: NP1 NP2 N.[body part]-do

Paraphrase: agent cause patient be on body part

According to this meaning, an agent causes an entity to be on one of the human body parts.

- (115) *sar-kardan* lit. head.N-do ‘put on a scarf’
 (116) *tan-kardan* lit. body.N-do ‘put on dress, shirt, pants’
 (117) *paa-kardan* lit. foot.N-do ‘put on a shoe’
 (118) *Maryam rousari-raa sar-kard*
 Maryam scarf-OM head.N-do.PST.3SG
 ‘Maryam put on the scarf.’

As indicated in example (118), an agent moves the scarf to cover her head. In the majority of cases, an agent moves an entity to cover a body part entirely. In other words, the combination of a body part alone as the PV with the LV *kardan* ‘do’ has the meaning of ‘wear.’ The PV specifies the type of clothes that CP refers to. For example, in (115) the PV of the CP is ‘head,’ therefore the meaning of the CP is covering the head. Also in (116) and (117), since the PVs are ‘body’ and ‘foot’, they refer to wearing clothes and shoes respectively. In all these examples, the PV is the goal of the caused-motion event (body part). In sum, where the meaning of a CP with *kardan* ‘do’ is ‘wear,’ the body part expresses the Ground.

6.1.2.1. Body part: Path

Complex predicates of this type have three components: a body part, an adjective that refers to a path, and the LV. In comparison with the *body part* category, the semantic domain of this group is more specific and refers to the path of motion.

SEM: X [CAUSE BODY PART] BE PATH LOC

SYN: NP1 PrepNP2 N.[body part]-do

Paraphrase: theme's body part is toward/from/to location

In this sense, the agent moves a body part *toward/from/to* a location, which leads to the existence of the body part in that place, like:

- (119) *be samte man dast-deraaz-kard*
 lit. to direction me hand_N-long_{ADJ}-do.PST.3SG
 'He stretched his hand towards me.'

Eventually, this sense refers to the position of the person in a location. CPs of this type are intransitive since the body part (direct object) combines with the LV to build the CP and valency-decreasing occurs. Several linguists in their analysis of CPs claim that one type of CP is formed by noun-incorporation (Karimi, 1997; Dabir-Moghadam, 1997; Samvelian, 2001, Shabani-Jadidi, 2014). During this process, a noun, which can be a direct object, is incorporated into the CP. When the arguments of a transitive verb like *kardan* 'do' decrease we consider it as a valency-decreasing construction. In *body part/path* group, all the sentences realise a valency-decreasing construction.

- (120) *dast-deraaz-kardan* hand_N-long_{ADJ}-do 'stretch hand'
 (121) *sar-boland-kardan* head_N-tall_{ADJ}-do 'raise head'
 (122) *be-halq-kardan* to_{Prep}-throat_N-do 'feed somebody forcefully'
 (123) *be-samt-e aaseman sar-boland-kard*
 to-side-EZ sky head_N-long_{ADJ}-do.PST.3SG
 'He stretched his hand towards the table.'

In example (123) the agent moves his hand towards the table and stretches it gradually; therefore, ultimately, his hand is in front of the table (in Goldberg's words,

it is a path resultative). Due to valency-decreasing examples such as (120) and (121) are intransitive. The only example of valency-decreasing construction that is transitive is (122). In this example also, valency-decreasing occurs; however, the location (throat) merges with the LV instead of the object:

(124) *aab* *be-halq-ash-kardand*
 lit. water to_{Prep}-throat_N-GEN-do.3PL

‘They pour water in her throat.’

Certain metaphorical extensions have also been observed in this group, such as (125).

(125) *jelo-ye* *har* *kas* *dast-deraaz-mi-konad*
 in front of-EZ each person hand_N-long_{ADJ}-HAB-do.PRS.3SG

‘He asks everyone for help (specifically begging for money).’

This example is a metaphor for the situations in which someone begs others for help, drawing on the source domain of literal begging where one stretches out one’s hand.

6.1.2.2. Body part: Surrounding

Complex predicates of this group consist of a body part, which has the possibility of surrounding entities. The body part as the location (Ground) of the construction exists in the CP. As in the previous groups, valency-decreasing occurs due to the combination of location with the LV to build CPs.

SEM: X CAUSE Y BE in BODY PART

SYN: NP1 NP2 N.[body part]-do

Paraphrase: agent cause patient be surrounded by body part

As this sense shows, an agent causes an entity to move to a body part and be surrounded by that. Examples (126), (127) and (128) show how these CPs can be formed and be used in a sentence.

(126) *baghal-kardan* lit. bosom_N-do 'embrace'

(127) *mosht-kardan* lit. handful_N-do 'have a handful of something'

(128) *aajil-raa mosht_N-kard.*
 nut-OM handful_N-do.PST.3SG
 'She picked up a handful of nuts.'

As shown in these examples, the theme is encompassed by the Ground. These CPs lead to transitive resultative constructions in a sentence. The result is ending up in a location (body part) by being embraced, etc.

6.1.2.3. Body part: Configuration

This group is also a more specified subcategory of *body part*. Complex predicates of this group refer to the posture of an entity and appear as metaphorical extensions in spatial events: the change of state of the body part refers to the change of state of the person. The following sense applies to 50% of the CPs in this group:

SEM: X [CAUSE BODY PART] BECOME Z SHAPE LOC

SYN: NP1 PrepNP2 NP.[body part+ADJ]-do

Paraphrase: The agent change state of body part in location

According to these schemas, there exists a valency-decreasing in which the object exists in the CP and leads into an intransitive resultative construction of the whole event (sentence).

- (129) *gardan-kaj-kardan* lit. neck_N-crooked_{ADJ}-do 'tilt neck, asking for sth.'
- (130) *sar-kham-kardan* lit. head_N-bent_{ADJ}-do 'bend head, respecting others'
- (131) *Ali moqaabel-e digaraan sar-kham-mi-konad.*
 Ali in front of-EZ others head_N-bent_{ADJ}-HAB-do.PRS.3SG
 'Ali bend his head in front of others.' (The figurative sense is of respecting others)

As indicated in these examples and as mentioned above, CPs of this group, mostly appear as metaphorical extensions. In other words, they are used to describe a real state metaphorically by referring to a posture. For example, in (130) the CP *sar-kham-kardan* lit. head_N-bent_{ADJ}-do 'bend head' is the sign of respect. In example (129) the figurative sense is of asking and begging for something.

Another constructional schema of this group is as follows, which is also metaphorical. This construction constitutes 50% of the CPs in this group.

SEM: X CAUSE Y HAVE BODY PART on BODY PART

SYN: NP1 NP2 N.[body part]-Prep-N.[body part]-do

Paraphrase: agent cause patient to change state of body part in location (another body part)

Based on this sense an agent causes a patient to have a body part (normally a hand or a finger) on another body part (location). CPs of this sense lead to transitive resultative construction.

- (132) *angosht-be-dahaan-kardan* lit. finger_{TN}-to_{Prep}-lip_N-do 'have finger on mouth, surprise somebody'

(133) *dast-be-sar-kardan* lit. hand_N-to_{Prep}-head_N-do 'have hand on head, fool, confuse'

(134) *in aadam hamisheh digaraan-raa dast-be-sar-mi-konad.*
 this person always others-OM hand_N-on_{Prep}-head_N-HAB-
 do.PRS.3SG
 'This person always fools others.'

In example (132), putting the finger on the mouth is the sign of surprise. In (133), and (134) the hand on the head is the sign of confusion and uncertainty.

In sum, CPs of this category are metaphorical extensions. These CPs in 50% of cases appear as intransitive resultative in a sentence and in 50% of cases as transitive resultative. Valency-decreasing also occurs in these CPs, due to the occurrence of direct object (patient) within the predicate to build an intransitive CP such as *sar-kham-kardan*, lit. head_N-bent_{ADJ}-do, 'bend one's head'. Therefore, the PV is always a complex one consisting of several nouns or a noun plus an adjective.

6.1.3. Arrangement

As the name of this category indicates, all the CPs that refer to the arrangement of entities in a specific location can be considered members of this group. These CPs are produced by combining an arrangement adjective with the LV *kardan* 'do'.

SEM: X CAUSE Y BE ARRANGED LOC

SYN: NP1 NP2 PrepNP3 ADJ.[arrangement]-do

Paraphrase: agent change location of patient by changing its arrangement

All the CPs in this category lead to a transitive resultative construction. These CPs, as previous transitive resultative constructions, are built with an adjective and the LV *kardan* 'do' as follows:

(135) *pakhsh-kardan*, lit. scattered_{ADJ}-do 'scatter'

(136) *jam-kardan*, lit. arranged_{ADJ}-do 'arrange'

(137) *Maryam ketaab-haa-yash-raa rou-ye zamin pakhsh-kard*

Maryam book-PL-GEN-OM on-EZ floor scattered_{ADJ}-do.PST.1SG

'Maryam scattered her books on the floor.'

As shown in the above examples, an agent changes the way that entities are arranged which leads to their change of location. For example, well-ordered entities can go under a change of state by being scattered or vice versa.

The themes of the sentences in this group are objects that have the possibility of being arranged. They cannot be singular; they always appear as plural or as a mass of something such as sugar.

The group *arrangement* has a subgroup referring to a specific type of arrangement, which is *piling*.

SEM: X CAUSE Y BE PILED LOC

SYN: NP1 NP2 PrepNP3 N.[arrangement/pile]-do

Paraphrase: agent change location of patient by piling it

This sense shows that an agent puts an entity in a location by changing the state of the entity to being piled. All the sentences in this category are transitive resultative, and the PV always appears as a noun, as in the following examples:

- (138) *poshteh-kardan* lit. pile_N-do 'pile'
- (139) *tapeh-kardan* lit. hill_N-do 'pile something like a hill'
- (140) *kope-kardan* lit. wad_N-do 'put in a wad'
- (141) *pesar lebaas-haa-yash-raa rouy-e takht poshteh-kard*
 pesar cloth-PL-GEN-OM on-EZ bed pile_N-do.PST.3SG
 'The boy piled his clothes on the floor.'

As shown in all these examples, the PVs are nouns, such as *mountain*, *hill*, *wad*, and *pile*, which have certain common properties. The theme of these CPs always appears in the plural (often a large quantity), which is logical since only multiple entities can be piled or stacked.

6.1.4. Connection

The LV *kardan* 'do' has the possibility of co-occurring with certain PVs to produce CPs which express the agent's attempt to connect or disconnect an entity to another entity. Schemas of the CPs in this category are as follows:

SEM: X CAUSE Y BE (DIS) CONNECTED LOC

SYN: NP1 NP2 PrepNP3 ADJ.[un/connected]-do

Paraphrase: agent cause patient be connected to location

The CPs produced with this construction lead to transitive resultative since the theme is *connected* to a place.

- (142) *vasl-kardan* connected_{ADJ}-do 'connect'
- (143) *cheft-kardan* tight_{ADJ}-do 'fasten tightly'

- (144) *aan mard dastgireh-raa be dar vasl-kard*
 that man handle-OM to door connected_{ADJ}-do.PST. 3SG
 ‘That man connected the handle to the door.’

As in the other groups, in all these examples the LV *kardan* ‘do’ has semantic interaction with PVs. In other words, in combinations of this group the LV *kardan* ‘do’ is required since it expresses the notion of performing and doing an activity. These meanings of *kardan* are compatible with PVs of this group which are a process like *connection*. Certain examples of this group express the notion of disconnection.

- (145) *baaz-kardan* open_{ADJ}-do ‘open’

- (146) *jodaa-kardan* detached_{ADJ}-do ‘detach’

- (147) *ghalaadeh-raa az gardan-ash baaz-kard*
 collar-OM from neck-GEN open_{ADJ}-do.PST.3SG
 ‘He opened the collar from his neck.’

In these examples, the agent causes the theme’s change of state, which is disconnection.

6.1.5. Cover

Certain complex predicates in our data set appear to express the notion of covering, using a PV such as *soil*, which has the potential to cover entities.

SEM: X CAUSE Y BE COVERED LOC

SYN: NP1 NP2 PrepNP3 N.[covering]-do

Paraphrase: agent cause patient be in location by covering it

All cases of this group are transitive resultative construction.

- (148) *khaak-kardan* soil_N-do ‘put in the soil’
- (149) *dafn-kardan* burial_N-do ‘bury in earth or soil’
- (150) *chaal-kardan* hole_N-do ‘hide in a hole’
- (151) *zarf-haa-ye* *atighe-raa* *injaa* *dafn-karde-and*
 plate-PL-EZ antique-OM here burial_N-do.PST.3SG
 ‘They have buried antiques here.’ [They hide them here in the soil.]

As indicated in these examples, the PV always appears whether as a surface to cover, as a container to hide an entity, or as a noun that refers to soil or earth like *dafn* ‘burial’. Nouns that occur in these combinations like ‘burial’ in Persian have the notion of hiding or putting something in the soil. In all cases, PV is a noun with covering features.

6.1.6. Path

All the CPs that appeared in this category express a change of location and include path of motion which in this case expressed by the PV. CPs of this group appear as caused-motion as in the structure below in 60% of the cases.

SEM : X CAUSE Y GO PATH

SYN: NP1 NP2 PrepNP3 N.[path]-do

Paraphrase: agent cause patient move via path

In this semantic sense, an agent causes a patient to move towards a location via a specific path.

- (152) *rad-kardan* lit. pass_N-do ‘pass’

(153) *montaqel-kardan* lit.transfer_N-do 'transfer'

(154) *vey toup-raa az paay-e baazikon rad-kard.*

he ball-OM from foot-EZ player pass_N-do.PST.3SG

'He passed the ball through the player's foot.'

In these examples through passing or throwing, the entities reach the goal. The CPs are built of a PV (noun) with the notion of change of place and path such as 'pass' or 'transfer' and the LV *kardan* 'do.' Like other PVs that co-occur with *kardan* 'do', PVs of this group also are compatible with the notion of 'performing' which is one of the meanings of *kardan*.

Path expressing CPs can also occur in an intransitive motion construction (40% of the cases in our data set) as follows:

SEM: X GO LOC

SYN: NP1 PrepNP2 N.[path]-do

Paraphrase: theme moves via path

According to this sense, an entity moves to a place via a path and in a specific manner.

(155) *nasht-kardan* lit. leak_N-do 'leak'

(156) *obour-kardan* lit. crossing_N-do 'cross'

(157) *aab az louleh nasht-mi-konad.*

Water from pipe leak_N-HAB-do.PRS.3SG

'Water is leaking from the pipe.'

As shown in these examples, an entity is moving from one place to another place for a reason or in a specific manner. For example, in (157) the water is moving due to leakage, and in (156) the CP *obour-kardan* ‘pass’ in addition to the notion of change of place also expresses passing through a passage. According to Goldberg and Jackendoff (2004), verbs that have path resultative construction normally express manner of motion.

The CPs of path have two constructions: caused-motion, which includes the majority of cases, and intransitive motion. In both of these cases, the PV always appears as a noun or a noun phrase that refers to a path.

A specific subgroup of this category is that where the notion of orientation is included as well. This construction can lead to either transitive or intransitive constructions. The following constructional schema pertains to the caused-motion construction, which occurs in 84.62% of the cases.

SEM: X CAUSE Y GO Z DIRECTION LOC

SYN: NP1 NP2 PrepNP3 N/ADV.[path/direction]-do

Paraphrase: agent cause patient move in path

Based on this semantic sense, the agent of the sentence leads the patient towards a specific direction and causes the change of place of the entity.

(158) *vaared-kardan* lit. import_N-do ‘import’

(159) *biroun-kardan* lit. out_{ADV}-do ‘send somebody out’

(160) *Swede az Iran pesteh vaared-mi-konad.*

Sweden from Iran pistachio import_N-HAB-do.PRS.3SG

‘Sweden imports pistachio from Iran.’

In all the above examples, an agent changes the place of an entity, and the direction of this change is expressed by one of the predicates (PV) in the CP. For example, in (160) an agent moves an entity to another place by means of importing. The word ‘importing’ implies the direction of the movement. In (159), the agent forces the patient to go out of the room; the adverb ‘out’ directly refers to the direction and path of movement.

Although the majority of the sentences in this group are caused-motion constructions, 15.38% refer to intransitive motion with the following structure:

SEM: X GO Z DIRECTION LOC

SYN: NP1 PrepNP2 N.[path/direction]-do

Paraphrase: agent move in path to a location

Complex predicates with this semantic sense, which are few in this category, consist of a noun as their PV and the light verb *kardan* ‘do.’

(161) *soghout-kardan* fall_N-do ‘fall’

(162) *mohaajerat-kardan* immigration_N-do ‘immigrate’

(163) *havaapeyma-ye rousi dar marz-e Iran soghout-kard.*

airplane-EZ Russian in border-EZ Iran fall_N-do.PST.3SG

‘The Russian airplane fell near Iranian border.’

In these examples, all the nouns that appear as the PV express the direction of movement implicitly. For example, in (163) although the direction is not mentioned directly, it is clear that the word *fall* refers to a downward direction. As in other groups, here also there is a semantic interaction between PV and LV, and since all the

PVs refer to a process, they co-occur with a verb that has the notion of performing such as *kardan* ‘do’.

6.1.7. Perception

Members of this group do not behave like previous groups, as they do not directly refer to the existence or location of an entity; instead, when they refer to the perception of an entity of which the existence is confirmed. This group does not refer to any cause, change of state, or movement. Complex predicates of perception are transitive stative verbs with the following structure:

SEM: X HAS PERCEPTION of Y LOC

SYN: NP1 NP2 PrepNP3 N.[sense]-do

Paraphrase: agent feel/see/taste...theme in location

In this group the locative element is not part of the CP; instead, certain senses are at work. Complex predicates appear transitive, and the agent is vividly an animate entity with senses.

(164) *hes-kardan* lit. feeling_N-do ‘feel’

(165) *nezaareh-kardan* lit. watching_N-do ‘watch’

(166) *ghatreh-aabi-raa rou-ye tan-am hes-kardam*
 droplet-water-OM on-EZ body-GEN feel_N-do.PST.1SG
 ‘I felt droplets of water on my body.’

In example (166), there is a droplet, on the skin of a human, and the existence of the droplet is expressed by the CP *hes-kardan* ‘feel’. In this sentence no spatial CP is

used; rather, by feeling the entity on the skin, we conclude that there exists an object on it.

6.1.8. Retaining

Another semantic group of the LV *kardan* 'do' is retaining, and the members of this group express how an entity is stuck in a place and kept there for a while. Complex predicates with this specification appear transitive with the following constructional schema:

SEM: X CAUSE Y BE RETAINED LOC

SYN: NP1 NP2 PrepNP3 ADJ.[retaining]-do

Paraphrase: agent cause patient be retained in location

The constructional schema of this group shows that an agent retains a patient in a location by force. Therefore, PVs of this group need to interact with a LV that has the possibility to express the notion of activities done by force.

(167) *zendaani-kardan* lit. captive_{ADJ}-do 'imprison'

(168) *asir-kardan* lit. captive_{ADJ}-do 'capture'

(169) *bache-haa-raa tou-ye otaagh zendaani-kard*
 kid-PL-OM in-EZ room captive_{ADJ}-do.PST.3SG

'He imprisoned the kids in the room.'

In example (169), an agent keeps the theme in a location by imprisoning them in the room. In all of these examples the LV *kardan* 'do' is needed, which has the notion of performing and has the potential to express activities done by force. If such PVs combine with other LVs, they express other notions. For example, the CP *zendaani-*

keshidan lit. captive_{ADJ}-pull refers to the duration of the imprisonment. This CP is also intransitive in comparison with the CP *zendaani-kardan* lit. captive_{ADJ}-do.

- 170) *saal-haa* *zendaani-keshid*
 year-PL captive_{ADJ}-take.PST.3SG
 ‘He was imprisoned for years.’

One of the meanings of the LV *keshidan* ‘pull’ is ‘prolong’ which has a contribution in the meaning of the whole construction. In examples such as (170), even if we do not consider the phrase ‘for years’, the CP itself can refer to a duration.

6.1.9. Onomatopoeia

This group shows different behavior in comparison with previous groups and mostly behaves like the sensation category. The CPs of this group do not directly refer to the location or existence of an entity; instead, the PVs are onomatopoeia and reflect the sound of the entity, which is taken as the evidence of the entity’s existence. The following is the constructional schema of this group.

SEM: X MAKE Z SOUND LOC

SYN: NP1 prepNP2 onomatopoeia-do

Paraphrase: theme make a sound in location and express presence

Members of this group are neither resultative nor causative, but they are unaccusative and intransitive as follows.

- (171) *pet-pet-kardan* Lit. pet-pet-do ‘producing a sound like pet pet’
 (172) *shalap-shulup-kardan* Lit. shalap-shulup-do ‘producing a sound like shalap
 shulup’

(173) *khesh-khesh-kardan* Lit. khesh-khesh-do ‘producing a sound like khesh khesh’

(174) *barg-haa zir-e paa-haa-yash khesh-khesh-mi-konand*
 leaf-PL under-EZ foot-PL-GEN khesh-khesh-HAB.do.PRS.3PL
 ‘Leaves produce a sound like khesh khesh under his feet.’

These examples, which are quite a few in our data set (three), show no change of place or state. In example (174), the leaves are making *khesh khesh* sound under the foot of a human; they act as the agent of the sentence, but in fact, these CPs are unaccusative. The sound is the proof of the leaves’ existence on the ground.

6.1.10. Presence

As the name of this category indicates, CPs of this group directly refer to the presence of an entity, and in the majority of cases, an agent leads to the presence of an entity in a place. CPs in this group lead to transitive resultative construction in 86.36% of the cases as follows:

SEM: X CAUSE Y BE VISIBLE LOC

SYN: NP1 NP2 prepNP3 N/ADJ.[presence]-do

Paraphrase: agent cause patient be visible in location

According to this schema, an agent causes the visibility of a theme in a place.

(175) *ehzaar-kardan* lit. summon_N-do ‘summon’

(176) *barmalaa-kardan* lit. reveal_{ADJ}-do ‘reveal’

(177) *Ali-raa be daadgaah ehzaar-kardand*
 Ali-OM to court summon_N-do.PST.3SG

‘They summoned Ali to the court.’

Complex predicates in such examples consist of a noun or an adjective, and the LV *kardan* ‘do.’ In (177), the patient is called to court and subsequently appears in court.

In addition to this construction, certain CPs also occur in intransitive and unaccusative constructions.

SEM: X BECOME VISIBLE in LOC

SYN: NP1 prepNP2 N.[presence]-do

Paraphrase: theme become visible in location

(178) *islam dar arabestaan saudi zohour-kard*

islam in Saudi Arabia appearanc_N-do.PST.3SG

‘Islam emerged in Saudi Arabia.’

The intransitive constructions such as (178) concern only 13.63% of the CPs in this group. The agent of such examples is normally inanimate and abstract, like *din* ‘religion’ or *ghazieh* ‘issue’.

6.1.10.1. Presence: Disappearance

This group is a specific type of presence in which an entity moves to disappearance.

SEM: X CAUSE Y DISAPPEAR LOC

SYN: NP1 NP2 prepNP3 ADJ.[disappearance]-do

Paraphrase: agent cause patient be invisible in location

As this schema shows, an entity disappears due to the agent's activity. All the cases in this group are transitive resultative and the PV as other transitive resultative groups is mostly adjective. The PV in this construction refers to the process of disappearance and needs to co-occur with a LV such as *kardan* 'do' since the verb 'do' has the notion of action.

(179) *penhaan-kardan* lit. hide_{ADJ}-do 'hide'

(180) *paak-kardan* lit. wipe_{ADJ}-do 'wipe'

(181) *angoshtar-raa* *zir-e* *miz* *penhaan-kard*
 ring-OM under-EZ table hidden_{ADJ}-do.PST.3SG
 'She hid the ring under the table.'

6.1.10.2. Presence: Empty/Full

This group of CPs expresses the way in which a location can be filled with or emptied of an entity. This construction shows the change of place of entities and contains specific information regarding this change. Complex predicates of this group may appear in the following ditransitive constructions:

SEM: X CAUSE Y (LOC) BECOME FULL with Z

SYN: NP1 NP2 prepNP3 ADJ.[full]-do

Paraphrase: agent cause location be full of something

SEM: X CAUSE Y (LOC) BECOME EMPTY of Z

SYN: NP1 NP2 prepNP3 ADJ.[empty]-do

Paraphrase: agent cause location be empty of something

These constructions need an agent to fill or empty a location. The first construction refers to filling a container and the second one expresses how a container can be emptied of an entity.

(182) *kaargar-haa divaar-e hayaat-raa baa simaan por-kardand*
 worker-PL wall-EZ yard-OM with cement full_{ADJ}-do.PST.3SG
 ‘The workers filled the yard’s wall with cement.’

(183) *maahigir kashti-raa az maahi khaali-kard*
 fisherman ship-OM of fish empty_{ADJ}-do.PST.3SG
 ‘The fisherman emptied the ship of fish.’

In example (182) the cement is moved to the wall to fill it. In (183), the agent of the sentence (fisherman) empties the ship, and the theme disappears from the location.

Complex predicates of this group can also lead to transitive constructions. The schemas of transitive CPs with the notion of filling are as follows:

SEM: X FILL Y

SYN: NP1 NP2 ADJ.[full]-do

Paraphrase: agent fill location

(184) *bou otaagh-raa por-kard*
 scent room-OM full_{ADJ}-do.PST.1SG
 ‘The scent filled the room.’

In this example, the room is filled with a smell. Therefore, the scent of an entity exists everywhere in the room. In this example, *room* appears as the location of the sentence and the scent as the theme

The schemas of the transitive CPs that have the notion of emptying are as follows:

SEM: X EMPTY Y in LOC

SYN: NP1 NP2 prepNP3 ADJ.[empty].do

Paraphrase: agent empties patient into location

- (185) *sekeh-haa-raa tou-ye dast-e man khaali-kard*
coin-PL-OM in-EZ hand-EZ me empty_{ADJ}-do.PST.3SG
'He emptied the coins into my hand.'

In (185) the theme (coins) is emptied into a hand as the new location. This construction equals the 'empty into something' construction in English, as in *the Mississippi River empties into the Gulf of Mexico*.

In sum, the CPs of the group empty/full, appear as either ditransitive or transitive, and they are related to each other via "subpart links" (Goldberg, 1995: 78). As Hilpert puts it "subpart links relate constructions that show either formal or semantic overlap" (Hilpert, 2014: 105). According to Hilpert (2014), ditransitive and transitive constructions are related via so-called subpart links. They act as members of the same family with certain similarities and differences.

6.1.11. Action

Complex predicates of this group express activities in which the notion of creation (one of the meanings of *kardan* 'do') is reflected. The CPs of this group appear as transitive resultative as follows:

SEM: X CAUSE Y BE LOC via SPECIFIC ACTIVITY

SYN: NP1 NP2 prepNP3 ADJ.[action]-do

Paraphrase: agent cause patient be in location due to specific action

According to this sense, an agent carries out a process on an entity (theme), which results in the presence of the entity in a location.

(186) *chaap-kardan* Lit. printing_N-do 'print'

(187) *savaar-kardan* Lit. assembling_N-do 'assemble'

(188) *ghate-haa-ye kouchak-raa baalaa savaar-kard*
 part-PL-EZ small-OM up assembling_N-do.PST-3SG

'They assembled the small parts on top.'

In example (188), the small parts of an instrument appear on top after the action of assembling.

In sum, in the category of *action* CPs appear transitive and take nouns as their PV. In other words, since the CP expresses a creative activity, the PV refers to a specific creative action like 'printing' or 'assembling' (N).

6.1.12. Surrounding

Complex predicates of this group are used in cases where an agent surrounds a patient. They only appear in transitive resultative constructions as follows.

SEM: X CAUSE Y BE SURROUNDED LOC (in X)

SYN: NP1 NP2 N.[surrounding]-do

Paraphrase: agent (plural) cause patient be surrounded in a location which is agent itself

According to this schema, X (agent) surrounds Y (patient), in a way that the Y is located in X. In other words, the agent also plays the role of location.

Verb-Specific Analysis

(189) *ehaateh-kardan* Lit. surround_N-do 'surround'

(190) *mohaasereh-kardan* Lit. blockad_N-do 'blockade'

(191) *police dozd-haa-raa mohaasereh-kard*
 police thief-PL-OM blockad_N-do.PST.3SG

'The police blockaded the thieves.'

In this example, the thieves are surrounded by the police officers because the officers blockaded them. The location is the area that is made by the police officers. In these examples, since the agent surrounds the patient, normally the agent appears as plural nouns rather than individual nouns.

This group has a subtype in which CPs express that the patient (Figure) is surrounded by an instrument (Ground). The schemas are as follows.

SEM: X CAUSE Y BE SURROUNDED LOC (in instrument)

SYN: NP1 NP2 N.[instrument]-do

Paraphrase: agent cause patient be surrounded by an instrument (Ground)

As indicated in this schema, an agent causes a patient to be surrounded. The result of the activity is that the patient is placed inside an instrument which is the Ground of the sentence. All the examples in this group appear as transitive resultative.

(192) *qaab-kardan* lit. fram_N-do 'frame'

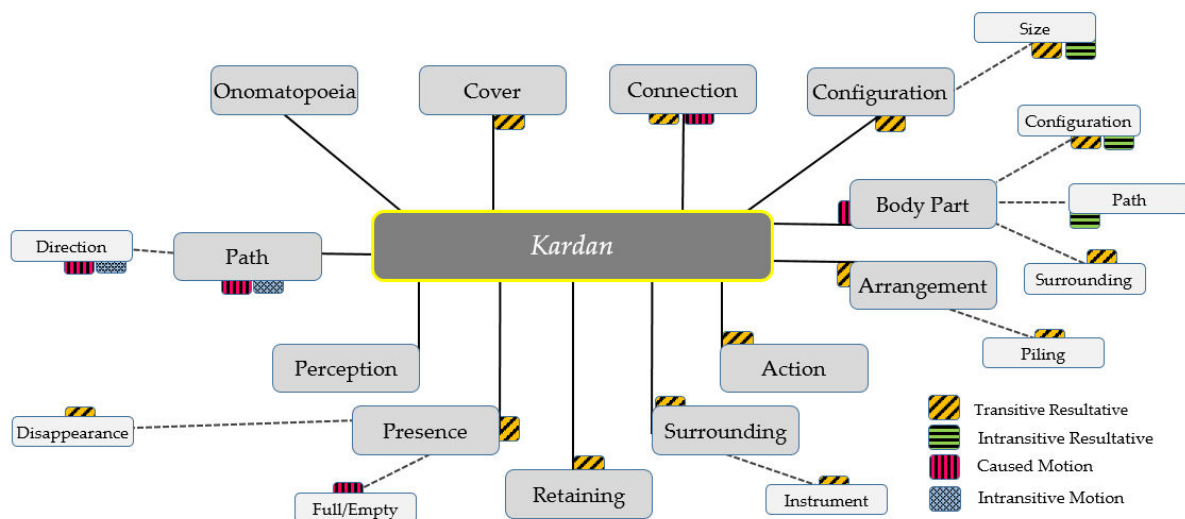
(193) *sim-pich-kardan* lit. wire_N-twist_N-do 'wire, wrap wire around something'

(194) *maadar aks-e farzand-raa qaab-kard*
 mother photo-EZ child-OM fram_N-do.PST.3SG

'The mother framed the child's photo.'

As indicated in these examples, the PV is always an instrument (noun), which is considered the location (Ground) of the sentence. The occurrence of the location (as PV) in CPs like this leads to a valency-decreasing construction. In examples of this group, in order to surround an entity, an instrument (PV) should interact with an LV like *kardan* ‘do’ (make, implementation) semantically rather than LVs like *khordan* ‘eat’, *bordan* ‘take’, *aavardan* ‘bring’. In other words, PVs of this group cannot co-occur with other LVs since they are not compatible semantically. The only LV that is compatible with these PVs is *shodan* ‘become’ which is the intransitive alternation of *kardan* ‘do’ in combinations of this group.

Figure 5: Semantic Network of *kardan* Constructions in Spatial Events



6.2. *Zadan* ‘hit’

In this section, we will analyze the semantic categories of the LV *zadan* ‘hit’. We intend to compare and contrast their characteristics, based on which we can show the existing systematicity in complex predicate formation. See the following examples,

which demonstrate the possibility of having a common PV with two different LVs in spatial events.

(195) *dast-zadan* lit. hand_N-hit 'touch'

(196) *dast-kardan* lit. hand_N-do 'put on, wear gloves, bracelet, ring....'

In example (195), the light verb *zadan* 'hit' combines with the PV *dast* 'hand' and the meaning of the CP is 'touch'. In example (196) the PV *dast* 'hand' combines with the LV *kardan* 'do' to build a new complex predicate which means 'put on, wear.' The semantic difference between these two constructions is clear: while in the former, there exists the notion of touch, in the latter one the contact between the theme and the location is more than a touch, and the entity is put inside a container. The differences and similarities between these kinds of constructions will be discussed in more detail in the following sections.

Next to *kardan* 'do,' the LV *zadan* 'hit' is one of the most frequent LVs. In modern Persian, this verb has several related meanings, such as 'hit,' 'beat,' 'stick,' 'bust,' 'cut,' and 'delete.' Among all the meanings, 'hit' is considered as the prototypical meaning, which means to slam, touch or move something quickly. The full lexical verb *zadan* 'hit' is transitive and has the following argument structure:

(197) Syntax: NP1 NP2-EZ-ACC *zadan*
 Ali *khaahar-ash-raa* *zad*
 Ali sister-GEN-OM hit-PST-3SG
 'Ali hit his sister.'

According to this syntactic structure, two NPs appear in sentences built with the verb *zadan* 'hit'. The first NP refers to the agent (subject) of the sentence and the

second refers to the patient (object). Although the meaning of the combination is the result of the interaction between PV and LV, the core meaning of ‘hit’ still exists in the combination.

Table 2: Categories and Frequencies ‘PV-zadan’

Semantic category	Sub-category	Persian PV	English PV	Frequency
path		<i>pas</i>	back	12
		<i>biroun</i>	out	9
		<i>kenaar</i>	side	7
		<i>baala</i>	up	5
		<i>aqab</i>	back	4
		<i>jelo</i>	front	2
		<i>goriz</i>	escape	1
manner		<i>qadam</i>	step	4
		<i>charkh</i>	wheel	3
		<i>lang</i>	lame	3
		<i>ghalt</i>	tumble	3
		<i>jast</i>	leap	2
		<i>moj</i>	wave	2
		<i>pich</i>	screw	2
		<i>be-chaak</i>	slit	1
		<i>charkhofalak</i>	carousel	1
		<i>poshtak</i>	somersault	1
		<i>qaap</i>	snap	1
	<i>voul</i>	slither	1	

Verb-Specific Analysis

body part		<i>sar</i>	head	3	
		<i>chang</i>	claw	2	
		<i>dahan</i>	mouth	2	
		<i>zaanou</i>	knee	2	
		<i>angosht</i>	finger	1	
		<i>dast</i>	hand	1	
		<i>naakhonak</i>	nail	1	
		<i>paa</i>	foot	1	
		<i>zabaan</i>	tongue	1	
		Path	<i>sar-be-biaabaan</i>	head-to-desert	2
			<i>khoshi-zire-del</i>	happiness- under-belly	1
			<i>sar-be-biraaheh</i>	head-to- trackless-area	1
			<i>sar-be-falak</i>	head-to-sky	1
			<i>sar-be-kouh</i>	head-to- mountain	1
		<i>sar-be-saghf</i>	head-to-ceiling	1	
connection		<i>gereh</i>	knot	3	
		<i>mark</i>	tag	2	
		<i>vasleh</i>	patch	2	
		<i>bakhieh</i>	suture	1	
		<i>kouk</i>	stitch	1	
		<i>peyoand</i>	transplant	1	
		<i>plaque</i>	plaque	1	
adding		<i>aab</i>	water	1	

		<i>advīyeh</i>	spice	1
		<i>felfel</i>	pepper	1
		<i>gol</i>	flower	1
		<i>namak</i>	salt	1
		<i>sam</i>	poison	1
		<i>vanil</i>	vanilla	1
arrangement		<i>bor</i>	shuffle	1
		<i>ham</i>	stir	1
		<i>varaq</i>	page	1
configuration		<i>chombaاتمeh</i>	hunkering	1
		<i>khoshk</i>	dry	1
		<i>tekiyeh</i>	lean	1
sticky Substance		<i>pomaad</i>	pomade	1
		<i>roghan</i>	oil	1
		<i>rozh</i>	lipstick	1
Total				112

As illustrated in Table (2), certain categories consist of subcategories as well. These subcategories have a more specified semantic domain, and they are specific types of the main categories. For example, the category *body part* also has a subcategory called *path*. Members of this subcategory express movement of a body part and also contain the path of activity like *sar-be-aasemaan-zadan* lit. head_N-to_{Prep}-sky_N-hit' which is a metaphor for a high degree in something (as high as the sky). In the following section, we describe each extension in detail.

6.2.1. *Path with Direction*

Members of this group directly refer to the path and direction of activity. CPs in this group express the direction in which an entity moves. The majority of the sentences in this group are transitive (67.5%) with the following semantic sense.

SEM: X CAUSE Y GO Z DIRECTION

SYN: NP1 NP2 (PrepNP3) ADV.[path/direction]-hit

Paraphrase: agent cause patient move via path (with specific orientation) in a quick action

Based on this semantic sense an agent leads the patient towards a direction, which results in the change of place of the theme.

- | | | | |
|---------------------------------|-------------------------------|-----------------|--------------------------------------|
| (198) <i>kenaar-zadan</i> | lit. side _{ADV} -hit | | 'brush aside' |
| (199) <i>baalaa-zadan</i> | lit. up _{ADV} -hit | | 'put something in an upper position' |
| (200) <i>patou-raa</i> | <i>az</i> | <i>rou-yash</i> | <i>kenaar-zad</i> |
| blanket-OM | from | body-GEN | aside _{ADV} -hit.PST.3SG |
| 'He brushed aside his blanket.' | | | |

As indicated in example (200), the agent, a human, moves the blanket in a direction. Therefore, the blanket traverses a path and ends in another place. The complex predicate is expressing two activities (events) at the same time. One of them is a quick act, which is under the influence of one of the meaning of the LV *zadan* 'hit' (the definitions of hit in Longman dictionary (1978) is to touch, move, or slam something quickly; the same definition is expressed in Amid (1963) Persian dictionary). The other one is putting an entity aside. The meaning of the complex predicate is the result of the semantic interaction between PV and LV. With respect

to the short durational aspect of CPs in this group, they do not allow clauses like ‘it took X t’ in which X refers to a long duration instead of a short or momentary one. Examples, as follows, are not possible:

(201) **si daghighkeh toul-keshid taa patoo-raa kenaar-zad*
 thirty minute duration_N-take.PST.3SG to blanket-OM side_{ADV}-
 hit.PST.3SG

‘It took him thirty minutes to brush aside the blanket.’

This structure looks odd in Persian; however, the following structure works properly:

(202) *se saanieh toul-keshid taa patoo-raa kenaar-zad*
 three second duration.N-take.PST.3SG to blanket-OM side_{ADV}-
 hit.PST.3SG

‘It took him three seconds to brush aside the blanket.’

According to Engelberg (1999), momentary actions normally have an interval of three seconds (approximately).

In addition to the sense mentioned above, 32.5% of the CPs were also found with the following constructional schema:

SEM: X GO Z DIRECTION LOC

SYN: NP1 PrepNP2 ADV.[path/direction]-hit

Paraphrase: theme move from a point to another in Z direction in a quick action.

Based on this sense an entity is moving between two points and the direction of the movement is expressed by the PV. The LV *zadan* ‘hit’ contributes to the meaning of the whole construction. Since the full counterpart of ‘hit’ means to move quickly, CPs built with that also reflect a quick action. As represented in the schema of these

constructions although the full counterpart of ‘hit’ is transitive the CPs built with this verb can also appear intransitive. In fact, among the CPs of this group when the subject is inanimate like (203), it leads to an unaccusative and intransitive construction.

(203) *aab* *az* *sath-e* *sad* *baalaa-zad*
 water from level-EZ dam up_{ADV}-hit.PST.3SG
 ‘The water level crossed the maximum height of the dam.’

In this example, the theme *water* has moved upward, and the quick movement is expressed by *hit* (LV).

In sum, as the schemas of this group show, members of this category refer to quick motion events (due to the core meaning of the LV *zadan* ‘hit’) whether transitive or intransitive. However, they mostly appear as caused-motion. The preverbal element in this group is an adverb that refers to a direction.

Certain PVs of this group such as *biroun* ‘out’ can combine with other LVs like *kardan* ‘do.’ However, they represent different syntactic and semantic characteristics. These differences will be discussed in detail in section 6.5 (comparison of LVs).

6.2.2. Body Part

Complex predicates of this group have a body part as their PV and the verb *zadan* ‘hit’ as their LV. In the majority of cases, having a body part in a location is the result of the activity. CPs in this group lead to a caused-motion construction in 64.28% of the cases.

SEM: X CAUSE BODY PART TOUCH LOC

SYN: NP1 (Prep)NP2 N.[body part]-hit

Paraphrase: agent cause body part touch theme (location) quickly

In examples of this constructional schema a quick touching, under the influence of the meaning of *zadan* 'hit', occurs. A body part such as *dast* 'hand,' *naakhon* 'nail,' *angosht* 'finger', *dahaan* 'mouth', *paa* 'foot' move to touch a surface.

(204) *dast-zadan* lit.hand_N-hit 'touch something with hand'

(205) *paa-zadan* lit.foot_N-hit 'touch something with foot, try a shoe on quickly'

(206) *fenjaan-e shakhsi-ye man-raa dahan-zad*
 cup-EZ personal-EZ me-OM mouth_N-hit.PST.3SG
 'He touched my personal cup with his mouth.'

In addition to the caused-motion construction, 35.72% of the CPs in this semantic group have the following constructional schema:

SEM: X [CAUSE BODY PART] BE LOC

SYN: NP1 PrepNP2 N.[body part]-hit

Paraphrase: agent's body part be in location (by hitting body part to location)

CPs of this type have a valency-decreasing construction in which the object occurs in the CP and leads to an intransitive resultative construction as follows:

(207) *mard rou-ye zamin zaanou-zad*
 man on-EZ ground knee_N-hit.PST.3SG
 'The man kneeled on the floor.'

In the CP *zaanou-zadan* ‘kneel,’ the PV *zaanou* (noun) needs a LV that expresses the notion of touching and the result of the semantic interaction between these two is that the knee is on the ground. Another example of this schema is *sar-zadan* lit.head_N-hit ‘stop by’.

- (208) *khaahar-am harrouz be man sar-mi-zanad*
 sister-GEN everyday to me head_N-PROG-hit.PRS.3SG
 ‘My sister stops by everyday.’

The CP *sar-zadan* lit.head_N-hit is used as a metaphorical example in this sentence, and it is worth mentioning this specific CP does not necessarily express ‘touch’. The metaphorical meaning of the CP *sar-zadan* is ‘stop by suddenly and give a short visit’. The non-metaphorical meaning of this CP is ‘a part of a plant sticks up, and suddenly the plant appears from the soil or the sun rising (appearing) suddenly’. Therefore, the sudden appearance of a person in a place is like the sudden appearance of the plant or sun. In these examples, the ‘suddenness’ meaning of the LV *zadan* ‘hit’ contributes to the meaning of the construction. Persian speakers use other alternatives like the simplex verb *didan* ‘visit’ to refer to a longer visit.

In sum, since the PVs in this group are body parts, in all the cases they appear as a noun. CPs of this group express short duration while the combination of these PVs with LVs like *keshidan*, can express a longer duration: *dast-keshidan* lit. hand_N-take ‘touch something for a long time and move your hand on it’. Certain body parts can also combine with other LVs such as *kardan* ‘do’ which leads to certain semantic and syntactic differences. We will explain these differences in section 6.5 (comparison of LVs).

The group *body part* has a metaphorical extension in which the orientation of the body part's movement is expressed as follows:

SEM: HEAD of X GO to LOC

SYN: NP CPV.[head+pp]-hit

Paraphrase: theme change position/state (the position/place of head changes)

As the sense of this construction indicates, complex predicates of this group appear as intransitive motion construction, and the *head* is the necessary part of the CP. The PV in this construction is a complex phrasal element, which consists of the noun *head* followed by a *prepositional phrase*, which expresses a location. The noun that appears in pp is the source of metaphor and has the characteristics of the target domain of the metaphor.

(209) *hamsar-ash sar-be-biaabaan-zad*
 Spouse-GEN head_N-to_{Prep}-desert_N-hit.PST-3SG
 'His wife went to the dessert.'

Example (209) is metaphorical and is like an expression. In other words, the wife, in reality, did not go to a dessert, rather suddenly she became tired and upset and escaped from home to a calm place where she could comfort herself and reaches calmness. Desert is used in this expression since it is the symbol of a quiet and empty of people place.

(210) *gheymat-haa sar-be-falak-mi-zanad*
 price-PL head_N-to_{Prep}-sky_N-hit.PRS.3SG
 'The prices are as high as sky.' [The prices are very high.]

As these examples reveal, the CPs with the semantics *sar be JAAYI zadan* ‘head to PLACE hit’ are the metaphor of going somewhere, and the location is always one of the predicates in the CP. The specification of PLACE depends on the type of state or situation that we are describing. For example in (209), a person becomes tired of her situation and the chaos in her home (life), therefore, decides to leave her place and escapes to a calmer one. This is a metaphor for changing the situation (life) from a chaotic to a calmer one and since the desert is a calm place it has been chosen as the target. Example (210) also is another metaphorical construction in which the increase in prices are compared to upward motion, and the sky sets the limit. Therefore, in examples like this, *sar* ‘head’ is followed by a word that shows a high area, such as *sky, or ceiling*, to indicate the increase of something. The semantics of the CP constraints its form as well. Since in this group all the CPs refer to a body part’s change of location, they all consist of an NP followed by a prepositional phrase specifying the path.

6.2.3. Configuration

Complex predicates that appear in this group refer to the configuration of certain entities in certain locations. This configuration is expressed by the semantic interaction between the PV and LV. One of the constructional schemas of this group is as follows:

SEM: X BECOME Z SHAPE LOC

SYN: NP1 PrepNP2 ADJ/N.[configuration/shape]-hit

Paraphrase: theme be in location by a sudden change of shape (form).

According to this sense, an entity is in a location by changing shape. CPs in this group lead to intransitive resultative construction.

- (211) *parastaar rou-ye sandali khoshk-ash-zad*
 nurse on-EZ chair dry_{ADJ}-GEN-hit.PST.3SG
 ‘The nurse became straight and motionless on the chair.’

In example (211), the nurse remains still on the chair, and this pose reflects a degree of shock. In fact, in this sentence, the nurse gets into a straight state, becomes motionless, and fixed like an animal that has been dried by taxidermy, or a plant that cannot grow after dryness. In general, no living creature can move after having dried up. The process of shock is similar, and when someone is shocked cannot move for a short time. As shown, the semantic interaction of PV and LV results in such meaning. A LV like *zadan* ‘hit’, which has the notion of quick and sudden action and the PV *khoshk* ‘become motionless suddenly’ interact semantically to express the whole meaning.

- (212) *koudak rou-ye zamin chombaatmeh-zad*
 child on-EZ floor hunkering_N-hit.PST-3SG
 ‘The child hunkered down on the ground.’

In (212) also the theme gets into a specific pose (hunkering) through quick action and stays in the location. Therefore, the theme is in the location through a quick change of state. The CP *chombaatmeh-zadan* ‘hunker’ does not allow clauses containing expressions referring to long intervals like ‘it took him thirty minutes to hunker’. The activities like (211) and (212) occur quickly; however, a person can stay in these position for a while.

In all the examples of *configuration*, since the CP describes the position of an entity, the PV appears as a noun or an adjective that can reflect this position.

6.2.4. Connection

As the name of this group suggests, the CPs, here, are responsible for expressing the attachment between two entities and they lead to transitive resultative constructions.

SEM: X CAUSE Y BE CONNECTED LOC

SYN: NP1 NP2 (PrepNP3) N.[attached]-hit

Paraphrase: agent cause patient be attached in location by tapping quickly.

According to this sense, an agent causes the presence of an entity in a location through attaching it to the location. Therefore, a change of state (being attached) is caused by the agent, which leads to the presence of the theme in a place.

(213) *peyvand-zadan* lit. transplant_N-hit 'transplant'

(214) *kouk-zadan* lit. stitch_N-hit 'stitch'

(215) *vasleh-zadan* lit. patch_N-hit 'patch up'

(216) *tarh-raa* *be* *paayin-e* *kaar* *kouk-zad*
 design-OM to bottom-EZ work stitch_N-hit.PST.3SG

'He stitched the design to the bottom of the work.'

As these examples show, in sentences with *attachment* CPs, entities are placed in a location through attachment. All the PVs appear as nouns with attachment properties such as 'knot', 'stitch', or 'patch'. Therefore, the syntax of the CPs is also predictable based on their semantics, and they are combinations of a noun and the LV. These

nouns (PVs) require a type of LV that expresses the notion of quick movement or tapping. For example, in (214), to stitch something the tapping of a needle is required at certain points. Also, each time that we insert the needle it only takes some seconds; however, this act can be repeated for several times (hours). The semantic interaction between PV and LV results in an activity, specifically an attachment, and the result of this attachment is the presence of the theme in a location. In cases that *kouk* ‘stitch’ co-occurs with the LV *kardan* ‘do’ it has a different meaning which is ‘tune up a musical instrument or clock.’

6.2.5. Sticky Substance

CPs of this group contain a sticky substance as their PVs. These CPs express the location of a sticky material (their PVs) in spatial sentences. These CPs always appear as intransitive constructions since the patient is one of the predicates (PV).

SEM: X CAUSE Y BE STUCK LOC

SYN: NP1 (Prep) NP2 N.[sticky]-hit

Paraphrase: agent cause a sticky (greasy) substance be stuck on patient (location).

As this schema shows, complex predicates of this group are valency-decreasing constructions since the theme (Figure) appears in the CP.

- | | | | | |
|------------------------------------|---------------------------------|-------------------|---------------|--------------------|
| (217) <i>roghan-zadan</i> | lit. greas _N -hit | ‘apply grease’ | | |
| (218) <i>roz_h-zadan</i> | lit. lipstick _N -hit | ‘put on lipstick’ | | |
| (219) <i>pomaad-zadan</i> | lit. pomad _N -hit | ‘apply pomade’ | | |
| (220) <i>doctor</i> | <i>be</i> | <i>zakhm-e</i> | <i>bimaar</i> | <i>pomaade-zad</i> |

doctor to wound-EZ patient pomade_N-hit.PST. 3SG

‘The doctor applied some pomade on the patient’s wound.’

In such examples, the LV *zadan* ‘hit’ preserves one of its meanings, which is *chasbaandan* ‘stick, apply’ and through this activity a greasy material ends up in a place. In comparison with the *connection* group; here, the Figure is a sticky and greasy substance that is stuck to the Ground; also CPs are valency-decreasing constructions while in the former they are valency-increasing.

6.2.6. Manner

The CPs in this group are always accompanied by a specific manner of movement. In this movement, the entity moves within the boundaries of the Ground. Hendriks et al. (2004) refer to this type of locative relationship as ‘dynamic general localization’. In this type of movement, the Figure has a constant motion within the same boundary and normally is accompanied by the preposition ‘in’.

The sense of this group is as follows:

SEM: X MOVE Z MANNER LOC

SYN: NP1 inNP2 N.[manner of motion].hit

Paraphrase: theme move with specific manner in location

As this sense shows, complex predicates of this group appear as intransitive motion in which an entity changes location with a specific manner.

(221) *qadam-zadan* lit. step_N-hit ‘walk’

(222) *charkh-zadan* lit. wheel_N-hit ‘stroll’

(223) *dar* *khiaabaan* *charkh-zadim*

in street wheel_N-hit.PST.1PL

'We strolled in the street.'

In example (223) the manner of movement is expressed by the CP within the same boundary (in the street). Since *charkh-zadan* lit. wheel_N-hit 'stroll' in Persian refers to a short journey the LV *zadan* 'hit', which has the notion of quick activities, is used in this combination. However, since the LV *zadan* 'hit' can also motivate the notion of repetitive activities, this short journey can be repeated for several times and leads to a longer activity. In *qadam-zadan* lit. walk_N-hit 'walk' since by taking each step, the feet are touching and tapping the ground the LV *zadan* 'hit' seems to be the most appropriate one. This activity is also repetitive and can be repeated for several times and, therefore, takes a longer time.

The following is another example of 'dynamic general localization'.

(224) *dar aab poshtakvaarou-mi-zanad*

in water somersault_N-HAB-hit.PST-3SG

'He somersaults in the water.'

In example (224), the theme does not cross the boundaries, and the movement occurs within the same ground (water); therefore, it is considered dynamic general localization. The CP 'somersault' has the notion of quick movements and tapping, which is under the influence of the LV 'hit'. It also can be repetitive; therefore, the LV *zadan* 'hit' seems to be the most appropriate one to interact semantically with the PV *poshtakvaarou* 'somersault'.

6.2.7. *Adding*

Complex predicates of this group refer to adding materials into a location through a series of quick activities. The core meaning of the verb *zadan* ‘hit’ is preserved in these constructions.

SEM: X CAUSE MATERIAL ADDED/SPRINKLED LOC

SYN: NP1 (Prep) NP2 N.[material].hit

Paraphrase: Agent cause patient (location) have specific material via quick movements.

In these types of constructions, CPs express caused motion, and at the end of the action, the entity is added to a given location.

- | | | |
|----------------------------------|--------------------------------|--------------|
| (225) <i>namak-zadan</i> | lit. salt _N -hit | ‘salt’ |
| (226) <i>sam-zadan</i> | lit. poison _N -hit | ‘add poison’ |
| (227) <i>aab-zadan</i> | lit. water _N -hit | ‘add water’ |
| (228) <i>ghazaa-raa</i> | <i>namak-zad</i> | |
| food-OM | salt _N -hit.PST.3SG | |
| ‘He sprinkled salt on the dish.’ | | |

The CP *namak-zadan* to the best of our knowledge has no exact equivalent in English, but the closest one is ‘sprinkle salt’. Adding salt to food depending on the manner of the action requires different types of CPs in Persian. The CP *namak-zadan* lit. salt_N-hit shows that the agent is adding salt via a series of quick movements (the core meaning of *zadan* ‘hit’). Each time that we bring down the saltshaker a certain amount of salt is added to the dish. This quick movement can be repeated for several times. There exist other CPs such as *namak-rikhtan* lit. salt_N-pour ‘pour salt’, and

namak-paashidan lit. salt_N-sprinkle which is the exact equivalent of ‘sprinkle’ in English. Each of these combinations expresses different manner of adding salt. In the former, the emphasis is on pouring the salt, and in the latter, the emphasis is on sprinkling. Therefore, the type of manner is expressed by the LV while the PV is identical in all combinations.

6.2.8. Arrangement

In this category, all the CPs express, how entities are ordered or arranged. The following constructional schema shows how an entity can be put in an order by the agent.

SEM: X CAUSE Y BE ARRANGED LOC

SYN: NP1 NP2 (PrepNP3) N.[arrangement].hit

Paraphrase: Agent cause patient move in specific arrangement quickly by tapping and repetitive actions

Based on this sense an agent causes the movement of a number of objects in a specific order and leads to their presence in a location.

(229) *varaqa-zadan* lit. page_N-hit ‘turn page’

(230) *ham-zadan* it. stir_N-hit ‘stir’

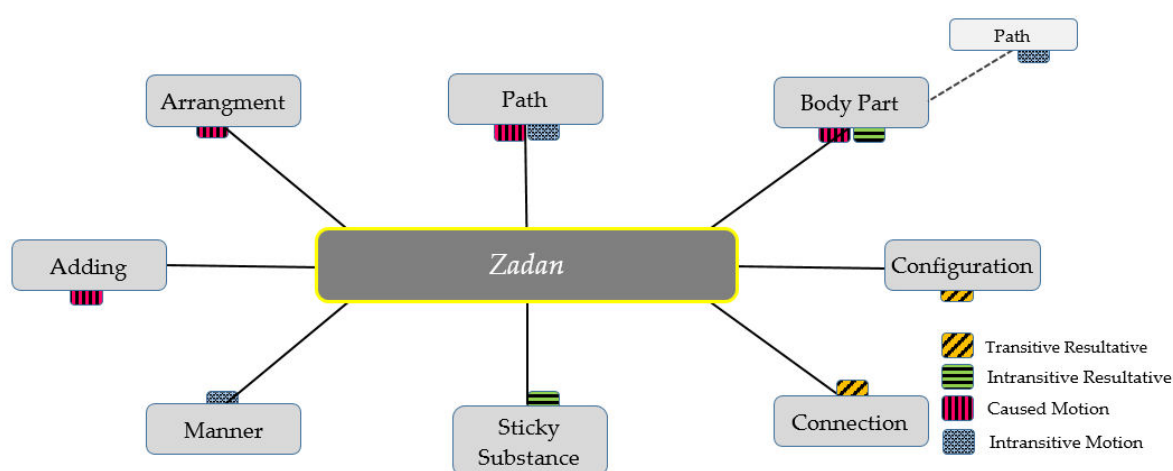
(231) *bor-zadan* it. shuffle_N-hit ‘shuffle’

(232) *moalem ketaab-raa varaqa-zad*
 teacher book-OM page_N-hit.PST.3SG

‘The teacher turned the pages of the book.’

In example (232), the teacher moves the pages by turning them; this activity is a series of quick, and repetitive activities. To turn the pages, first, we should turn each page individually which occurs quickly. The LV *zadan* ‘hit’ refers to this sole and quick activity. However, a series of these quick activities lead to the turning of the whole book, which can occur in a long period of time.

Figure 6: Semantic Network of *zadan* Constructions in Spatial Events



6.3. *Daadan* ‘Give’

In modern Persian, *daadan*, ‘give’, expresses the notion of ‘giving’, ‘affording’, ‘donating’, and ‘offering’. The argument structure of this verb is as follows:

(233)	NP1	NP2-raa	(be NP3)	<i>daadan</i>
	<i>man</i>	<i>ketaab-raa</i>	<i>be to</i>	<i>daadam</i>
	Lit. I	book-OM	to you	give.PST.1SG
	‘I gave the book to you/I gave you the book.’			

The first NP in this example expresses the agent (Subject), the second NP, the patient (Object), and the third the recipient (indirect object headed by the preposition *be* 'to'). This construction is referred to as ditransitive construction in the literature, among others Megerdoomian (2001); Muller, and Ghayoomi (2010); Samvelian and Tseng (2010); Faghiri and Samvelian (2014); Faghiri, Samvelian, and Hemforth (2014); Family (2014). According to Viberg (2002), in Swedish, the combination of *ge* 'give' with different particles, adverbs, and nouns in a sentence (same in English, e.g., *give in*, *give out*, *give up*) leads to the polysemous characteristic of the verb and creates different semantic categories such as "emotion", "departure", "emergence of sound", "existence" (Viberg, 2002: 5). In Persian spatial events also, certain CPs are built with the LV *daadan* 'give' in which the meaning of 'give' contributes to the meaning of the whole construction and leads to a polysemous network of CPs with related meanings. In our corpus, the LV *daadan*, 'give', is among the frequent LVs that combine with PVs to build CPs. In this section, we analyze the semantic categories of CPs built with this LV in spatial events and explain certain grammatical features of these CPs based on their meanings. According to Goldberg and Jackendoff (2004), in general, certain characteristics of constructions, such as their argumental and aspectual behavior, can be explained based on their semantics.

We identified nine categories for *daadan*, 'give' constructions in spatial events, as indicated in Figure (11). Certain categories like *body part*, which is also quite frequent, have subcategories (path) as well. These subcategories are specific types of the main category. In the following section, we describe each extension in detail.

Table 3: Categories and Frequencies 'PV-*daadan*'

Semantic category	Persian PV	English PV	Frequency
path	<i>biroun</i>	out	6
	<i>feshaar</i>	push	5
	<i>hol</i>	push	5
	<i>forou</i>	inside	4
	<i>tou</i>	inside	3
	<i>soq</i>	direction	2
	<i>vaam</i>	loan	2
	<i>aqab</i>	back	2
	<i>amaanat</i>	lending	1
	<i>baalaa</i>	up	3
	<i>enteqaal</i>	transfer	2
	<i>qourt</i>	gulp	1
	<i>jelo</i>	front	1
	<i>paein</i>	down	1
	<i>pas</i>	return	2
adorning	<i>aab-talaa</i>	water-gold	3
	<i>fer</i>	curl	3
	<i>jalaa</i>	polish	3
	<i>labe</i>	edge	3
	<i>loaab</i>	enamel	3
	<i>shaakh-barg</i>	branch-leaf	3
	<i>zinat</i>	ornament	3
	<i>rango-bou</i>	color-smell	1
configuration	<i>tekiyeh</i>	lean	10
	<i>lam</i>	loll	4
	<i>posht</i>	back	4
	<i>shekam</i>	bulge	1
emitting	<i>doud</i>	smoke	4
	<i>bou</i>	smell	3
	<i>rang</i>	color	3
	<i>sedaa</i>	sound	3
	<i>tam</i>	taste	3
offering	<i>borouz</i>	disclose	4
	<i>erae</i>	present	4
	<i>neshaan</i>	show	3

	<i>hediye</i>	gift	2
	<i>namaayesh</i>	show	1
size	<i>afzaayesh</i>	increase	3
	<i>tosee</i>	development	3
	<i>tarvij</i>	advancement	2
	<i>gostaresh</i>	extension	1
	<i>kaahesh</i>	decrease	1
	<i>tameem</i>	generalization	1
support	<i>jaa</i>	place	7
	<i>raah</i>	way	2
	<i>panaah</i>	shelter	1
	<i>faraari</i>	fugitive	1
payment	<i>poul</i>	money	2
	<i>anaam</i>	tip	1
	<i>bahre</i>	interest	1
	<i>ejaareh</i>	rent	1
	<i>baaj</i>	bribe	1
	<i>mozd</i>	wage	1
	<i>mozhdogaani</i>	reward	1
	<i>reshveh</i>	bribe	1
arrangement	<i>tartib</i>	arrangement	3
	<i>tashkil</i>	formation	2
	<i>saazmaan</i>	organization	1
Total			148

6.3.1. Support

The majority of CPs in this group express a change of location, which is done due to the support provided by the agent.

SEM: X SUPPORT Y GO LOC

SYN: NP1 (PP) NP2 N.[place].hit

Paraphrase: agent cause patient go to location by supporting it.

The following examples show how CPs in this group express the change of location by the supportive behavior of the agent.

(234) *Jaa-daadan* Lit. plac_N-give 'give a place to somebody or something that does not already have one'

(235) *panaah-daadan* Lit. shelter_N-give 'shelter somebody'

(236) *raah-daadan* Lit. way_N-give 'allow somebody pass or enter a place or community'

(237) *aanhaa tamaam-e panaahjou-yaan-raa panaah-daadand*
 they all-EZ refugee-PL-OM shelter_N-give.PST.3PL
 'They sheltered all the refugees.'

As shown in the example (237), the agent leads to the change of place of refugees by sheltering them which is a supportive behavior.

6.3.2. *Offering*

In this group, the agent leads to the movement of the patient to another place by offering the patient to others. In fact, due to the offering action, the entity is transferred from one place to another. CPs in this group convey the notion of 'offering'. The constructional schemas of this group are as follows:

SEM: X OFFER Y GO LOC

SYN: NP1 NP2 PrepNP3 N.[offering].hit

Paraphrase: agent cause patient go to location by offering it.

Verbs of this subclass are such as:

- (238) *borouz-daadan* lit. disclose_N-give 'disclose'
- (239) *eraae-daadan* lit. presentation_N-give 'present'
- (240) *hedieh-daadan* lit. gift_N-give 'gift'
- (241) *neshaan-daadan* lit. show_N-give 'show'
- (242) *namaayande-gaan ghaanoun-i-raa dar majles eraae-daadand*
 representative-PL law-INDEF-OM in parliament presentation_N-
 give.PST.3PL
 'The representatives presented a law to the parliament.'
- (243) *ostaad chand ketaab be ketaabkhaaneh hedieh-daad*
 professor some book to library gift_N-give.PST.3SG
 'The professor donated some books to the library.'

In example (242), the agent (representatives), offers a law to the parliament, and in (243) the agent (professor) donates some books to the library, which leads to the presence of the books in the library.

In sum, verbs in this group are transitive and caused-motion and express a change of place, which is accompanied by the notion of 'offering'. CPs in this group require a PV (N) that can convey the concept of 'offering'. Finally, the semantic interaction between these PVs and the LV *daadan* 'give', which refers to the transfer of an entity, leads to the meaning of the whole construction.

6.3.3. Payment

CPs in this group express the change of location (transfer) of money or goods. The meaning of the CP varies dependent on the type of payment. The PV and LV are in

close semantic interaction, and the LV apparently is very close to the full meaning of *daadan* ‘give’.

SEM: X TRANSFER MONEY/GOODS LOC

SYN: NP PrepNP2 N.[type of payment]-hit

Paraphrase: agent transfer money or goods (as trade) to patient.

PVs in this group are nouns with payable properties:

- | | | | | |
|-------|---------------------------------|------------------|---------------------|-------------------------|
| (244) | <i>baaj-daadan</i> | lit. briben-give | ‘bribe’ | |
| (245) | <i>mozd-daadan</i> | lit. wagen-give | ‘wage’ | |
| (246) | <i>anaam-daadan</i> | lit. tipn-give | ‘tip’ | |
| (247) | <i>ejaareh-daadan</i> | lit. rentn-give | ‘pay rent’ | |
| (248) | <i>aanhaa</i> | <i>tamaam-e</i> | <i>mamlekat-raa</i> | <i>baaj-mi-dahand</i> |
| | they | whole-EZ | country-OM | briben-HAB-give.PRS.3PL |
| | ‘They bribe the whole country.’ | | | |

As shown in these examples, CPs of this group are transitive constructions in which a patient receives a certain amount of money. The type of this money or property is specified by the PV, which is noun in all cases.

6.3.4. Configuration

CPs in this group express configuration of entities. In fact, no change of place occurs, but according to their constructional schema, a change of shape or state is observable in the agent (human/nonhuman).

SEM: X BECOME Z SHAPE LOC

SYN: NP1 PrepNP2 N.[Configuration/shape].hit

Paraphrase: agent be in location by a change of position

As shown in the sense of this group, CPs appear as intransitive constructions which represent the presence of an entity in a place.

(249) *tekiyeh-daadan* lit. lean_N-give 'lean'

(250) *lam-daadan* lit. loll_N-give 'loll'

(251) *Ali be divaar tekiyeh-daadeh-boud*

Ali to wall lean_N-give.PST.3SG

'Ali was leaning against the wall.'

(252) *modir rou sandali-ash lam-daadeh-ast*

director on chair-GEN loll_N-give-be.PRS.3SG

'The director is lolling on her chair.'

Examples (251) and (252) refer to the agent's change of state and express the notion of configuration. This configuration encodes the place of the Figure with a specific manner.

6.3.5. Path with Direction

The CPs in this group, are caused-motion constructions in which the agent causes the movement of an entity in a particular direction and possibly with boundary crossing. The core semantic of this group would be as follows:

SEM: X CAUSE Y GO Z DIRECTION

SYN: NP1 NP2 (PrepNP3) ADV/N.[path]-hit

Paraphrase : agent cause inanimate patient move to another location (with specific orientation)

As is shown in the following examples, the direction of the activity in this group is expressed by the CP.

(253) *biroun-daadan* out_{ADV}-give 'emit'

(254) *forou-daadan* inside_{ADV}-give 'insert'

(255) *doud-raa az panjereh biroun-daad*
 smoke-OM of window out_{ADV}-give.PST.3SG
 'He emitted the smoke out the window.'

(256) *ostaad ketaab-ash-raa be man amaanat-daad*
 professor book-GEN-ACC to me lending_N-give.PST.3SG
 'The professor lent me his book.'

As shown in these examples, directions are mentioned inside the CP. In (253) the direction is from inside to outside, and in (254) it is downward.

In addition to the constructions mentioned above, which are considered as *change of localization* based on Hendriks et al. 's (2004) definition of locative relationships, 11% of the CPs in this semantic group also appear as *dynamic general localization*. According to Hendriks et al., this type of localization occurs when the Figure remains within the boundaries of the Ground. In this group, all the Figures appear as inanimate entities such as body parts, which are fixed to the Ground.

(257) *baalaa-daadan* lit. up_{ADV}-give 'put something in an upper position'

(258) *jelo-daadan* lit. front_{ADV}-give 'put something ahead'

(259) *Ensieh abrou-haa-yash-raa baalaa-daad*
 Ensieh eyebrow-PL-GEN-OM up_{ADV}-give.PST.3SG
 ‘Ensieh raised her eyebrows.’

(260) *Ali sine-ash-raa jelo-daad*
 Ali chest-GEN-OM front_{ADV}-give.PST.3SG
 ‘Ali pushed his chest to the front.’

As shown in examples 257-260, the direction is encoded in the CP. Although the entity is moving toward a direction, this movement occurs within the boundaries of the Ground.

In sum, all the verbs are transitive causative and highly frequent in this category. 89% were the change of localization constructions, and 11% were dynamic general localization constructions. All the Figures are inanimate, and in dynamic general localization, they appear as a body part. PVs in this group either are nouns, which contain direction implicitly such as *vaam-daadan* lit. loan_N-give ‘loan’ (outwards), *forou-daadan* lit.inside_{ADV}-give ‘insert’ (downwards), *amaanat-daadan* lit.lend_N-give ‘lend’ (outwards), or as an adverb that refers to a direction directly such as *baalaa-daadan* lit. up_{ADV}-give ‘put something in an upper position’.

6.3.6. Arrangement

All the sentences in this group are instances of the transitive resultative construction. The LV *daadan*, ‘give’, preserves its core meaning partially and the agent by giving a specific arrangement to the patient leads to its change of state. This change of state causes that the entity ends in a specific location. The sense of this extension would be as follows:

SEM: X CAUSE Y BE ARRANGED LOC

SYN: NP1 NP2 (PrepNP3) N.[arrangement]-give

Paraphrase: agent cause patient be in location via the action of establishment

The PV of this category always appears as a noun, which refers to forming or organizing something. The following verbs are examples of this group:

(261) *tashkil-daadan* lit. formation_N-give 'form'

(262) *saazmaan-daadan* lit. organization_N-give 'organize'

(263) *tartib-daadan* lit. arrangement_N-give 'arrange an event'

(264) *shahrdaari yek namaayeshgaah dar mahaleh maa tartib-daad*
 municipality an exhibition in neighborhood our arrangement_N-
 give.PST.3SG

'The municipality has set up an exhibition in our neighborhood.'

(265) *aanhaa hezbe tudeh-raa dar mamlekat tashkil-daadand*
 they party tudeh-OM in country formation_N-give.PST.3SG

'They have formed Tudeh Party in the country.'

As also shown in (264) and (265), in all the examples of this category the agent appears as a human and the Figure appears as an inanimate entity or a group of people.

6.3.7. *Emitting*

In this category, an entity emits a certain type of specification of itself which leads to the existence of that specification in the environment. This category only appears as intransitive motion with the following constructional schema:

SEM: SPECIFICATION COME OUT OF X (LOC)

SYN: NP1 (PrepNP2) N.[specification]-give

Paraphrase: certain specification come out of location (source)

As shown in the schema of this category, an entity is produced and emitted out of source (location). The PV of this group is a noun expressing a specification such as 'smell', 'smoke', 'sound'.

- | | | | |
|-------|---------------------|--------------------------|--------------|
| (266) | <i>bou-daadan</i> | smell _N -give | 'smell' |
| (267) | <i>doud-daadan</i> | smoke _N -give | 'make smoke' |
| (268) | <i>sedaa-daadan</i> | sound _N -give | 'make sound' |

These verbs can be used in sentences as follows:

- | | | | |
|-------|-----------------------------------|--------------------------------------|--------------------------------------|
| (269) | <i>zirzamin-e</i> | <i>emaarat</i> | <i>bou-mi-dahad</i> |
| | basement-EZ | mansion | smell _N -HAB-give.PRS.3SG |
| | 'The basement of mansion stinks.' | | |
| (270) | <i>shomine</i> | <i>doud-mi-dahad</i> | |
| | fireplace | smoke _N -HAB-give.PRS.3SG | |
| | 'The fireplace makes smoke.' | | |

Verb-Specific Analysis

- (271) *barg-haa* *zir-e* *paa-yash* *sedaa-mi-dahand*
 leaf-PL under-EZ foot-GEN sound_N-HAB-give.PRS.3PL
 ‘Leaves make sound under his foot.’

In this group, the source (location) appears inanimate and emits a specific substance. The PV of the CP is a noun and refers to this substance. As in the other groups, PVs in this group also require a LV with the notion of transfer. The LV *daadan* ‘give’ expresses this notion of ‘transfer via emitting (a substance)’.

6.3.8. Size

All the members of this group appear as transitive resultative. Increasing or decreasing the size of an entity (change of state) leads to the existence or nonexistence of the entity in a location. The schemas of this group would be as follows:

SEM: X CAUSE Y BE Z SIZE LOC

SYN: NP1 NP2 PrepNP3 N.[size]-give

Paraphrase: agent cause change of location of patient by changing its size.

- (272) *gostaresh-daadan* extension_N-give ‘extend’
 (273) *afzaayesh-daadan* increase_N-give ‘increase’
 (274) *kaahesh-daadan* decrease_N-give ‘decrease’
 (275) *keshvar-raa* *az* *shargh* *taa* *gharb* *gostaresh-daadand*
 country-OM from east to west extension_N-give.PST.3PL
 ‘They extended the country from east to west.’ [by conquering other countries
 and extending their borders.]

- (276) *zarfiat-haa-ye ostaan-raa dar in bakhsh afzaayesh-daadand*
 capacity-PL-EZ province-OM in this section increase_N-give.PST.3PL
 ‘They increased the capacity of the province in this section.’

In (275) the existence of the Figure (country) has been expanded in a specific geographical direction. In (276) also the Figure (capacity) is increased in a specific section (location). This change of size has led to the existence of the Figures in these examples. In these two examples, the change of state is vivid. All the agents appear as human, and the Figure (patient) appears as either an animate or an inanimate entity. The inanimate Figure is abstract in 64% of the cases as in example (277):

- (277) *chenin didgaahi-raa hezbe Tudeh dar keshvar gostaresh-daadeh-boud*
 such viewpoint-OM party Tudeh in country development_N-give-
 be.PST.3SG
 ‘Such a viewpoint was developed by the Tudeh Party in the country.’

In this example, *didgaah*, ‘viewpoint’, is an abstract Figure, which is developed (or spread) in a certain location (Iran).

6.3.9. *Adorning*

Combinations of this group contain a decorative entity as their PVs. These CPs express the location of this decorative entity. They always appear as transitive resultative constructions that refer to a change of state.

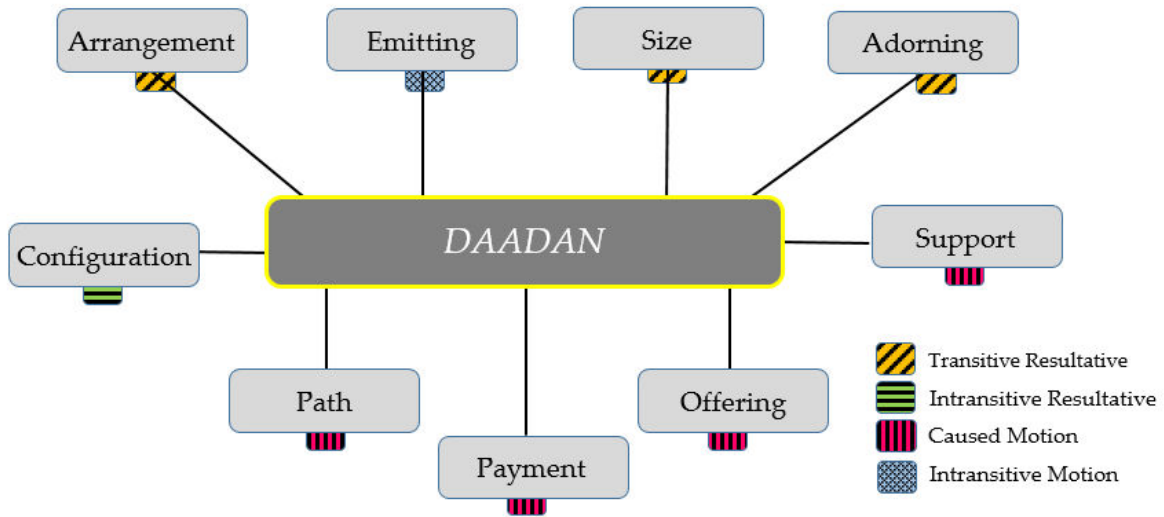
SEM: X CAUSE Y (LOC) BE ADORNED

SYN: NP1 (Prep)NP2 N/NP.[decorative material]-give

Paraphrase: agent cause patient (location) be adorned by decorative material.

- | | | | |
|-------|---------------------------|---|--|
| (278) | <i>aab-talaa-daadan</i> | lit. water _N -gold _N -give | 'gold plate' |
| (279) | <i>loaab-daadan</i> | lit. enamel _N -give | 'enamel' |
| (280) | <i>jalaa-daadan</i> | lit. polish _N -give | 'polish' |
| (281) | <i>shaakh-barg-daadan</i> | lit. branch _N -leaf _N -give | 'decorate something with
extra stuff to make it more beautiful' |

Example (281), is a metaphor for adding more detail and beauty to something. As shown in these examples, a certain type of ornament is added to an entity. PVs of this type need a LV like *daadan* 'give' to interact with semantically. Vividly it is the role of LV to reflect the notion of 'giving' or 'transferring' the beauty or detail. The result of this interaction is a change of state (being adorned) in the entity. In other words, such PVs cannot co-occur with other LVs semantically, except the LV *bordan* 'take'. Few PVs of this group may co-occur with the LV *bordan* 'take', which did not occur in our corpus. In such cases, the combinations express an opposite notion. For example, the combination of *jalaa* 'polish_N' with *bordan* 'take' means 'to fade the glamor of an entity.'

Figure 7: Semantic Network of *daadan* Constructions in Spatial Events

6.4. *Bordan* 'Take'

In this section, we present the semantic categories of the CPs built with the LV *bordan*, 'take'. According to several Persian dictionaries, *bordan*, 'take' as a simplex verb has several but related meanings such as 'take', 'remove', 'take away', 'win', 'carry', 'transport', 'drive', and 'propel'. Its primary meaning can be translated in English by verbs such as 'take' and 'remove'. The verb *bordan* 'take' takes at most three arguments and can appear with two syntactic patterns which are as follows:

(282) NP1 NP2-raa *bordan*
 Man ketaab-at-raa bordam
 I book-GEN-OM take.PST.1SG
 'I took your book.'

(283) NP1 NP2-raa bara NP3 *bordan*

Verb-Specific Analysis

<i>Man</i>	<i>ketaab-raa</i>	<i>bara-ye khaahar-am</i>	<i>bordam</i>
I	book-OM	for-EZ sister-GEN	take-PST.1SG
'I took the book for my sister.'			

The first NP (Subject) in examples (282) and (283) refers to the agent, the second NP (Object), to the patient, and the third in example (283) to the beneficiary (indirect object). In this section, we will discuss the semantic categories of the CPs built with this LV. We will show that although the meaning of the LV *bordan*, 'take', changes in combination with PVs, it still preserves its core meaning. Based on our analysis, complex predicates built with this LV in spatial events are located under only three semantic categories indicated in the following Figure:

Table 4: Categories and Frequencies 'PV-*bordan*'

Semantic category	Persian PV	English PV	Frequency
path	<i>baalaa</i>	up	8
	<i>forou</i>	inside	8
	<i>pish</i>	ahead	5
	<i>aqab</i>	back	2
	<i>be-asiri</i>	to-captivity	1
	<i>biroun</i>	out	1
	<i>jelo</i>	front	1
	<i>paayin</i>	down	1
body part	<i>dast</i>	hand	7
	<i>sar</i>	head	8
destorying	<i>az-yaad</i>	from-memory	4
	<i>az-beyn</i>	from-among	2
	<i>tahlil</i>	erosion	2
	<i>aaberou</i>	reputation	2
	<i>az-haafezeh</i>	from-memory	1
	<i>az-miyaan</i>	from-among	1
other	<i>be-kaar</i>	to-work	5
	<i>panaah</i>	shelter	3

	<i>hojoun</i>	invasion	2
	<i>be-asiri</i>	to-captivity	1
	<i>gero</i>	hostage	1
Total			66

6.4.1. Destroying

In this group, CPs express how entities are destroyed in a place.

SEM: X CAUSE Y BE DESTROYED LOC

SYN: NP1 NP2 (PrepNP3) N/PP.[destructive removal/PP+place]-take

Paraphrase: agent cause annihilation of patient in location.

Based on this semantic sense, the result of the activity is the annihilation of a patient. The examples of this group are transitive resultative as follows:

(284) *az-beyn-bordan* Lit. from_{Prep}-among_{ADV}-take 'destroy'

(285) *tahlil-bordan* Lit. erosion_N-take 'erode'

(286) *az-haafezeh-bordan,* Lit. from_{Prep}-memory_N-take 'forget'

(287) *daarou virus-e HIV-raa dar badan-ash tahlil-bord*
 medicine virus-EZ HIV-OM in body-GEN erosion_N-take.PST.3SG
 'The medicine destroyed the HIV virus in his body.'

In these examples, the way by which the patients are destroyed is encoded in the CP. An agent leads to the annihilation of the patient in a specific manner, for example, in (284) by ruining the entity, in (285) by undermining the entity, and in (286) by deleting it from memory. As indicated by these examples, the meaning of the whole construction (PV+LV) is in line with the core meaning of the verb *bordan*, 'take,

remove'. The full counterpart of this verb means 'carry', 'remove', or 'bear'. The PVs in this group appear as either a prepositional phrase with the specifications of a location like 'from memory', or a noun with the destroying quality 'erosion'. In all the combinations the whole construction expresses a change of state and the meaning.

6.4.2. Body Part

Members of this group consist of CPs that contain body parts. In comparison with other verbs such as *kardan*, 'do', *zadan*, 'hit', and *daadan*, 'give', the combinations of body parts and *bordan*, 'take' do not have much diversity and only *head* and *hand* co-occur with this verb. However, the frequency of these combinations is quite high. The semantic of this group is as follows:

SEM: X CAUSE BODY PART BE LOC

SYN: NP1 PrepNP2 N.[hand/head]-take

Paraphrase: agent cause body part (head/hand) be in location.

All the CPs in this group are part/whole metonymical constructions.

(288) *dast-bordan* lit. hand_N-take 'get hands on something, interfere'

(289) *sar-bordan* lit. head_N-take 'be in a place, live, spend time in a place'

(290) *chand saal dar farang sar-bord*
 several year in abroad head_N-take.PST.3SG

'He lived abroad for several years.'

In example (288), *dast*, 'hand' is apparently the cause of control to occupy or interfere in a situation; however, in such cases, an agent (person) is responsible for

controlling and manipulating and *dast-bordan*, lit. hand_N-take is a part/whole metonymy. In examples (289) and (290), considering ‘human’ as the whole of an entity and *sar*, ‘head’ as a part, ‘head’ is a substitution for the human. In such examples ‘head’ metonymically refers to ‘human’, and lit. head_N-take is a metonymy of ‘a person living in a place’. In other words, it is not just the head that is taken to a place to stay for a while, but the person, herself/himself, goes to a place to stay (live) for a while.

This semantic group also appeared in the CPs built with LVs *kardan*, ‘do’, and *zadan*, ‘hit’. However, certain differences exist among these groups. As discussed before, combinations of *body parts* and *kardan* refer to wearing clothes, CPs built with *body parts* and *zadan* express touch or momentary actions, and finally *bordan* combinations are metonymical.

- | | | |
|--------------------------|------------------------------|--------------------------|
| (291) <i>dast-kardan</i> | lit. hand _N -do | ‘wear (around the hand)’ |
| (292) <i>dast-zadan</i> | lit. hand _N -hit | ‘touch’ |
| (293) <i>dast-bordan</i> | lit. hand _N -take | ‘manipulate’ |

6.4.3. Path with Direction

In this group, all the CPs refer to the location of an entity by indicating the path of movement. As their name also suggests, these combinations express motion rather than location as follows:

SEM: X CAUSE Y PASS Z DIRECTION

SYN: NP1 NP2 (PrepNP3) ADV.[path]-take

Paraphrase: agent cause patient pass path and reach location (by carrying).

Based on this semantic sense, which reflects caused-motion construction, an agent causes the movement of an entity toward a direction and leads to the residing of the entity in a specific location. The location is mentioned inside the CP as shown in the following examples:

- (294) *baalaa-bordan* lit. up_{ADV}-take 'raise'
- (295) *forou-bordan* lit. inside_{ADV}-take 'insert'
- (296) *pish-bordan* lit. front_{ADV}-take 'advance'
- (297) *ou dast-ash-raa baalaa-bord*
 he hand-GEN-OM up_{ADV}-take.PST.3SG
 'He raised his hand.'

In the above examples, the LV *bordan*, 'take', combines with adverbs such as *baalaa* 'up', and *pish* 'front', to express the movement of an entity. The path of motion is also described by the CP. The core meaning of the LV *bordan*, 'take', which is according to Dehkhoda dictionary (1931) moving (carrying) an entity from a place to another, in combination with PVs refers to the whole path that entity should be carried in. CPs of this group mostly describe the movement of a relatively heavy entity (agonist) that requires a strong antagonist which leads to prolonged activities. PVs of this group are adverb since they all express a path and a direction.

6.4.4. Other CPs

Certain CPs appeared in our data set that do not belong to any of the groups mentioned above. These CPs do not share commonalities with other CPs and behave differently. They constitute 12% of all the CPs built with the LV *bordan*, 'take'. Certain examples are as follows:

(298) <i>panaah-bordan</i>	lit. refuge _N -take	'take refuge'
(299) <i>be-asiri-bordan</i>	lit. to _{Prep} -captivity _N -take	'capture'
(300) <i>hojourn-bordan</i>	lit. invasion _N -take	'invade'

Although all these CPs express different senses, like other CPs we discussed in previous sections, they all preserve the core meaning of the LV *bordan*, 'take'. In other words, all these combinations refer to a movement toward a place. The direction of the activity exists in the meaning of the CP. For example, in (298), the CP *panaah-bordan* means to go to a place and take refuge. This CP expresses the movement of figure toward the ground and is always accompanied by the preposition 'to'. *Refuge* can also combine with other LVs like *daadan*, 'give', the difference between these two combinations is their transitivity. The CP *panaah-daadan* is the transitive form of *panaah-bordan* which is a self-benefactive action.

(301) *mohaajerin be keshvar-haa-ye hamsaaye panaah-bordand*
immigrants to country-PL-EZ neighbor shelter_N-take.PST.3SG
'The immigrants took refuge to the neighboring countries.'

(302) *keshvar-haa-ye hamsaayeh mohaajerin-raa panaah-daadand*
country-PL-EZ neighbor immigrant-ACC shelter_N-give.PST.3SG
'The neighboring countries gave refuge to the immigrants.'

As reflected in example (301), although the verb *bordan* is transitive it builds an intransitive CP in combination with *panaah* 'shelter'.

The example (299) means 'capture' and expresses the movement of patients and explains how they are transferred from one point to another (the lexical meaning of take). However, the PV *be-asiri* lit. to_{PREP}-captivity, can also combine with other LVs

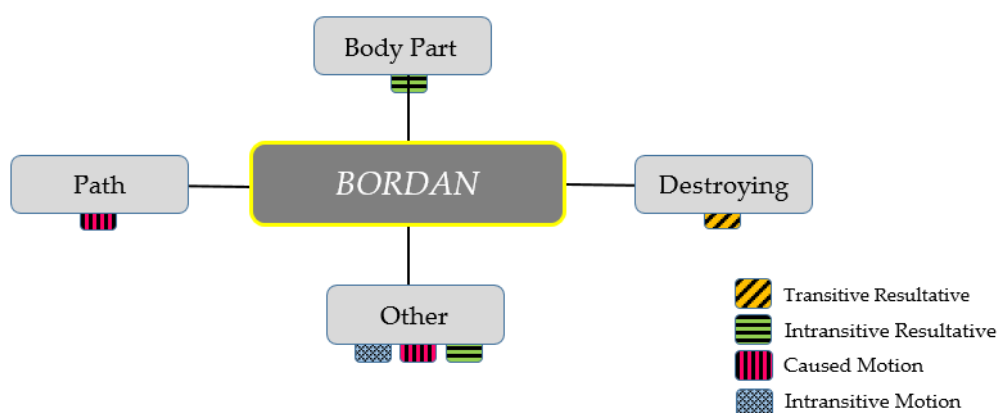
like *gereftan*, ‘hold’. In the latter like other CPs, the meaning of the lexical verb ‘hold’ is preserved and reflects no transfer or motion; instead, it expresses how people are captured in a place.

In example (303) which means *to invade*, both PV and LV contribute to the meaning of the CP. The type of activity is expressed by the PV and the movement by the LV.

(303) *be keshvar hojourn-bordand*
 to country invasion_N-take.PST.3PL
 ‘They invaded the country.’

These CPs are not classified in previous groups since they were not quite frequent or did not have commonalities with members of the other groups.

Figure 8: Semantic Network of *bordan* Constructions in Spatial Events



6.5. Comparison of *kardan*, *zadan*, *daadan*, *bordan*

In the previous sections of our analysis, we classified CPs built with the four LVs *kardan* ‘do’, *zadan* ‘hit’, *daadan* ‘give’, and *bordan* ‘take’ semantically. In order to have a more systematic way of categorization, we used constructional schemas. We

showed although the combinations of each LV have similarities, they have certain semantic differences, which lead to dividing them to several subtypes. With respect to their similarities, the core meaning of the LV is normally reflected in the meaning of the whole CP in the majority of combinations. For example, in CPs built with the LV *zadan* 'hit' the related meanings of *zadan* which are 'hit', 'beat', 'blow', 'bust', 'cut', 'stick' and 'delete' is preserved to a certain degree. With respect to their differences, for example, verbs of the *configuration* group behave differently from verbs of *connection*: in the former, the PV+*kardan* 'do' construction, imply an action "which could cause one to change the place of something by changing its shape"; the latter construction implies an action "which could cause one to change the place of an entity by connecting it to another entity". However, combinations of the same LV make a network of related CPs, which have similarities and differences. They have similarities and related meanings since they reflect the core meaning of the LV.

In this section, we give details about the comparison of semantic categories of CPs of *kardan* 'do', *zadan* 'hit', *daadan* 'give', and *bordan* 'take'. These LVs were among the most frequent ones and had quite the highest frequency of common PVs in our corpus. Existing different semantic categories between these four LVs imply semantic systematicity in the formation of CPs. It reveals that certain types of PVs belong to one specific LV and cannot be shared by another LV. For example, the PV 'lipstick.N' cannot combine with the LV *kardan* 'do'. Due to the core meaning of the verb *kardan* 'do', no semantic interaction can occur between this LV and 'lipstick' as PV. On the contrary, this PV can interact semantically with the LV *zadan* 'hit', which can express the notion of sticking something somewhere.

This section is structured as follows. First, in the section 6.5.1, we compare semantic classifications and schemas of these four LVs. In this section, we also do a

collostructional analysis by which we measure the degree of attraction that each semantic group has with respect to a particular LV. Next, in section 6.5.2, we present the specific syntactic types of PVs that combine with each LV. The section 6.5.3, presents transitivity generalizations of these constructions based on their semantics. Finally, in section 6.5.4, we give a summary of our findings.

6.5.1. Common Semantic Groups

In our analysis, we defined several subtypes for each LV in spatial events, which are not identical but still similar. To identify our categories systematically, we applied constructional schemas. In this section, we compare the subtypes of these four LVs; besides different categories, these LVs also have a certain number of common categories with subtle differences. These differences can be either semantic or syntactic. In cases with semantic differences, the difference appears either in their semantic schemas or in their paraphrases. In cases with the same semantic schemas, the difference appears in their syntactic schemas. By comparing the CPs built with these four LVs, we also show that there is systematicity in the formation of CPs. The following figures present the 'do', 'hit', 'give', and 'take' subtypes respectively.

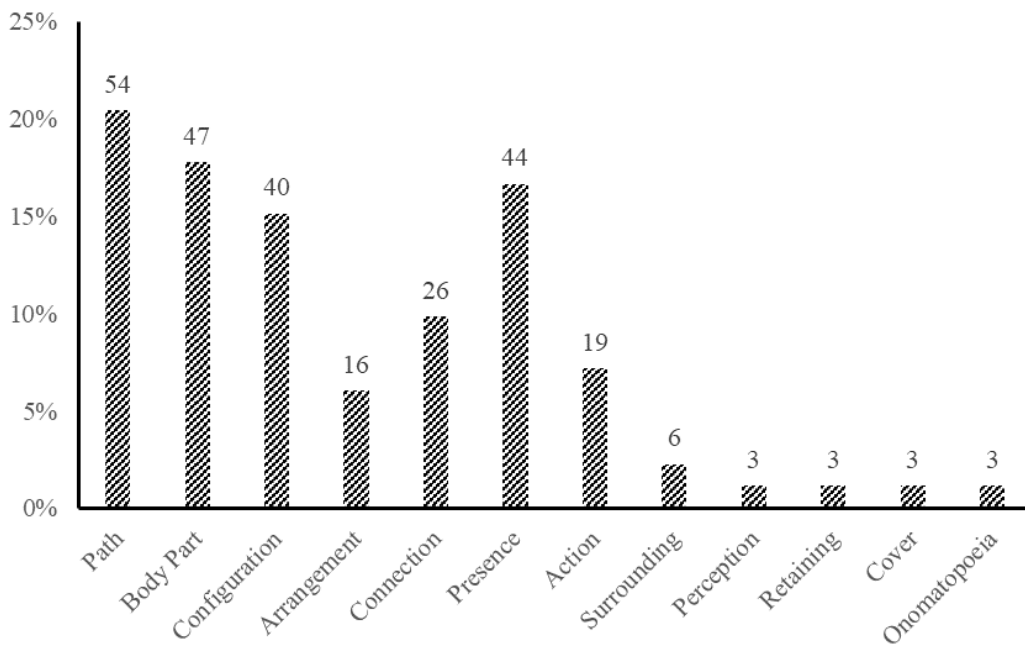


Figure 9: Percentage of *Kardan* 'Do' Semantic Categories

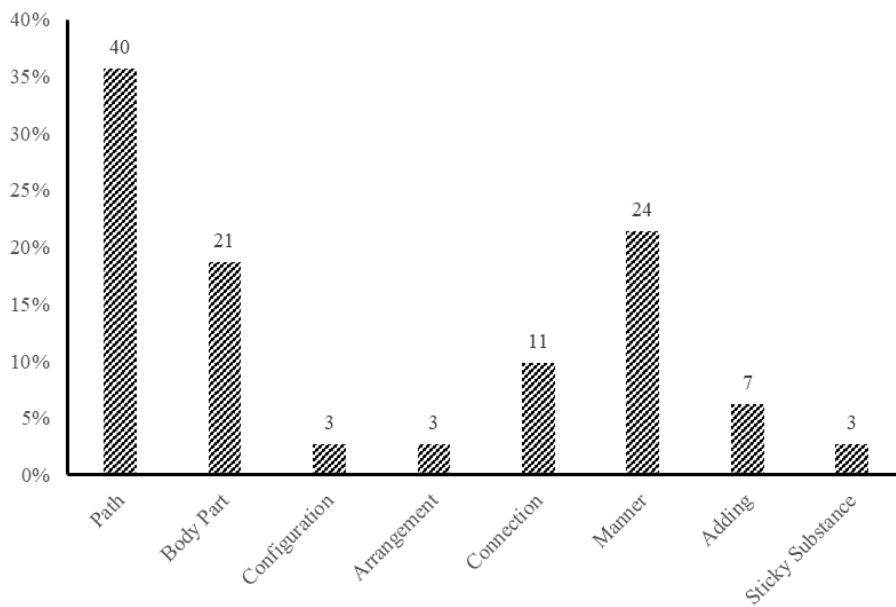


Figure 10: Percentage of *Zadan* 'Hit' Semantic Categories

Verb-Specific Analysis

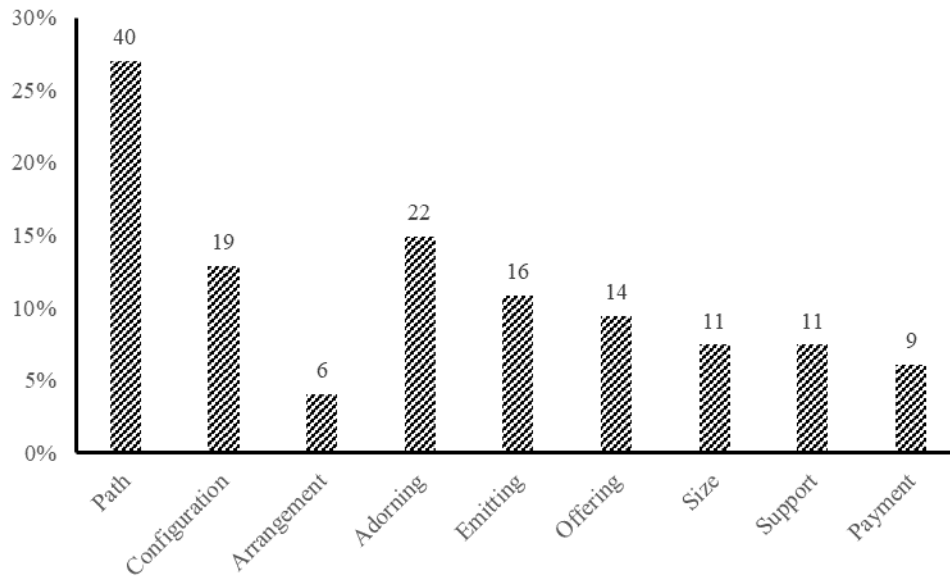


Figure 11: Percentage of *Daadan* 'Give' Semantic Categories

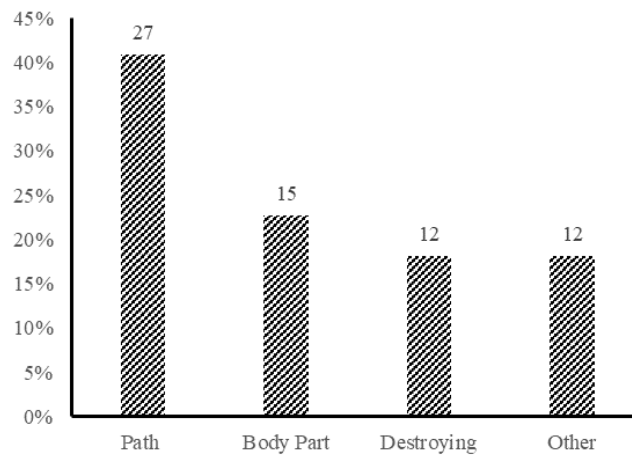


Figure 12: Percentage of *Bordan* 'Take' Semantic Categories⁸

⁸ The CPs under the label of *others* have no commonalities with the CPs of the other groups, and are not categorized semantically.

According to these figures, the number of semantic categories of the LV *kardan* 'do' (12) is higher than the other LVs. The frequency of the CPs built with *kardan* 'do' (264) is also higher than the other LVs; this can be a reason for having a higher number of semantic categories. This also can be a sign that the LV *kardan* 'do' is highly productive. The **type frequency** of each LV in our data set proves that the LV *kardan* 'do' and *zadan* 'hit' can produce a wide variety of CPs in comparison with others. The TTR (type/token) of *kardan* and *zadan* is 0.5 which is higher in comparison with *daadan* and *bordan*, 0.4 and 0.3 respectively. According to Hilpert (2014), constructions can be more or less productive, and corpus data can be a useful tool to measure their productivity. As he puts it, "a corpus allows the researcher to count the different instantiations of a schematical morphological construction. This measure is called the type frequency of a morphological construction" (Hilpert, 2014: 134). A higher type frequency reflects a more productive construction. The type frequency is contrasted with the token, which is an individual occurrence of the morphological constructions. Token refers to the number of times that each CP appears in the data, and cannot reflect productivity.

Table 5: Productivity Comparison

Verb	<i>kardan</i> 'do'	<i>daadan</i> 'give'	<i>zadan</i> 'hit'	<i>bordan</i> 'take'
Types	132	60	57	21
Tokens	264	148	112	66
TTR	0.5	0.4	0.5	0.3

As shown in the table (5), the LVs *kardan/zadan*, *daadan*, and *bordan* have higher TTR respectively. Therefore, we can conclude that the token frequency of the LVs is

not necessarily in a direct relationship with productivity. As shown in the table (5) the LV *daadan* has a higher token frequency than *zadan* but appears less productive in our data-set.

These four LVs are common in a certain number of semantic categories, which will be discussed below. We will explain why in Persian a unique notion, for example, *configuration* of entities can be expressed by several verbs. We argue that although the combination of different LVs with an identical or similar PV produces a new meaning and the PV plays an important role in the meaning of the CP, the LV also contributes to the meaning of the construction and its core meaning is preserved. This argument is against Karimi’s and Mohammad’s (1992) proposal wherein these verbs are considered semantically empty and lose their core meaning in combination with PVs. However, it is compatible with Sharifi (1975); Goldberg (1996); Family (2006, 2014); and Samvelian & Faghiri (2013) who argue that these LVs are considered as contributing to the meaning of CPs.

One of the semantic groups that is common among all these four LVs is *path*. Following table is the source for comparing the schemas of the LVs for this group.

Table 6: Schematic Comparison of *path*

Verb	<i>kardan</i> ‘do’	<i>zadan</i> ‘hit’	<i>daadan</i> ‘give’	<i>bordan</i> ‘take’
Semantic Schema	X CAUSE Y GO PATH/Z DIRECTION or X GO LOC	X CAUSE Y GO Z DIRECTION X GO LOC	X CAUSE Y GO Z DIRECTION	X CAUSE Y PASS Z DIRECTION

Syntactic Schema	NP1 (NP2) PrepNP3 N/ADV.[path]- do	NP1 (NP2) PrepNP3 ADV.[path/direction]- hit	NP1 NP2 (PrepNP3) ADV/N.[path]- hit	NP1 NP2 (PrepNP3) ADV.[path]- take
Paraphrase	agent (cause patient) move via path (with specific orientation)	agent (cause patient) move via path (with specific orientation) in a quick action	agent cause inanimate patient move (be transferred) to another location (with specific orientation)	agent cause patient pass path and reach location (by carrying).

As indicated in the semantic schemas and paraphrases of these verbs, the LV *kardan* 'do' can express path with or without referring to a specific orientation while other LVs always express orientation. For example, in the CP *obour-kardan* lit. crossing_N-do 'cross' the orientation of the movement is not expressed. Another difference reflected in these semantic schemas is that the CPs built with 'do' and 'hit' can appear as either transitive or intransitive while 'give' and 'take' only form transitive CPs in this group. Finally, the paraphrases of these verbs show that the core meaning of each LV contributes to the meaning of the whole construction to a certain degree. This phenomenon is more vivid when we compare CPs with identical PVs. As is shown in the syntactic schemas of these verbs all of the LVs can combine with adverbs to produce CPs expressing path (with orientation). While in combinations of these four LVs, identical adverbs (PV) can appear, the core meaning of these LVs leads to subtle semantic differences between these combinations. For example, the PV *biroun* 'out' combines with all four LVs and express different meanings as follows:

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(304) <i>biroun-kardan</i>	lit. out _{ADV} -do	'force somebody out of a place'
(305) <i>biroun-zadan</i>	lit. out _{ADV} -hit	'come out suddenly/quickly'
(306) <i>biroun-daadan</i>	lit. out _{ADV} -give	'send out an inanimate entity, emit'
(307) <i>biroun-bordan</i>	lit. out _{ADV} -take	'take out'

The followings are other examples of identical PVs (ADV) with the two LVs 'take' and 'give':

(308) *Ketaab-raa pas-bord*
 book-OM back.ADV-take
 'He took the book back.'

(309) *Ketaab-raa pas-daad*
 book-OM back.ADV-give
 'He returned the book.'

In these examples, the PV is identical, while the LVs vary which leads to different translation of the CPs. The CP in example (308) expresses the notion of *carrying the book* and refers to the whole route that the agent should pass, while in example (309) the CP only expresses the action of returning and only refers to the ending point. This semantic difference is due to the meaning of the LVs. The prototypical meaning of the lexical *bordan* 'take' is 'carry something' while the prototypical meaning of *daadan* 'give' is 'grant'.

One of the differences revealed by the syntactic schemas is that the LVs 'do' and 'give', can also combine with nouns which express path of motion like *soghout* 'fall_N' and *amaanat* 'lending_N'. Syntactic schemas also reveal that the LVs 'do' and 'hit' can occur without object while the other two verbs cannot.

Figure (13) shows the existing network between the CPs built with identical or same PVs (with the notion of path), but different LVs. These CPs have certain similarities and certain differences. This Figure shows a partial network of CPs and is inspired by the Samvelian’s and Faghiri’s (2013) model. In their model, they focus on the valency differences between CPs, while we focus on the semantics, transitivity, and the PV’s semantic type.

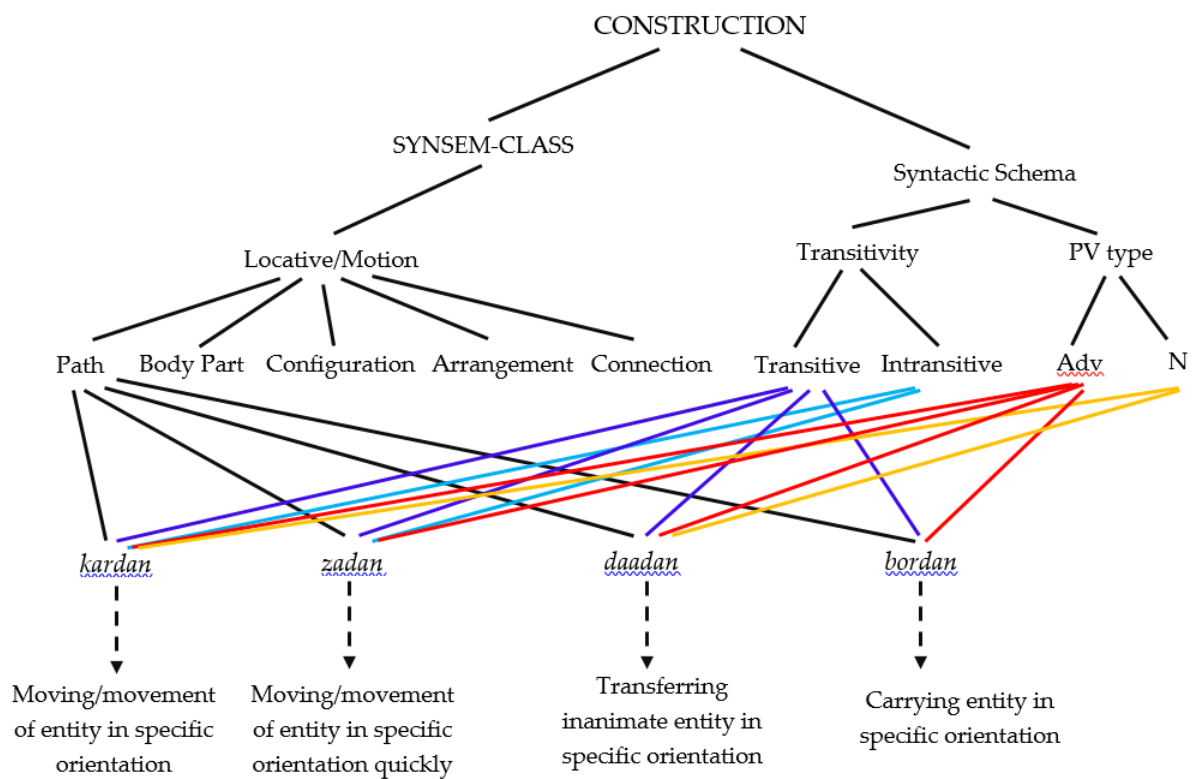


Figure 13 : Partial Network of CPs for Semantic Category of *Path*

In this section, we also use a collostructional analysis (Gries and Stefanowitch, 2004; Stefanowitsh and Gries, 2003; 2005) to measure and compare the degree of attraction that the semantic group of *path* has with respect to each of the four LVs.

Following Gries & Stefanowitsch (2004), and Lemmens & Sahoo (2018) we run a two-tailed Fisher Exact test (a pair-wise analysis), and then compare the four LVs.

In each of the following Tables, the group *path* co-occurs with a pair of LVs. The p-value indicates the collostructional strength. A high collostructional strength indicates that one of the LVs is significantly attracted to the semantic group. The p-value is a number between 0 and 1, and it shows a higher collostructional strength for smaller values. In order to determine which LV is more attracted to the semantic group, we compare the observed frequencies with the expected frequencies. The LV that occurs (observed frequencies) more than expected is more attracted to the semantic group. For example in Table (7), the p-value is close to zero; therefore, one of the LVs has a significant degree of attraction to the semantic group of *path*. The figures indicate that the LV *zadan* ‘hit’ has a higher degree of attraction to the semantic group of *path* (observed frequencies=40, expected=28). In other words, the LV ‘hit’ is significantly attracted to the semantic group *path*.

Tables (7), (8), (9), (10), (11), (12) show that the LV ‘take’ has the highest degree of attraction to the semantic group of *path*. The degree of LVs’ attraction to *path* can be prioritized as follows: take > hit > give > do.

Table 7: Distinctive Collostructional Analysis for *Path* (do/hit)

Semantic Group	‘do’	‘hit’	Total
Path	54 (expected=66)	40 (expected=28)	94
Other Groups	210	72	282
Total	264	112	376
Coll.strength	p=0.00262		

Table 8: Distinctive Collostructional Analysis for *Path* (give/take)

Semantic Group	'give'	'take'	Total
Path	40 (expected=46)	27 (expected=20)	67
Other Groups	108	39	147
Total	148	66	214
Coll.strength	p=0.55		

Table 9: Distinctive Collostructional Analysis for *Path* (do/take)

Semantic Group	'do'	'take'	Total
Path	54 (expected=64)	27 (expected=16)	81
Other Groups	210	39	249
Total	264	66	330
Coll.strength	p=0.001		

Table 10: Distinctive Collostructional Analysis for *Path* (do/give)

Semantic Group	'do'	'give'	Total
Path	54 (expected=60)	40 (expected=33)	94
Other Groups	210	108	318
Total	264	148	412
Coll.strength	p=0.14		

Table 11: Distinctive Collostructional Analysis for *Path* (take/hit)

Semantic Group	'take'	'hit'	Total
Path	27 (expected=24)	40 (expected=42)	67

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Other Groups	39	72	111
Total	66	112	178
Coll.strength	p=0.52		

Table 12: Distinctive Collostruational Analysis for *Path* (hit/give)

Semantic Group	'hit'	'give'	Total
Path	40 (expected=34)	40 (expected=45)	80
Other Groups	72	108	180
Total	112	148	260
Coll.strength	P=0.13		

Another semantic group that appeared to be common among three of the LVs *kardan* 'do', *zadan* 'hit', and *bordan* 'take' is *body part*⁹.

Table 13: Schematic Comparison of *body part*

Verb	<i>kardan</i> 'do'	<i>zadan</i> 'hit'	<i>bordan</i> 'take'
Semantic Schema	X CAUSE Y BE on BODY PART	X CAUSE BODY PART TOUCH LOC	X CAUSE BODY PART BE LOC
Syntactic Schema	NP1 NP2 N.[body part]-do	NP1 (Prep)NP2 N.[body part]-hit	NP1 PrepNP2 N.[hand/head]-take
Paraphrase	agent cause patient be on body part (Ground)	agent cause body part (Figure) touch theme (location) quickly	agent cause body part (head/hand) be in location

⁹ It is worth mentioning that the LV *daadan* 'give' can also combine with some body parts like *dast* 'hand', and form the CP *dast-daadan* lit. hand_N-give 'shake hand'. However, this combination did not appear in our corpus.

The major differences between the combinations of these three LVs in this group are reflected in their semantic schemas and paraphrases. The combination of the LV *kardan* with a body part means ‘wear’ in the majority of cases. Depending on the type of Figure, the PV (Ground) changes. For example, ‘glove’ as a Figure requires ‘hand’ as PV (Ground): *dastkesh-raa dast-kard* lit. glove-OM hand_N-do-PST.3SG ‘he wore the gloves’, or a Figure such as ‘scarf’ requires ‘head’ as its PV (Ground). While the PV in the combinations of *kardan* ‘do’ plays the role of Ground, in the combinations of *zadan* ‘hit’ the PV plays the role of Figure. The combination of the LV *zadan* with body part means ‘touch, or ‘having contact for a short period of time’. The quick activity that exists in the CPs built with *zadan*, is expressed by the LV itself; in fact, according to Dehkhoda dictionary (1931) one of the meanings of the full counterpart of ‘hit’ is touch or do an activity quickly (however the activity can be repeated for several times and the short period does not refer to telicity). The examples of this group are *dast-zadan* lit. hand_N-hit ‘touch with hand’, *angosht-zadan* lit. finger_N-hit ‘touch with finger’. The combinations of the LV *kardan* in comparison with *zadan* refer to longer activities where a stronger antagonist is required to move the agonist. In addition, the locations (Ground) of the CPs with ‘do’ are mostly containers while with ‘hit’ they are a surface. The syntactic schemas of the combinations of these two LVs are not identical, but they are similar. The CPs built with the LV *zadan* ‘hit’ can have a preposition before the Ground. However, the Ground can also appear before the object marker *raa* (like combinations of *kardan*).

(310) *ou cake-raa angosht-zad*
 he cake-OM finger_N-hit

'He touched the cake with his finger.'

(311) *ou be cake angosht-zad*

he to cake finger_N-hit

'He touched the cake with his finger.' [He fingered to the cake.]

Finally, the combinations of the LV *bordan* 'take' with a body part (head/hand) is entirely different from *kardan* 'do' and *zadan* 'hit'. While the literal meanings of these CPs refer to the location of a body part, they are metaphorical extensions with different meanings. The syntactic schema of such combinations is similar to the combinations of the LV 'hit' when it occurs with the preposition 'to'. In the majority of cases for both LVs the preposition 'to' is used.

Figure (14) shows the existing network between the CPs built with a body part as their PVs, but different LVs.

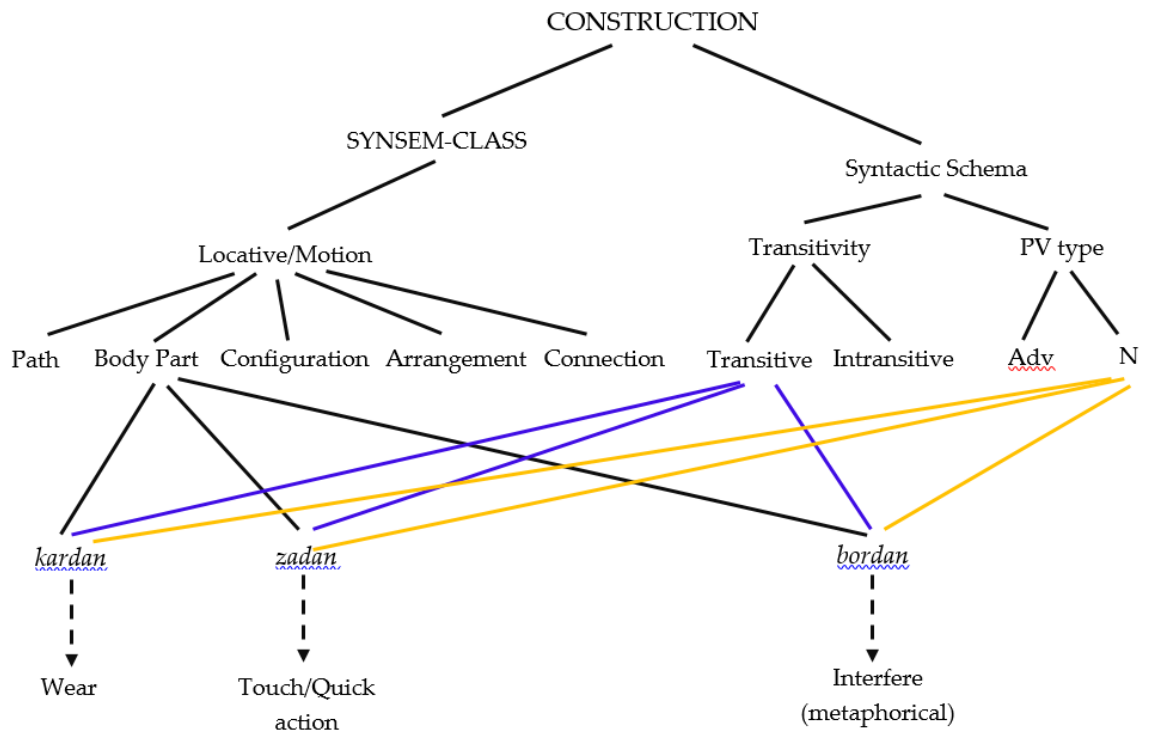


Figure 14: Partial Network of CPs for Semantic Category of *Body Part*

The collocation analysis of these LVs for the semantic category of *body part* shows that the LV ‘take’ has the highest degree of attraction to the semantic group of *body part*. The degree of LVs’ attraction to *body part* can be prioritized as follows: take > hit > do.

Table 14: Distinctive Collocation Analysis for *Body Part* (do/hit)

Semantic Group	‘do’	‘hit’	Total
Body Part	47 (expected=47)	21 (expected=20)	68
Other Groups	217	91	308
Total	264	112	376
Coll.strength	p=0.002		

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Table 15: Distinctive Collostructional Analysis for *Body Part* (do/take)

Semantic Group	'do'	'take'	Total
Body Part	47 (expected=49)	15 (expected=12)	62
Other Groups	217	51	268
Total	264	66	330
Coll.strength	P=0.37		

Table 16: Distinctive Collostructional Analysis for *Body Part* (take/hit)

Semantic Group	'take'	'hit'	Total
Body Part	15 (expected=13)	21 (expected=22)	36
Other Groups	51	91	112
Total	66	112	178
Coll.strength	P=0.56		

The third common semantic group among the LVs *kardan* 'do', *zadan* 'hit', and *daadan* 'give' is *configuration*.

Table 17: Schematic Comparison of *Configuration*

Verb	<i>kardan</i> 'do'	<i>zadan</i> 'hit'	<i>daadan</i> 'give'
Semantic Schema	X CAUSE Y BECOME Z SHAPE/SIZE LOC	X BECOME Z SHAPE LOC	X BECOME Z SHAPE LOC
Syntactic Schema	NP1 (NP2) PrepNP3 ADJ.[configuration]- do	NP1 PrepNP2 ADJ/N.[configuration/shape]- hit	NP1 PrepNP2 N.[Configuration/shape].hit

Paraphrase	agent (cause) change of location (of patient) by changing its shape	agent be in location by a sudden change of shape (form)	agent be in location by a change of position
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As is observable in the constructional schemas of *kardan*, *zadan*, and *daadan* the combinations of these three LVs are different semantically and syntactically. With respect to their semantic differences, the CPs built with *kardan*, can refer to the change of size and change of shape simultaneously like, *pahn-kardan* lit. wide_{ADJ}-do ‘widen’. On the other hand, CPs of *zadan* and *daadan* only refer to the change of shape like *chombaاتمeh-zadan* lit. hunker_N-hit ‘hunker’, and *lam-daadan* lit. loll_N-give ‘loll, recline’. In addition, in combinations of *zadan*, the notion of quick activity that exists in the lexical verb ‘hit’ is normally preserved in the CP. Combinations of the LV *daadan* mostly refer to the posture of human and express a change of position.

With respect to their syntactic differences, the CPs built with *kardan* are in the majority of cases transitive while CPs of *zadan* and *daadan* are intransitive. In other words, the combinations of *zadan* and *daadan* are considered valency-decreasing constructions.

Finally, PVs that co-occur with *kardan* can appear as an adjective, PVs of *daadan* as a noun, and PVs of *zadan* as either adjective or noun.

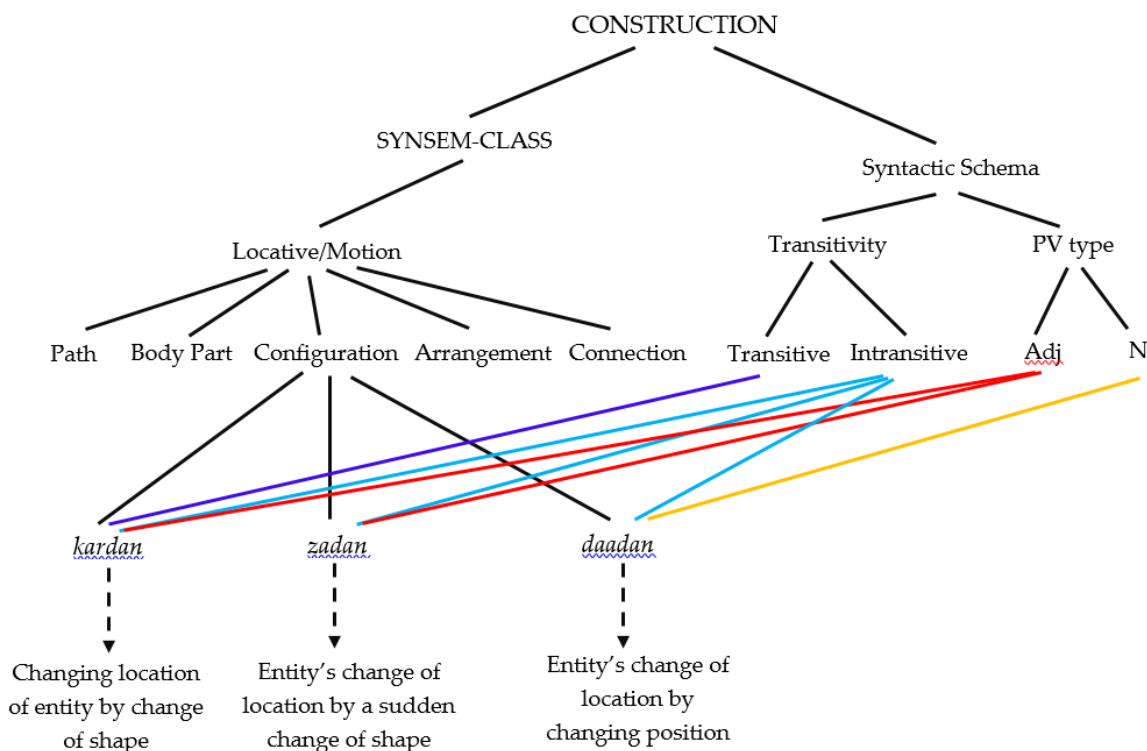


Figure 15: Partial Network of CPs for Semantic Category of *Configuration*

According to Tables (18), (19), (20) the LV ‘do’ has the highest degree of attraction to the semantic group of *configuration*. The degree of LVs attraction to *configuration* can be prioritized as follows: do > give > hit.

Table 18: Distinctive Collostructional Analysis for *Configuration* (do/hit)

Semantic Group	‘do’	‘hit’	Total
Configuration	40 (expected=30)	3 (expected=12)	43
Other Groups	224	109	333
Total	264	112	376
Coll.strength	p=0.0002		

Table 19: Distinctive Collostructional Analysis for *Configuration* (do/give)

Semantic Group	'do'	'give'	Total
Configuration	40 (expected=37)	19 (expected=21)	59
Other Groups	224	129	353
Total	264	148	412
Coll.strength	p=0.56		

Table 20: Distinctive Collostructional Analysis for *Configuration* (hit/give)

Semantic Group	'hit'	'give'	Total
Configuration	3 (expected=9)	19 (expected=12)	22
Other Groups	109	129	238
Total	112	148	260
Coll.strength	p=0.003		

The fourth group that is common among *kardan* 'do', *zadan* 'hit', and *daadan* 'give' is *arrangement*.

Table 21: Schematic Comparison of *Arrangement*

verb	<i>kardan</i> 'do'	<i>zadan</i> 'hit'	<i>daadan</i> 'give'
Semantic Schema	X CAUSE Y BE ARRANGED LOC	X CAUSE Y BE ARRANGED LOC	X CAUSE Y BE ARRANGED LOC
Syntactic Schema	NP1 NP2 Prep NP3 ADJ.[arrangement]-do	NP1 NP2 (Prep NP3) N.[arrangement].hit	NP1 NP2 (Prep NP3) N.[arrangement]-give

Verb-Specific Analysis

Paraphrase	Agent change location of patient by changing its arrangement	Agent cause patient move in specific arrangement quickly by tapping and repetitive actions	agent cause patient be in location via the action of establishment
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Comparison of these LVs show that their combinations express a similar notion, but they still have subtle syntactic and semantic differences, which are reflected in their syntactic schemas and their paraphrases. According to their syntactic schemas the CPs built with *daadan* 'give' and *zadan* 'hit' can act like valency-decreasing constructions. For example, in CPs like *ham-zadan* lit. stir_N-hit 'stir' and *saazmaan-daadan* lit. organization_N-give 'organize', the location of the action may not be mentioned in the sentence in the majority of cases. On the other hand, the CPs of *kardan* 'do' like *pakhsh-kardan* lit. scattered_{ADJ}-do 'scatter', normally occur with the location of the action. Furthermore, the syntactic schemas of these CPs show that PVs that co-occur with 'do' are adjectives while PVs of 'hit' and 'give' are nouns. Finally, their paraphrases reflect the fact that CPs of *zadan* 'hit' have notions of quick, tapping, and repetitive activities like *bor-zadan* shuffle_N-hit 'shuffle the cards' or 'stir', and CPs of *daadan* 'give' express the notion of 'establishment' like *tartib-daadan* lit. arrangement_N-give 'arrange an event', or *saazmaan-daadan* lit. organization_N-give 'form'.

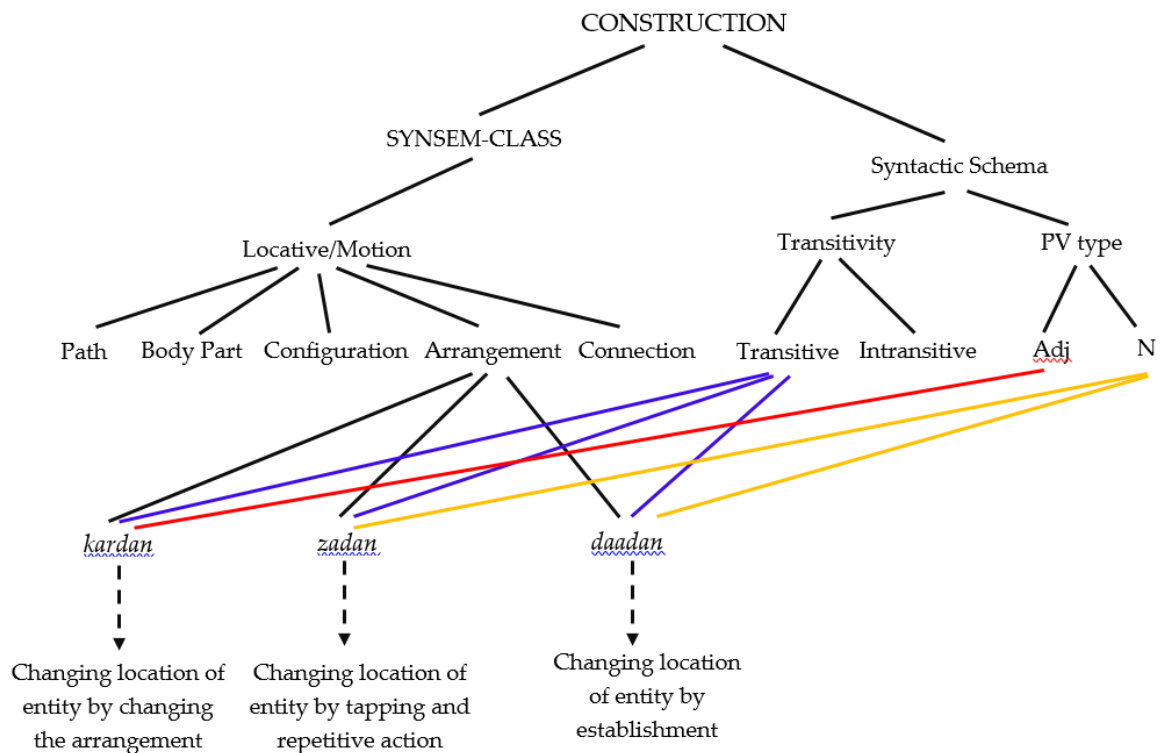


Figure 16: Partial Network of CPs for Semantic Category of *Arrangement*

The collocation analysis of these LVs for the semantic category of *Arrangement* shows that the LV ‘do’ has the highest degree of attraction to the semantic group of *arrangement*. The degree of LVs attraction to the *body part* can be prioritized as follows: do > give > hit >.

Table 22: Distinctive Collocation Analysis for *Arrangement* (do/give)

Semantic Group	‘do’	‘give’	Total
Arrangement	16 (expected=14)	6 (expected=7)	22
Other Groups	248	142	390
Total	264	148	412

Verb-Specific Analysis

Coll.strength	p=0.49
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Table 23: Distinctive Collostructional Analysis for *Arrangement* (hit/give)

Semantic Group	'hit'	'give'	Total
Arrangement	3 (expected=4)	6 (expected=4)	9
Other Groups	109	142	251
Total	112	148	260
Coll.strength	p=0.73		

Table 24: Distinctive Collostructional Analysis for *Arrangement* (do/hit)

Semantic Group	'do'	'hit'	Total
Arrangement	16 (expected=13)	3 (expected=5)	19
Other Groups	248	109	357
Total	264	112	376
Coll.strength	p=0.20		

The last common group which is shared by the two LVs, *kardan* 'do' and *zadan* 'hit', is *connection*.

Table 25: Schematic Comparison of *Connection*

Verb	<i>kardan</i> 'do'	<i>zadan</i> 'hit'
Semantic Schema	X CAUSE Y BE (DIS) CONNECTED LOC	X CAUSE Y BE CONNECTED LOC
Syntactic Schema	NP1 NP2 Prep NP3 ADJ.[un/connected]-do	NP1 NP2 (PrepNP3) N.[attached]-hit

Paraphrase	agent cause patient be connected to location	agent cause patient be attached in location by tapping quickly
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CPs of these two LVs express the notion of *connection* differently. The combinations of *kardan* ‘do’ in addition to the connection can also express the notion of disconnection like *rahaa-kardan* lit. released_{ADJ}-do ‘release’ while CPs built with *zadan* ‘hit’ only refer to connection like *kouk-zadan* lit. stitch_N-do ‘stitch’. The notion of connection expressed by combinations of *zadan* ‘hit’ is accompanied by a tapping and quick activity. In addition, the connection is more like attachment with these CPs. on the other hand, *kardan* ‘do’ CPs express simple connection like *vasl-kardan* lit. connected_{ADJ}-do ‘connect’. Finally, CPs built with *zadan* ‘hit’ can act like valency-decreasing construction. In connection events, there normally exist two locations while according to the syntactic schema of *zadan* ‘hit’ one location can be omitted from the sentence.

(312) *ou lebaas-raa kouk-zad*
 he dress-OM stitch_N-hit
 ‘He stitched the dress.’

(313) *ou tarh-raa be lebaas kouk-zad*
 he design-OM to dress stitch_N-hit
 ‘He stitched the design to the dress.’

The syntactic schemas also reveal that *zadan* ‘hit’ combines with nouns, which have the role of Figure while *kardan* ‘do’ combines with adjectives that refer to a change of state.

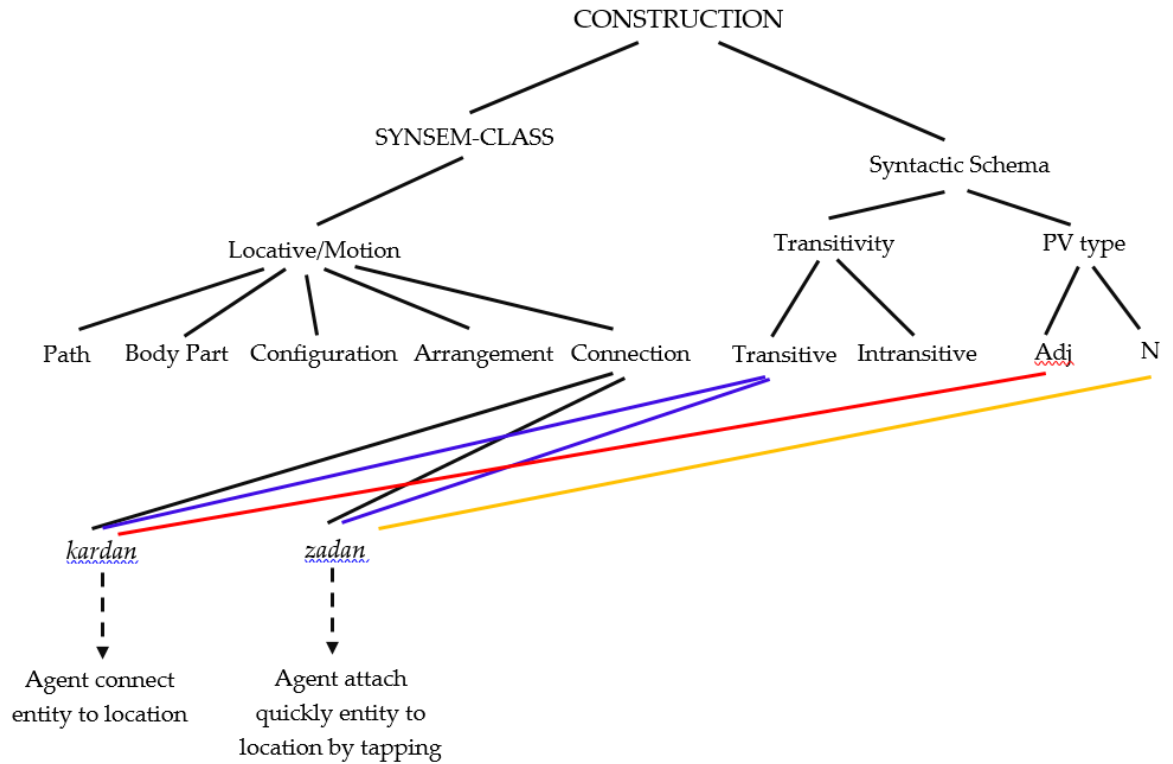


Figure 17: Partial Network of CPs for Semantic Category of *Connection*

The colostruational analysis of these LVs for the semantic category of *connection* shows that neither 'do' nor 'hit' has a significant attraction to the semantic group of *connection*. According to Table (26), the p-value is one which is a sign that none of the LVs has a significant attraction. Also, the observed frequency of the CPs equals their expected frequency.

Table 26: Distinctive Colostruational Analysis for *Connection* (do/hit)

Semantic Group	'do'	'hit'	Total
Connection	26 (expected=26)	11 (expected=11)	37
Other Groups	238	101	339
Total	264	112	376

Coll.strength	p=1
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6.5.2. Syntactic types of PVs

Besides discussing different semantic types of PVs that combine with these LVs, we also argue that each LV combines with a specific syntactic type of PV more than others, as Table (27) shows.

Table 27: Percentage of 'do', 'hit', 'give', 'take' Pre-Verbs Types

LV	PV (part)			
	Noun	Adjective	Adverb	Preposition
<i>kardan</i> 'do'	53.79%	42.80%	2.27%	1.14%
<i>zadan</i> 'hit'	60.71%	0.89%	37.50%	0.89%
<i>daadan</i> 'give'	83.78%	0.68%	12.16%	3.38%
<i>bordan</i> 'take'	42.42%	0	27.27%	30.30%

As indicated in this Table, for all four LVs the most frequent type of PV is noun. For the LV *kardan* 'do', the most frequent semantic groups are *path*, *body part*, and *presence*. In these three groups, the number of PVs that appear as noun is high. The *body part* is always a noun, half of the PVs appear in *path* are nouns, which can express a path like *nasht-kardan* lit. leak_N-do 'leak', *soghout-kardan* lit. fall_N-do 'fall', and half of the PVs that appear in the *presence* group are also nouns like *zohour-kardan* lit. appearance_N-do 'emerge'. For the LV *zadan* 'hit' also two of the most frequent semantic groups, *manner* and *body part*, have nouns as their PVs like *moj* 'wave' or *dast* 'hand'. Excluding the PVs of the group *path*, which are mostly adverbs, the majority of the PVs appear as nouns for the LV *zadan* 'hit'. For the LV *daadan* 'give' also as it is reflected in the names of its semantic categories, the majority of the PVs appear as

nouns (see Table 3), except the semantic group of *path* in which the number of adverbs rises. Finally, the LV *bordan* ‘take’ also occurs with nouns more than other types of PVs since *body part* and *destroying* verbs like *tahlil-bordan* lit. erosion_N-take ‘erosion’ constitute around half of the CPs.

In the combinations of the LV *kardan* ‘do’ with different types of PVs, the frequency of adjectives comes after nouns. This result is because the majority of the CPs built with this LV express a change of state and are resultative (we will discuss this issue in more detail below) like the CP *khord-kardan* lit. crushed_{ADJ}-do ‘crush’. On the other hand, in combinations of the LV *zadan* ‘hit’, adverbs come in the second position. The semantic category of *path* is highly frequent among combinations of ‘hit’; these combinations use adverbs of place as their PVs to express the path of movement like, *pas-zadan* lit. back_{ADV}-hit ‘draw back’, *kenaar-zadan* lit. side_{ADV}-hit ‘brush aside, pull over’. For the LVs *daadan* ‘give’ and *bordan* ‘take’, in comparison with other parts of speech, adverbs are also quite high. The reason for this phenomenon is that the number of CPs appeared in the semantic category of *path* is higher than CPs in other groups, and the path normally is expressed by adverbs such as ‘up’, ‘down’, ‘back’, etc. However, for the combinations of *daadan* in the *path* category, besides adverbs, nouns such as ‘gulp.N’, and ‘loan.N’ which also have the notion of direction appear quite frequently. For the LV *daadan*, prepositions are also quite frequent. In fact, in such combinations, prepositions can combine with a noun to form the PVs. In the following examples, the PV appears as prepositional phrases:

(314) *Az-beyn-bordan* from_{Prep}-among_{ADV}-take ‘destroy’

(315) *Az-haafezeh-bordan* from_{Prep}-memory_N-take ‘forget’

The preposition ‘from’ is also quite common with the full counterpart of *bordan* like the following example:

- (316) *machin-ash-raa az khaane maa bord*
 car-GEN-OM from home us take.PST.3SG
 ‘He took his car from our home.’

In this example, *bordan* ‘take’ appears as the full counterpart (not a LV) and the preposition that co-occurs with this verb is ‘from’. The same preposition occurs when this verb combines with a prepositional phrase to build a CP.

Since *daadan* ‘give’ and *bordan* ‘take’ mostly express caused-motion events rather than resultative ones, the number of CPs built with adjectives, which can define a state, is less than other types of PVs. However, the resultative events also are expressed with these LVs, and in such cases, the LVs mostly combine with nouns such as ‘ornament’, ‘development’, ‘hand’, and ‘erosion’ as in the following examples.

- (317) *zinat-daadan* lit. ornament_N-give ‘make something beautiful’
 (318) *gostaresh-daadan* lit. development_N-give ‘develop’
 (319) *tahlil-bordan* lit. erosion_N-take ‘erosion’
 (320) *dast-bordan* lit. hand_N-take ‘interfere in something to change the essence or appearance of that.’

As is clear in these examples, the resultative state of a sentence can be expressed by nouns that appear as PVs.

6.5.3. Transitivity of CPs

In addition to the generalizations mentioned above, we also explain transitivity generalizations of these constructions based on their semantics, with the help of Figure 18. Our analysis shows that all the CPs built with a specific LV in spatial events

are a family of resultative constructions, which are not identical but show certain similarities. Studies in English resultatives also show that all the members of this family have similarities besides their differences. According to Goldberg & Jackendoff (2004), English resultatives are a family of related constructions in which certain generalizations occur based on the semantics of the constructions. As Goldberg & Jackendoff (2004: 542) put it: “resultatives are united by related but not identical syntax and by related but not identical semantics.”

All the CPs built with *kardan* ‘do’, *zadan* ‘hit’, *daadan* ‘give’, and *bordan* ‘take’ regardless of which semantic group they belong to appear in one of the following constructions: transitive resultative, caused-motion, intransitive resultative, intransitive motion. Each semantic category may accept one or two of these constructions. The following Figure shows the percentage of these constructions for each LV.

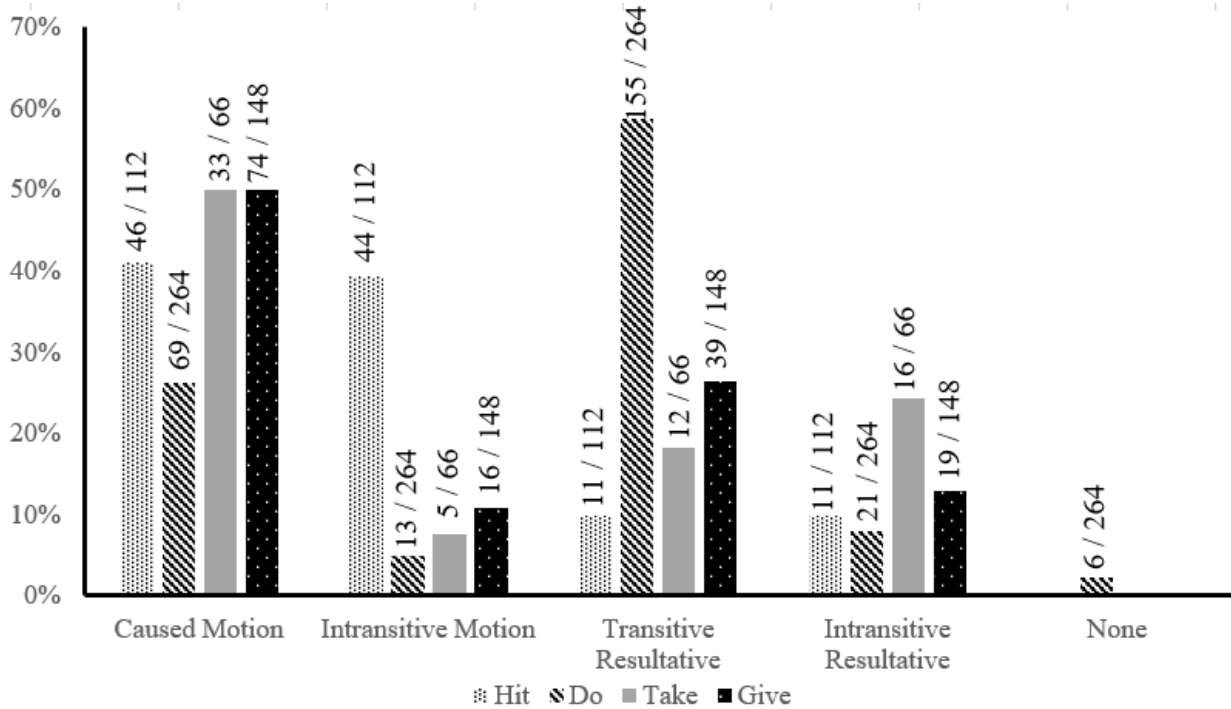


Figure 18: Transitivity and Causativity of LVs

This figure represents two facts about the combinations of the LV *kardan* 'do'. First, the majority of CPs lead to resultative constructions and express location rather than motion. In other words, they mostly refer to a change of state rather than a change of place. Second, this result indicates that CPs built with the LV *kardan* 'do' are mostly transitive; only 13% of the CPs are intransitive. In sum, complex predicates built with *kardan* 'do' are a family of resultatives and this LV expresses causation.

Figure (18) also represents two facts about the LV *zadan* 'hit'. First, in comparison with the LV *kardan* 'do', the majority of the CPs built with *zadan* 'hit' are motion constructions rather than resultative constructions. In other words, they mostly refer to a change of place rather than a change of state. This fact reveals that in the majority of cases, CPs of the LV *zadan* 'hit' express motion events and in a few cases location

events. Second, CPs built with the LV *zadan* ‘hit’ appear as either transitive or intransitive in nearly the same rate.

Figure (18) reveals two facts about the LV *daadan* ‘give’. First, the high frequency of the caused-motion construction in addition to intransitive motion events shows that the majority of CPs built with *daadan* ‘give’ express dynamic spatial events (motion). This result is in line with the meaning of *daadan* ‘give’ where an entity is normally transferred from one place to another. Second, this result indicates that the CPs built with the LV *daadan*, ‘give’, are mostly transitive and only 23.62% of the CPs are intransitive. Therefore, CPs built with *daadan*, ‘give’ are a family of resultatives with causativity characteristics in the majority of cases. However, CPs in this group may also appear as intransitive constructions in a few cases. Although the lexical verb *daadan*, ‘give’, is transitive as in the sentence ‘he gave his document to me’, in combination with PVs it may appear as either transitive or intransitive. Dependent on the PV and the semantic interaction between the PV and *daadan*, ‘give’, the CP may appear either transitive or intransitive. Following is an example of intransitive CP built with ‘give’:

- (321) *in otaagh bou-mi-dahad*
 this room smell_N-HAB-give.PRS.3SG
 ‘This room smells.’

Here, the CP *smell_N-give* ‘smell’ is unaccusative and the subject of the sentence does not initiate an action actively. Thus, the LV *daadan* ‘give’ in combination with PVs can result in an intransitive construction.

With respect to the LV *bordan* ‘take’, based on Figure 18 we can determine that 57.58% of the CPs built with this LV are motion and refer to a change of place, which

is also in accordance with the high frequency of the semantic group *path*. It is also in line with the meaning of the lexical verb *bordan*, 'take'. This figure also indicates that CPs in this group are in 68.18% of the cases transitive; therefore, *bordan* can lead to causativity in the majority of cases. Although the lexical verb *bordan* is transitive, like *daadan* 'give' when it appears in CPs it can form intransitive combinations as well. In fact, dependent on the type of PV with which it combines, the resulting CP can also appear intransitive. In our data, these CPs include 31.82% of the cases.

It is a well-known fact that the transitivity of CPs (number of their arguments) is not the same as the transitivity of the LVs used in these combinations (Megerdooian, 2001). *Kardan* 'do', *zadan* 'hit', *daadan* 'give', and *bordan* 'take' are transitive verbs, as indicated in this study their combination with PVs can lead to either transitive or intransitive constructions (CPs). In our analysis, we found three reasons for this outcome. First, certain PVs can lead to valency-decreasing of these LVs and create an intransitive construction. These PVs are nouns or noun phrases such as *barchasb* 'sticker' in *barchasb-zadan* lit. sticker_N-do 'stick a label'. These nouns or phrases act like the patient of the sentence and their occurrence inside the CP leads to a valency-decreasing construction, and the CP cannot accept another patient. These types of constructions are called valency-decreasing constructions from a constructional point of view (Hilpert, 2014). In such constructions, the number of arguments that can accompany a verb decrease. Another factor that can affect the transitivity of the LVs *kardan* 'do', *zadan* 'hit', *daadan* 'give', and *bordan* 'take' is that the CP appears unaccusative. The subject of such combinations cannot actively initiate an action. The subject of such combinations appear to be inanimate in our corpus as indicated in the following examples:

(322) *aab az louleh nasht-kard*

lit. water from pipe leak_N-do

‘The water leaked from the pipe.’

(323) *sandali sedaa-daad*

lit. chair sound_N-make.PST.3SG

‘The chair made a sound.’

The last reason that leads to intransitive constructions built with these LVs is semantic. PVs such as *safar* ‘trip_N’, or *jast* ‘jump_N’ when combining with *kardan* ‘do’ and *zadan* ‘hit’ respectively can create intransitive constructions. These PVs’ semantic specifications are in line with intransitive verbs. In fact, ‘trip_N’ and ‘jump_N’ only require an agent. As a result, when they co-occur with the LVs *kardan* ‘do’ and *zadan* ‘hit’ they lead to an intransitive construction. Although these LVs can create intransitive constructions, as shown in Figure (18), they still produce a large number of transitive constructions.

Examples of transitive constructions built with *kardan* ‘do’, *zadan* ‘hit’, *daadan* ‘give’, and *bordan* ‘take’ are as follows:

(324) *paa-kardan* lit. foot_N-do ‘wear shoes or socks’

(325) *chang-zadan* lit. claw_N-hit ‘claw’

(326) *afzaayesh-daadan* lit. increase_N-give ‘increase’

(327) *be-asiri-bordan* lit. to_{Prep}-captivity_N-take ‘capture’

The transitivity of the whole construction depends on all the components and PV, and LV are in interaction. This claim differs from what is often said in the literature, where certain researchers, among them Megerdooian (2002) and Folli, Harley and Karimi (2005), claim that LVs determine causation and agentivity; conversely Karimi-

Doostan (2005) and Vahedi Langrudi (1996) claim that the PV determines these features. In the Goldbergian Construction Grammar approach that considers these constructions as form-meaning pairings, both components can be considered as determinative elements for causation and transitivity.

In sum, in this section, we discussed specifications of *kardan*, *zadan*, *daadan*, and *bordan* in detail, and explained why in certain cases one notion can be expressed by different LVs. As shown, this phenomenon can have either semantic or syntactic differences. In most of the cases, CPs built with the LV *kardan* refer to activities that need creation or a type of performance. In certain cases also a strong antagonist is required to change the state or location of a tough entity, while CPs built with *zadan* refer to a quick activity wherein no strong antagonist is required to change the location of a light entity in most of the cases. For the majority of CPs built with the LVs *daadan*, and *bordan*, it was observed that the notions of *transferring* and *carrying*, respectively, is reflected in the meaning of the construction. In addition to these common categories and PVs, these LVs also have different semantic categories, which were discussed in sections 6.1, 6.2, 6.3, and 6.4. Therefore, each LV, based on the core meaning that it preserves, accepts specific types of PVs and cannot combine with PVs randomly. As argued above, even with common PVs still there are systematic differences in CPs built with these four LVs.

7. CONCLUSION

The data analysis of this thesis consists of two main parts. In the first part of our analysis, the focus was on the differences between simplex verbs and CPs in spatial events, and in the second part of the analysis; we provided a more fine-grained analysis of CPs and discussed the existing systematicity in their formation. In our analysis, we carried out the following investigations:

First, we compared simplex verbs and CPs semantically and the way in which each type encodes spatial events. In line with our results, we discussed certain reasons for which CPs are replacing simplex verbs. The second investigation that encompasses the major part of our analysis is of identifying the semantic categories of the CPs built with the four LVs *kardan* 'do', *zadan* 'hit', *daadan* 'give', and *bordan* 'take'. Within our data set, we searched for the semantic systematicity in the formation of CPs. We explained certain behaviors of CPs, namely, their productivity, causativity, duration, and syntactical generalizations about the PVs based on their semantics. Finally, through a collostructional analysis, we measured the degree of attraction that these LVs have with respect to the semantic categories that they held in common.

In the first section of our study, we compared the behaviors of simplex verbs and CPs in spatial events. In line with Feiz (2011), we argued that Persian is a mixed-typology language with regard to Talmy's typology. However, based on an extensive corpus we showed that there are certain semantic and syntactic differences between these two systems in expressing spatial events, which can also lead to the replacement of simplex verbs by CPs. CPs are mostly responsible for the manner of activity and other specific information, while simplex verbs in half of the cases express no specific

information and appear as neutral constructions. According to Slobin (1997), and Özçalışkan (2002), verbs that can encode manner are semantically richer. This can be regarded as evidence that CPs are richer than simplex verbs semantically.

Furthermore, the syntactic distribution of CPs is more economic, since all the semantic information is mostly encoded in the construction itself. On the other hand, simplex verbs require dependent clauses, such as adverbial clauses, or adverbial phrases to express specific information, as in V-framed languages. As a rule, the frequency of CPs is higher than that of simplex verbs, and since CPs mostly express manner, we can conclude that the Persian language in the majority of cases behaves like an S-framed language, and in certain cases as a V-framed language.

The frequency of verbs; however, is influenced by the genre of the text, as simplex verbs are more frequent in novels compared to news. As discussed by Khazayi-Farid (2010) and Zolfaghari (2008), complex and long structures are characteristics of Persian novels. Based on the findings of our analysis, simplex verbs in spatial events have a complex syntactic distribution; therefore, it is logical that the frequency of simplex verbs rises in novels. Finally, CPs encode both motion and location events. On the other hand, simplex verbs are mostly locative events where the ground is expressed prepositionally (like in the sentence *ketaab rou-ye miz ast*, lit. book on-EZ table be-PRS.3SG, 'the book is on the table'). In fact, the frequency of the neutral verb 'be' is quite high among simplex verbs.

The outcome of our analysis shows that certain syntactic and semantic shortcomings of simplex verbs are the reasons for the replacement of simplex verbs by CPs, which is a focus of interest for certain studies.

With respect to the methods used in this thesis, we insist on the importance of exploring a large set of data. As Feiz's (2011) study investigates a limited set of data,

examining mostly the LVs *kardan*, 'do', and *shodan*, 'become,' and disregarding the variety of verbs that can express manner, her empirical underpinnings need more investigation. On the other hand, our study is based on a corpus-data, which allowed us to consider a large number of statements containing a variety of CPs in spatial events. In addition, this set of data gave us the possibility to compare the twofold behavior of simplex verbs and CPs in spatial events. Besides, the restriction to spatial events allowed us to keep the semantic focus on one particular domain and also to have a more manageable data to compare simplex verbs and CPs. As discussed before Persian CPs are quite frequent and varied; thus certain constraints are necessary to manage the data. More importantly for the purpose of future studies, such type of constraint would allow psychological testing of our findings.

In the second part of our study, we analysed Persian CPs based on the Construction Grammar approach. Following Goldberg (1996), Family (2006, 2014), and Samvelian & Faghiri (2013), we also consider Persian CPs in the lexicon as a unit. This approach seems to be the most appropriate framework for Persian CPs. As mentioned in the background section, CPs show a dual behavior (separable and non-separable) with respect to their syntax. Concerning their semantics, the meaning of the CPs in the majority of cases is not predictable from each component. To classify our CPs we used constructional schemas to have a more systematic way of classification. By employing a constructional approach, we determined that CPs have their own meanings since they are constructions in their own right. Also, their other properties can be explained based on their semantics. CPs in Persian stand between *verbalizers* and *semi-light verbs* since they have not been grammaticalized completely like verbalizer nor preserve all of their original meaning like semi-light verbs. In this study, we follow the findings of samvelian & Faghiri (2013), where they argue that

different semantic classes are divided into sub-classes. Two of their super-classes are locative and movement, which was inspiring for our study to consider CPs within this domain to investigate their behaviors. In their model, while they discuss LVs with common PVs, they focus on their valency differences. We focused on their schematic semantic/syntactic differences as well as their transitivity and PVs' types.

In our analysis, we identified semantic categories of each LV, namely, *kardan* 'do', *daadan* 'give', *zadan* 'hit', and *bordan* 'take'. Our categorization was based on the meaning of the whole construction (constructional schemas). Since each LV has several meanings, in each semantic category one or some of these meanings may contribute to the meaning of the constructions. Our corpus-based study showed that the productivity of the LVs is not necessarily in a direct relationship with the token frequencies. For example, the token frequencies of the LV *zadan* 'hit' are lower than the LV *daadan* 'give' while its type frequencies are higher, and accordingly is considered more productive. A certain degree of semantic generalization and systematicity was found for each LV and the specific types of PV with which it can co-occur. This result is in line with Family's (2006, 2014) findings. We also showed that the type of PV (noun, adjective, adverb, or preposition) with which LVs can combine is predictable based on the semantics of CPs.

We also showed that CPs are a family of resultatives in spatial events. Each semantic extension has one or two forms of resultative constructions; however, based on our statistical analysis, we showed that the tendency of each LV towards one type is more than the other ones. For example, the LVs *zadan* 'hit', *daadan* 'give', and *bordan* 'take' mostly lead to caused motion constructions and the LV *kardan* 'do' contribute to transitive resultative constructions. Regardless of being transitive or intransitive, each LV can form both constructions (transitive/intransitive) when combined with

PVs. We argued further that certain features of CPs, namely, their causativity and duration, are predictable by their semantics, and are based on the whole construction rather than the components individually.

Finally, the comparison between LVs that have the most PVs in common also reveals the systematicity in the formation of CPs. Samvelian and Faghiri (2013) argue that an identical PV can combine with two different LVs and they refer to valency variation for this phenomenon. Considering their analysis, we also investigated other reasons. CPs of two different LVs that share the same semantic categories may differ concerning certain semantic and syntactic aspects. Alternate LVs with the same PV can appear for the following reasons: transitivity, different types of Figures (with respect to their shape or the level of the strength that the antagonist needs to change the location of the Figure), different duration, different syntactic behavior of PV, and creating metaphorical extensions. The collocation analysis of these LVs also showed that LVs that have same PVs or semantic groups reflect different degrees of attraction with respect to the related PV or the semantic group.

We consider the approaches and methods used in this thesis to be a new way of examining Persian CPs. In general, the semantics of Persian CPs seems to be overlooked in the literature in comparison to their syntactic features. These combinations have been studied excessively; however, based on theories, in which human knowledge of the world is not considered. This thesis reveals to a certain degree how systematic CPs act in spatial events. The importance of a corpus linguistics method in Persian is demonstrated in this study as well. By tagging all the components of a sentence, we can identify their effect on one another. Otherwise, we may neglect certain elements to analyse, that may result in increasing the rate of errors. As far as we know this thesis is the first study that compares simplex verbs

and CPs in space through cognitive linguistics approaches and corpus linguistics method.

Future studies in light of the recent progress on advanced programming could take the advantages of computer-aided methods like deep learning to facilitate tagging and analyzing data on very large databases. This way, one can include not only millions of sentences in the analysis but also cover a wider variety of genres such as legal, academic, commercial, scientific, etc. Developing computer-aided analysis requires a team of linguists and computer scientists to create semi-autonomous programs in which both difficulties of conceptual delicacies of language and big-data complications are addressed. Using the semi-autonomous analyzing methods enables us to include other pairs of LVs to reach a broader pattern among Persian LVs.

Alternative studies could involve investigating other semantic domains other than space, separately, to have a more comprehensive result ultimately. Finally, for the analysis of simplex verbs vs. CPs in spatial events, it is suggested to test the Whorfian hypothesis by psycholinguistics experiments and to consider non-verbal elements like gestures as well. We would hypothesize that speakers use more gestures with simplex verbs since these verbs express specific information rarely. We hope that future studies on Persian verbal system rely more on corpus-based semantic investigations and cognitive approaches.

REFERENCES

- Amid, h. (1963). Amid dictionary. Retrieved from <http://www.vajehyab.com/amid>.
- Ashrafi-Sadeghi, A. (1970). Tahavole Afaale biqaaedeh Zabaane Farsi. *Jastaarhaaye Adabi*, 24 (1970), 791-801.
- Atkins, B. T. (1987). Semantic ID tags: corpus evidence for dictionary senses. In *Proceedings of the Third Annual Conference of the UW Centre for the New Oxford English Dictionary* (Vol. 1736).
- Baillargeon, R., & Wang, S. H. (2002). Event categorization in infancy. *Trends in cognitive sciences*, 6(2), 85-93.
- Bashiri, I. (1981). *Persian syntax*. Burgess Publishing Company.
- Bateni, M. (1989). Farsi Zabani Aqim. *Adineh*, winter (1989), 66-71.
- Berthele, R. (2004). The typology of motion and posture verbs: A variationist account. *TRENDS IN LINGUISTICS STUDIES AND MONOGRAPHS*, 153, 93-126.
- Bowerman, M., & Choi, S. (2001). Shaping meanings for language: universal and language-specific in the acquisition of semantic categories. In *Language acquisition and conceptual development* (pp. 475-511). Cambridge University Press.
- Bowerman, M., & Choi, S. (2003). Space under construction: Language-specific spatial categorization in first language acquisition. *Language in mind: Advances in the study of language and thought*, 387-427.

Bowerman, M. (2005). Why can't you "open" a nut or "break" a cooked noodle? Learning covert object categories in action word meanings. *Building object categories in developmental time*, 209-243.

Bonami, O., & Samvelian, P. (2010). Persian complex predicates: Lexeme formation by itself. In *Septiemes Décembrettes Morphology Conference, Toulouse*, 3.

Butt, M. (1995). *The structure of complex predicates in Urdu*. Center for the Study of Language (CSLI).

Butt, M., & Lahiri, A. (2002). Historical stability vs. historical change. *Unpublished Ms.* <http://ling.uni-konstanz.de/pages/home/butt>.

Butt, M. (2003). Light verbs in Urdu and grammaticalization Miriam Butt and Wilhelm Geuder. *Words in time: Diachronic semantics from different points of view*, 295-349.

Butt, M. (2010). The light verb jungle: still hacking away. *Complex predicates in cross-linguistic perspective*, 48-78.

Bybee, J. L. (2006). From usage to grammar: The mind's response to repetition. *Language*, 82(4), 711-733.

Casasola, M. (2002). Exploring the relationship between language-specific semantic spatial categories and infants' nonlinguistic spatial categories. In *Space in language—Location, motion, path, and manner: Proceedings of the 31st Stanford Child Language Research Forum*, 1-10.

References

Casasola, M., & Cohen, L. B. (2002). Infant categorization of containment, support and tight-fit spatial relationships. *Developmental Science*, 5(2), 247-264.

Casasola, M. (2008). The development of infants' spatial categories. *Current Directions in Psychological Science*, 17(1), 21-25.

Casasola, M., & Park, Y. (2013). Developmental changes in infant spatial categorization: When more is best and when less is enough. *Child development*, 84(3), 1004-1019.

Cattel, R. (1984). Composite predicates in English. *Syntax and semantics*, 17.

Chafe, W. (1994). Discourse, consciousness, and time. *Discourse*, 2(1).

Chatterjee, A. (2001). Language and space: Some interactions. *Trends in cognitive sciences*, 5(2), 55-61.

Chen, L., & Guo, J. (2009). Motion events in Chinese novels: Evidence for an equipollently-framed language. *Journal of pragmatics*, 41(9), 1749-1766.

Choi, S., & Bowerman, M. (1991). Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns. *Cognition*, 41(1), 83-121.

Choi, S., McDonough, L., Bowerman, M., & Mandler, J. M. (1999). Early sensitivity to language-specific spatial categories in English and Korean. *Cognitive Development*, 14(2), 241-268.

Choi, S. (2006). Influence of language-specific input on spatial cognition: Categories of containment. *First Language*, 26(2), 207-232.

- Chomsky, N. A. (1976). Reflections on language.
- Cienki, A. J. (1989). Spatial cognition and the semantics of prepositions in English, Polish, and Russian. Doctoral dissertation, Brown University.
- Clark, E. V. (1978). Locationals: Existential, locative, and possessive constructions. *Universals of human language*, 4, 85-126.
- Clark, E. V., & Clark, H. H. (1979). When nouns surface as verbs. *Language*, 767-811.
- Clark, E. V. (2005). Semantic categories in acquisition. *Handbook of categorization in cognitive science*, 459-479.
- Dabir-Moghaddam, M. (1997). Compound verbs in Persian.
- Dehaene, S. (2010). *Bosse des maths (La): Quinze ans après*. Odile Jacob.
- Dehkhoda, A. (1931). *Dehkhoda dictionary*. Retrieved from <http://www.vajehyab.com/dehkhoda>.
- Di Sciullo, A. M., & Rosen, S. T. (1990). Light and semi-light verb constructions. *Grammatical Relations: A cross-theoretical perspective*, 109-125.
- Dressler, W. U. (2006). Compound types. *The representation and processing of compound words*, 23-44.
- Engelberg, S. (1999). The magic of the moment: What it means to be a punctual verb. In *Annual Meeting of the Berkeley Linguistics Society*, 25(1), 401-416.

References

Faghiri, P., & Samvelian, P. (2014). Constituent ordering in Persian and the weight factor. *Halshs*, 2014, 215-232.

Faghiri, P., Samvelian, P., & Hemforth, B. (2014). Accessibility and word order: The case of ditransitive constructions in Persian. In *The 21th International Conference on Head-Driven Phrase Structure Grammar*, 217.

Family, N. (2006). *Explorations of semantic space: The case of light verb constructions in Persian* (Doctoral dissertation, Paris, EHESS).

Family, N. (2014). *Semantic spaces of Persian light verbs: A constructionist account*. Brill.

Fauconnier, G. (1997). *Mappings in thought and language*. Cambridge University Press.

Feist, M. I. (2000). *On in and on: An investigation into the linguistic encoding of spatial scenes* (Doctoral dissertation, Northwestern Univ. Evanston).

Feist, M. I. (2008). Space between languages. *Cognitive science*, 32(7), 1177-1199.

Feiz, P. (2011). Traveling through space in Persian and English: a comparative analysis of motion events in elicited narratives. *Language Sciences*, 33(3), 401-416.

Folli, R., Harley, H., & Karimi, S. (2005). Determinants of event type in Persian complex predicates. *Lingua*, 115(10), 1365-1401.

Frege, G., Geach, P. T., & Black, M. (1951). On concept and object. *Mind*, 60(238), 168-180.

Gennari, S. P., Sloman, S. A., Malt, B. C., & Fitch, W. T. (2002). Motion events in language and cognition. *Cognition*, 83(1), 49-79.

Ghomeshi, J., & Massam, D. (1994). Lexical/syntactic relations without projection. *Linguistic Analysis*, 24(3-4), 175-217.

Goldberg, A. E. (1995). *Constructions: A construction grammar approach to argument structure*. University of Chicago Press.

Goldberg, A. E. (1996). Words by default: Optimizing constraints and the Persian complex predicate. In *Annual Meeting of the Berkeley Linguistics Society*, 22(1), 132-146.

Goldberg, A. E., & Jackendoff, R. (2004). The English resultative as a family of constructions. *Language*, 532-568.

Goldberg, A. E. (2006). *Constructions at work: The nature of generalization in language*. Oxford University Press on Demand.

Gries, S. T., & Stefanowitsch, A. (2004). Extending collocation analysis: A corpus-based perspective on alternations'. *International journal of corpus linguistics*, 9(1), 97-129.

Gries, S. T. (2010). Behavioral profiles: A fine-grained and quantitative approach in corpus-based lexical semantics. *The Mental Lexicon*, 5(3), 323-346.

Grimshaw, J., & Mester, A. (1988). Light verbs and θ -marking. *Linguistic Inquiry*, 205-232.

References

Grimshaw, J. (2000). Locality and extended projection. *AMSTERDAM STUDIES IN THE THEORY AND HISTORY OF LINGUISTIC SCIENCE SERIES 4*, 115-134.

Grinevald, C. (2006). The expression of static location in a typological perspective. *Typological Studies in Language*, 66, 29.

Hale, K., & Keyser, S. J. (1997). On the complex nature of simple predicators. *Complex predicates*, 64, 29-65.

Hampe, B., & Grady, J. E. (Eds.). (2005). *From perception to meaning: Image schemas in cognitive linguistics* (Vol. 29). Walter de Gruyter.

Heine, B. (2006). *Possession: Cognitive sources, forces, and grammaticalization* (Vol. 83). Cambridge University Press.

Hendriks, H., Watorek, M., & Giuliano, P. (2004). L'expression de la localisation et du mouvement dans les descriptions et les récits en L1 et en L2. *Langages*, (3), 106-126.

Heny, J., & Samiian, V. (1991). Three cases of restructuring in Modern Persian. In *Proceedings of the Western Conference on Linguistics* (Vol. 4, pp. 191-203).

Herskovits, A. (1985). Semantics and pragmatics of locative expressions. *Cognitive Science*, 9(3), 341-378.

Hickmann, M., & Hendriks, H. (2006). Static and dynamic location in French and in English. *First Language*, 26(1), 103-135.

Hilpert, M. (2014). *Construction grammar and its application to English*. Edinburgh University Press.

-
- Hopper, P. J., and Thompson, S. A. (1980). Transitivity in grammar and discourse. *Language*, 56, 251-229.
- Ibarretxe-Antuñano, I. (2012). Linguistic typology in motion events: Path and manner. *Anuario del Seminario de Filología Vasca 'Julio de Urquijo'. International Journal of Basque Linguistics and Philology*.
- Jackendoff, R. (1983). *Semantics and cognition* (Vol. 8). MIT press.
- Jackendoff, R. (1996). The proper treatment of measuring out, telicity, and perhaps even quantification in English. *Natural Language & Linguistic Theory*, 14(2), 305-354.
- Jasbi, M. (2015). Semantics of differential object marking in Persian. In *89th meeting of the Linguistics Society of America*.
- Jespersen, O. (2013). *A Modern English Grammar on Historical Principles: Volume 5, Syntax (fourth Volume)*. Routledge.
- Jessen, M. (2014). Semantic categories in the domain of motion verbs by adult speakers of Danish, German, and Turkish. *Linguistik online*, 61(4), 57-78.
- Karimi, S. (1997). Persian complex verbs: Idiomatic or compositional. *LEXICOLOGY-BERLIN-*, 3, 273-318.
- Karimi, S., Samiian, V., & Stilo, D. (Eds.). (2009). *Aspects of Iranian linguistics*. Cambridge Scholars Publishing.
- Karimi-Doostan, M. R. (1997). Light Verb Constructions in Persian. Doctoral dissertation, University of Essex.

References

Karimi-Doostan, G. (2003). Argument Structure of Light Verb Constructions. *In Proceedings of Argument Structure Conference*. Delhi, India.

Karimi-Doostan, G. (2005). Light verbs and structural case. *Lingua*, 115(12), 1737-1756.

Key, G. (2012). Differential object marking in Turkic and Persian as a contact phenomenon. *In Annual Meeting of the Berkeley Linguistics Society* (Vol. 38, pp. 239-254).

Khanlari, P. (1973). *Tarix-e zaban-e Farsi* (The history of Persian Language), vol: 2. *Tehran: Bonyad-e Farhang*.

Khazayi-Farid, A., Fathollahi, M. (2010). Tasire Tarjomeh Romanhaye Moderne Englisi bar Hanjare Sabki Tule Jomle dar Zabane Farsi. *Language & Translation Studies*, 3, 37-61.

Kim, S. W. (1994). A Study on the light verb construction in English and Korean.

Kuhn, W. (2007). An image-schematic account of spatial categories. *Spatial information theory*, 152-168.

Langacker, R. W. (1987). *Foundations of cognitive grammar: Theoretical prerequisites* (Vol. 1). Stanford University press.

Langacker, R. W. (1990). Subjectification. *Cognitive Linguistics (includes Cognitive Linguistic Bibliography)*, 1(1), 5-38.

Langacker, R. W. (1991). Cognitive grammar. *Linguistic theory and grammatical description*, 275-306.

Lazard, G. (1982). Le morphème *râ* en persan et les relations actanciennes. *Bulletin de la Société de Linguistique de Paris*, 77(1), 177-208.

Lemmens, M. (2002). The semantic network of Dutch posture verbs. *Typological Studies in Language*, 51, 103-140.

Lemmens, M. (2015). Cognitive semantics. *Handbook of Semantics*. London: Routledge.

Lemmens, M., & Sahoo, K. (2017). Something's gotta go, something's gotta give: completion, mirativity, and transitivity in Odia light verb constructions. *Studia Linguistica*, 71(3), 337-367.

Lemmens, M., & Sahoo, K. (2018). *Rise and be surprised: Aspectual profiling and mirativity in Odia light verb constructions*.

Lenneberg, E. H. (1953). Cognition in ethnolinguistics. *Language*, 29(4), 463-471.

Lenneberg, E. H., & Roberts, J. M. (1955). *The language of experience: A study in methodology*. [Cambridge, Mass.: Massachusetts Institute of Technology, Center for International Studies, 1955].

Levinson, S. C. (1992). Primer for the field investigation of spatial description and conception. *Pragmatics*, 2(1), 5-47.

Levinson, S. C. (1996a). Language and space. *Annual Review of Anthropology*, 25(1), 353-382.

References

Levinson, S. C. (1996b). Relativity in spatial conception and description. *Rethinking linguistic relativity*, 177-202.

Levinson, S. C. (1997). From outer to inner space: linguistic categories and non-linguistic thinking. *Language and conceptualization*, 13-45.

Levinson, S. C., & Meira, S. (2003). 'Natural Concepts' in the Spatial Topological Domain--Adpositional Meanings in Crosslinguistic Perspective: An Exercise in Semantic Typology. *Language*, 79(3), 485-516.

Levinson, S. C., & Wilkins, D. P. (Eds.). (2006). *Grammars of space: Explorations in cognitive diversity* (Vol. 6). Cambridge University Press.

Majid, A., Gullberg, M., Staden, M. V., & Bowerman, M. (2007). How similar are semantic categories in closely related languages? A comparison of cutting and breaking in four Germanic languages. *Cognitive Linguistics*, 18(2), 179-194.

McDonough, L., Choi, S., & Mandler, J. M. (2003). Understanding spatial relations: Flexible infants, lexical adults. *Cognitive psychology*, 46(3), 229-259.

McEnery, T., & Hardie, A. (2011). *Corpus linguistics: Method, theory and practice*. Cambridge University Press.

Megerdooomian, K. (2001). Event structure and complex predicates in Persian. *Canadian Journal of Linguistics/Revue canadienne de linguistique*, 46(1-2), 97-125.

Megerdooomian, K. (2002). Aspect in complex predicates. In *Talk presented at the Workshop on Complex Predicates, Particles and Subevents, Konstanz*.

Megerdooonian, K. (2008). Preverbal nominals and telicity in Persian complex predicates. *ms presented in Complex Predicates in Iranian Languages, Paris*, 5-6.

Meunier, A., & Samvelian, P. (1997). La postposition ra en persan: son rôle dans la détermination et sa fonction discursive. *Cahiers de grammaire*, (22), 187-232.

Mohammad, J. Karimi, S. (1992). "Light Verbs Are Taking Over: Complex Verbs in Persian." *In proceeding of the Western Conference on Linguistics (WECOL) (1992)*: 195-212.

Müller, S., & Ghayoomi, M. (2010). PerGram: A TRALE implementation of an HPSG fragment of Persian. In *Computer Science and Information Technology (IMCSIT), Proceedings of the 2010 International Multiconference on*, 461-467. IEEE.

Nunberg, G., Sag, I. A., & Wasow, T. (1994). Idioms. *Language*, 70(3), 491-538.

Ozçaliskan, S. (2002). Metaphors we move by: A crosslinguistic analysis of motion event metaphors in English and Turkish. *Unpublished doctoral dissertation, University of California, Berkeley*.

Park, Y. J., Casasola, M., & Kim, J. W. (2012). Do Simple Objects Facilitate Infants' Formation of a Spatial Category?. *Child Studies in Asia-Pacific Contexts*, 2(2), 77-90.

Pinker, S. (1998). Words and rules. *Lingua*, 106(1-4), 219-242.

Pinker, S. (2003). *The language instinct: How the mind creates language*. Penguin UK.

References

Post, M. (2008). Verbs of position, existence, location, possession, and their grammaticalization pathways in the Tani languages. *North East Indian Linguistics*. New Delhi: Foundation/Cambridge University Press India.

Postal, P. M., Martinet, A., Palmer, E. (1966). Elements of General Linguistics. *Foundations of Language*, 2(2), 151-186.

Procter, P. (1978). *Longman dictionary of contemporary English*. Retrieved from <http://www.ldoceonline.com>

Pruden, S. M., Roseberry, S., Göksun, T., Hirsh-Pasek, K., & Golinkoff, R. M. (2013). Infant categorization of path relations during dynamic events. *Child development*, 84(1), 331-345.

Regier, T. (1995). A model of the human capacity for categorizing spatial relations. *Cognitive Linguistics (includes Cognitive Linguistic Bibliography)*, 6(1), 63-88.

Rosen, S. T. (1991). Argument structure and complex predicates. Ph.D. dissertation, Brandies University.

Sahoo, K., & Lemmens, M. (2017). Degrees of mirativity. *Review of Cognitive Linguistics*. Published under the auspices of the Spanish Cognitive Linguistics Association, 15(2), 343-384.

Samvelian, P. (2001). Le statut syntaxique des objets «nus» en persan. *Bulletin de la Société de Linguistique de Paris*, 96(1), 349-388.

Samvelian, P., & Tseng, J. (2010). Persian object clitics and the syntax-morphology interface. In *17th International Conference on Head-Driven Phrase Structure Grammar*, 212-232.

Samvelian, P. (2012). *Grammaire des prédicats complexes. Les constructions nom-verbe*. Hermès-Lavoisier.

Samvelian, P., & Faghiri, P. (2013a). Introducing PersPred, a syntactic and semantic database for Persian complex predicates. In *The 9th Workshop on Multiword Expressions*, 11-20.

Samvelian, P., & Faghiri, P. (2013b). Re-thinking compositionality in Persian complex predicates. In *Annual Meeting of the Berkeley Linguistics Society*, 39(10), 212-226.

Samvelian, P., Faghiri, P., & El Ayari, S. (2014). Extending the coverage of a MWE database for Persian CPs exploiting valency alternations. In *LREC*, 4023-4026.

Shabani-Jadidi, P. (2014). *Processing Compound Verbs in Persian: A psycholinguistic approach to complex predicates*. Leiden University Press.

Sharifi, H. (1975). Persian verbs: A Chafean analysis. Mid-America Linguistics Conference.

Slobin, D. I. (1987). Thinking for speaking. In *Annual Meeting of the Berkeley Linguistics Society*, 13, 435-445.

Slobin, D. I. (1996). From "thought and language" to "thinking for speaking."

References

Slobin, D. I. (1997). Mind, code, and text. *Essays on language function and language type: Dedicated to T. Givón*, 437-467.

Slobin, Dan I. (2000). Verbalized events. *Evidence for linguistic relativity*, 198, 107-138.

Slobin, D. I. (2001). 14 Form-function relations: how do children find out what they are?. *Language acquisition and conceptual development*, 3, 406.

Slobin, D. I. (2004). The many ways to search for a frog. *Relating events in narrative. Typological and contextual perspectives*, 219-257.

Slobin, Dan I. (2006a). What makes manner of motion salient?. In: Hickman, Maya/Robert, Stéphane (eds.) (2006): *Space in languages: Linguistic systems and cognitive categories*. Amsterdam/Philadelphia, John Benjamins: 59-81.

Slobin, D. I. (2006b). Explorations in linguistic typology, discourse, and cognition. *Space in languages: Linguistic systems and cognitive categories*, 66, 59.

Stefanowitsch, A., & Gries, S. T. (2003). Collocations: Investigating the interaction of words and constructions. *International journal of corpus linguistics*, 8(2), 209-243.

Stefanowitsch, A., & Gries, S. T. (2005). Covarying collexemes. *Corpus linguistics and linguistic theory*, 1(1), 1-43.

Stevenson, S., Fazly, A., & North, R. (2004). Statistical measures of the semi-productivity of light verb constructions. In *Proceedings of the Workshop on Multiword*

Expressions: Integrating Processing (pp. 1-8). Association for Computational Linguistics.

Talmy, L. (1985a). Lexicalization patterns: Semantic structure in lexical forms. *Language typology and syntactic description*, 3(99), 36-149.

Talmy, L. (1985b). Force dynamics as a generalization over 'causative'. *Georgetown University round table on languages and linguistics*, 1986, 67.

Talmy, L. (1991). Path to realization: A typology of event conflation. In *Annual Meeting of the Berkeley Linguistics Society*, 17(1), 480-519.

Talmy, L. (2000). *Toward a cognitive semantics* (Vol. 2). MIT press.

Tomasello, M. (2003). *Constructing a Language. A Usage-based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press.

Tournadre, N. & Lessan-Pezzechki, H. (to appear). *Les verbes supports et leur typologie : A la croisée du lexique et de la grammaire*.

Vahedi-Langrudi, M. (1995). A new Approach to complex predicate formation in Modern Persian. In *Canadian Linguistics Association Conference at the University of Uqam, Montreal*.

Vahedi-Langrudi, M. M. (1996). *The syntax, semantics and argument structure of complex predicates in modern Farsi*. University of Ottawa (Canada).

References

Verkerk, A. (2013). Scramble, scurry and dash: The correlation between motion event encoding and manner verb lexicon size in Indo-European. *Language Dynamics and Change*, 3(2), 169-217.

Verkerk, A. (2014). The correlation between motion event encoding and path verb lexicon size in the Indo-European language family. *Folia Linguistica*, 35(1), 307- 358.

Viberg, Å. (2002). The polysemy of Swedish ge 'give' from a crosslinguistic perspective. A. Braasch, C. Poovlsen (a c. di), *Proceedings of Euralex*, 669-682.

Victorri, B., & Fuchs, C. (1996). *La polysémie-Construction dynamique du sens* (p. 131). Hermes.

Wang, Y., & Xu, J. (2013). A systemic typology of existential and possessive constructions. *Functions of Language*, 20(1), 1-30.

Whorf, B. L. (1956). *Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf*. MIT Press, Cambridge, MA.

Wierzbicka, A. (1982). Why can you have a drink when you can't* have an eat?. *Language*, 753-799.

Zlatev, J., & Yangklang, P. (2003). A Third Way to Travel: The Place of Thai in Motion Event Typology. Relating events in narrative: Typological and contextual perspectives, ed. by Sven Strømquist and Ludo Verhoeven, 169-190.

Zolfaghari, H. (2008). Olguhaye Gheyre Meyar dar Zabane Matbuat. *National Studies*, 33(1), 1-29.

APPENDIX A: SIMPLEX VERBS AND LVs IN SPATIAL EVENTS

Table 28: Simplex verbs and LVs in Spatial Events

Simplex verb	English Verb	N	%	Light Verb	English Verb	N	%
<i>afzoudan</i>	add	3	1.01	<i>aamadan</i>	come	3	0.57
<i>aamadan</i>	come	29	9.80	<i>andaakhtan</i>	drop	9	1.72
<i>andaakhtan</i>	drop	7	2.36	<i>aavardan</i>	bring	4	0.76
<i>aavardan</i>	bring	5	1.69	<i>bordan</i>	take	24	4.58
<i>bargashtan</i>	return	4	1.35	<i>daadan</i>	give	116	22.14
<i>boudan</i>	be	76	25.69	<i>daashtan</i>	have	31	5.92
<i>daashtan</i>	have	12	4.05	<i>gereftan</i>	hold	17	3.24
<i>davidan</i>	run	3	1.01	<i>kardan</i>	do	148	28.24
<i>derakhshidan</i>	shine	5	1.69	<i>keshidan</i>	pull	3	0.57
<i>didan</i>	see	34	11.49	<i>khordan</i>	eat	5	0.95
<i>feshordan</i>	press	6	2.03	<i>maandan</i>	remain	8	1.53
<i>gereftan</i>	hold	4	1.35	<i>nahaadan</i>	put	2	0.38
<i>gonjaandan</i>	include	4	1.35	<i>raftan</i>	go	6	1.15
<i>hastan</i>	be	8	2.70	<i>saakhtan</i>	make	3	0.57
<i>istaadan</i>	stand	16	5.41	<i>shodan</i>	become	116	22.14
<i>mordan</i>	die	5	1.69	<i>yaaftan</i>	find	9	1.72
<i>khordan</i>	hit	3	1.01	<i>zadan</i>	hit	20	3.82
<i>taabidan</i>	radiate	2	0.68				
<i>neshaandan</i>	seat (trans)	3	1.01				
<i>neshastan</i>	sit (intrans)	13	4.39				
<i>neveshtan</i>	write	4	1.35				
<i>oftaadan</i>	fall	16	5.41				
<i>pichidan</i>	wrap	3	1.01				
<i>poushaandan</i>	cover	5	1.69				
<i>raftan</i>	go	12	4.05				
<i>resaandan</i>	drive	4	1.35				
<i>residan</i>	arrive	4	1.35				
<i>rikhtan</i>	pour	6	2.03				
	Total	296	100		Total	524	100

Abstract

The purpose of this dissertation is twofold: 1) to investigate the semantic and syntactic behavior of Persian simplex verbs vs. CPs in spatial events with respect to Talmy's typology of satellite-framed and verb-framed languages; and 2) to analyze the semantic systematicity in the formation of CPs based on a constructional approach and explain their certain behaviors, namely, their productivity, causativity, duration, and syntactic behavior of their PVs through the meaning of the construction.

In the first part of the analysis, we discuss the behaviour of simplex verbs vs. CPs in spatial events. Our analysis is based on an extensive corpus. CPs express manner and other semantic information frequently while a high frequency of simplex verbs appears as neutral constructions without expressing any specific information. The syntactic distribution of CPs follow the 'economy of language' rule since all the semantic information is encoded in the construction itself; on the other hand, simplex verbs require dependent clauses to express manner in the majority of cases. Furthermore, CPs encode both motion and location events while simplex verbs are mostly intransitive and refer to locative events. The above-mentioned shortcomings of simplex verbs have led to the replacement of these verbs by CPs over time.

In the second part of our analysis, we deal with the semantic features of CPs in spatial events in the light of Construction Grammar theory and corpus-based approaches. Following Goldberg we consider CPs constructions in their own right. *Kardan*, 'do'; *daadan*, 'give'; *zadan*, 'hit'; and *bordan*, 'take', are the LVs under the study in this thesis. These LVs found to be among the most frequent ones with the most PVs in common in our corpus. Firstly, we identified the semantic extensions of each LV. This categorization reveals a certain degree of semantic productivity and

generalization between each LV and the type of PVs with which it can co-occur. In other words, each LV combines with a specific type of PVs. Even metaphorical extensions have a certain degree of productivity and speakers can generalize about them. We also argue that CPs in spatial events are a family of resultative constructions. Certain behaviors of CPs, namely, their causativity, and the duration of the activity, are explained based on their semantics, and it is shown that the whole construction is responsible for such behaviors. The comparison between combinations that have different LVs but identical PVs reveals certain semantic and syntactic differences, which is evidence for the existing systematicity in the formation of CPs. Through a collocation analysis we discuss the degree of attraction of each LV with respect to the semantic categories. Finally, the type frequencies of the CPs reveal the degree of productivity in each LV, which is as follows: *kardan=zadan* > *daadan* > *bordan*.

This thesis emphasizes the importance of cognitive linguistics theories in analysing the Persian language as well as that of corpus-based approaches, which are considered more promising and allow researchers to consider more elements in their studies.

Key words: Persian, complex predicates, simplex verbs, Construction Grammar, corpus linguistics, spatial events.

Résumé

Cette thèse a un double objectif: 1) Étudier le comportement sémantique et syntaxique des verbes simples persans par rapport aux prédicats complexes dans les événements spatiaux respectant la typologie de Talmy sur cadrage verbal ou cadrage satellitaire; et 2) Analyser la systématisme sémantique dans la formation des prédicats complexes basée sur une approche constructionnelle et expliquer leurs comportements exacts, à savoir leur productivité, la causalité, leur durée, et le comportement syntaxique de leurs pré-verbes en fonction de leurs significations.

Dans la première partie de l'analyse, nous parlons du comportement des verbes simples par rapport aux prédicats complexes dans les événements spatiaux. Notre analyse est basée sur un vaste corpus. Les prédicats complexes expriment fréquemment le comportement et d'autres informations sémantiques tandis qu'une fréquence élevée de verbes simples apparaît comme des constructions neutres sans exprimer aucune information spécifique. La distribution syntaxique des prédicats complexes respecte la règle de l'« économie de la langue » étant donné que toutes les informations sémantiques sont aussi encodées dans la construction elles-mêmes. Par ailleurs, les verbes simples exigent, dans la majorité des cas, des clauses dépendantes pour exprimer le comportement. En outre, les prédicats complexes encodent, à la fois, le mouvement et les événements d'emplacement, tandis que les verbes simples sont pour la plupart intransitifs et se réfèrent aux événements locatifs. Les lacunes mentionnées ci-dessus sur des verbes simples ont conduit au remplacement de ces derniers par des prédicats complexes au fil du temps.

Dans la deuxième partie de notre analyse, nous traitons les caractéristiques sémantiques de prédicats complexes dans des événements spatiaux à la lumière de la théorie de Grammaire de Construction et des approches fondées sur le corpus. Selon Goldberg, nous considérons des constructions de prédicats complexes à part entière. *Kardan*, 'Faire'; *daadan*, 'Donner'; *zadan*, 'Frapper'; et *bordan*, 'Prendre', sont les verbes

supports étudiés dans cette thèse. Ces verbes supports sont parmi ceux les plus fréquents ayant le plus de pré-verbes en commun dans notre corpus. Premièrement, nous avons identifié les extensions sémantiques de chaque verbe support. Cette catégorisation nous a permis de révéler un certain degré de productivité sémantique ainsi que la généralisation entre chaque verbes supports et le type de pré-verbes avec lesquels il pourrait co-se produire. Autrement dit, chaque verbe support se combine avec un type spécifique de pré-verbe. Il est à note que même des extensions métaphoriques ont un certain degré de productivité et les locuteurs peuvent ainsi les généraliser. Nous tenons également à noter que les prédicats complexes dans les événements spatiaux font partis de la famille de constructions résultatives. Certains comportements des prédicats complexes, tels que leur causalité et la durée de l'activité, sont expliqués en fonction de leur sémantique, et il est démontré que toute la construction est responsable de tels comportements. La comparaison entre les combinaisons qui ont des verbes supports différents mais des pré-verbes identiques évoque quelques différences sémantiques et syntaxiques, ce qui est la preuve de la systématisme existante dans la formation des prédicats complexes. Grâce à une analyse collocationnelle, nous parlons du degré d'attraction de chaque verbe support par rapport aux catégories sémantiques.

Enfin, le type de fréquences de prédicats complexes révèle le degré de productivité dans chaque verbe support, qui ressemble à: *Kardan=Zadan > daadan > bordan*.

Pour finir, cette thèse met l'accent sur l'importance des théories de la linguistique cognitive dans l'analyse de la langue persane ainsi que l'importance des approches basées sur le corpus. D'ailleurs, il est à noté que ces dernières paraissent plus prometteuses permettant aux chercheurs d'utiliser plus d'éléments dans leurs études.

Mots clés : Persane, prédicats complexes, verbes simples, Grammaire de Construction, linguistique de corpus, événement spatiaux.

