



HAL
open science

The Primacy of Experience. Applying Whitehead's Process Philosophy to Contemporary Questions of Consciousness

Roseline Adzogble

► **To cite this version:**

Roseline Adzogble. The Primacy of Experience. Applying Whitehead's Process Philosophy to Contemporary Questions of Consciousness. Philosophy. Université Clermont Auvergne, 2023. English. NNT: 2023UCFA0103 . tel-04623282

HAL Id: tel-04623282

<https://theses.hal.science/tel-04623282>

Submitted on 25 Jun 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Thesis presented to obtain the degree of Doctor of Philosophy
Université Clermont-Auvergne

Philosophy Department
École Doctorale LLSHS (ED 370)
Discipline: Philosophy

The Primacy of Experience

Applying Whitehead's Process Philosophy to Contemporary Questions of
Consciousness

(La prééminence de l'expérience. L'application de la philosophie du processus de
Whitehead aux questions contemporaines de la conscience)

By: Roseline Elorm Adzogble

JURY MEMBERS :

Président du Jury : Pierre Steiner, Professeur, Université de Compiègne—Rapporteur
Denis Perrin, Professeur, Université de Grenoble—Rapporteur
Sara Franceschelli, Maître de Conférence, ENS de Lyon—Examineur
Dennis Sölch, Maître de Conférence, Düsseldorf University—Examineur
Sébastien Gandon, Professeur, UCA—Directeur de thèse
Jean-Michel Roy, Professeur, ENS de Lyon—Co-directeur de thèse

Lieu de soutenance : Amphitheatre 4 rue ledru 63000 Clermont

27 OCTOBRE 2023

Everything of importance has been
said before by somebody who did
not discover it. — Alfred North
Whitehead

Table of Contents

Conference Presentations4

Acknowledgments	7
Abstract/Résumé	8
Chapter 1	16
1.1 Identifying and Defining the Problem of Bifurcation	17
1.2 Backward from the Greek ‘matter’	23
1.3 To the Modern Era of Simple Location	29
1.4 The Tasks of Science and Philosophy: Epistemology and Ontology	36
1.5 The Acceptance Stage, where to go from here?	40
Summary	45
Chapter 2	47
2.1 What Motivations for Metaphysics? The Philosophical and the Personal for Whitehead	47
2.1.1 Influences from Bradley’s Idealism	49
2.1.2 From James’ Psychology to Speculative Metaphysics	53
2.1.3 Influence from Ward and McTaggart	54
2.1.4 Internal Influencing Factors	57
2.2 A Historical Aversion Towards Metaphysics	61
2.2.1 Russell on Metaphysics	61
2.2.2 Wittgenstein’s Ladder of Metaphysics	62
2.2.3 Carnap and the Anti-metaphysical Project	64
2.3 Whitehead and His Analytic Tendencies	68
2.4 The Speculative Metaphysical Method	72
2.4.1 Language as the Tool of Metaphysics	74
2.4.2 A Three-fold Method of Speculation	79
2.4.3 The function of a Metaphysician: Whitehead versus Strawson	82
Summary	86
Chapter 3	88
3.1 Grounding the Metaphysical Categories	89
3.2 Some Difficulties with Whitehead’s Categories	111
3.3 Justifying the Ontological Principle and Creativity	116
Summary	121
Chapter 4	122
4.1 The Problem of Perception	123
4.2 Modes of Perception	129

4.2.1 Causal Efficacy: The Experience of the Past	130
4.2.2 The Mode of Presentational Immediacy	135
4.2.3 Symbolic reference: The Integrative Mode	139
4.3 The Problem of Correlationism	141
4.3.1 The Structure of the Solution	141
4.3.2 Speculative Realism	145
4.3.3 Agential realism	152
Summary	156
Chapter 5.....	158
5.1 Panexperientialism	161
5.2 The Problem of Consciousness.....	163
5.3 From Function to Experience: Bridging the Gap between Panexperientialism and Functionalism.....	168
5.3.1 Emphasis on the Function of Actual Entities.....	170
5.3.2 The Multiple Realizability Criterion for Functional Actual Occasions.....	181
5.3.3 Explaining Consciousness Itself: How Does it Arise?.....	184
Summary	194
Chapter 6.....	196
6.1 The Knowledge Argument: Mary, The Brilliant Scientist.....	197
6.1.1 Understanding the Key Elements of the Knowledge Argument: A Chalmersian Distinction.....	200
6.1.2 From Epistemic to Metaphysical Claims.....	202
6.2 Russellian Monism: A Panpsychist Response to the Knowledge Argument	206
6.3 Russellian and Whiteheadian Fusion.....	211
6.3.1 Filling-in the Gaps: A Panexperientialist Response to the Knowledge Argument... ..	212
6.3.2 To be, or not to be, a physicalist?	217
6.3.3 Combining Russell and Whitehead to Overcome the combination problem	219
6.4 Panexperientialism versus Panpsychism on Morality and Aesthetics	222
Summary	231
CONCLUSION	233
REFERENCES	242

Abbreviations of Whitehead's cited works

AE: *The Aims of Education*

AI: *Adventures of Ideas*

CN: *Concept of Nature*

FR: *The Function of Reason*

IM: *An Introduction to Mathematics*

MT: *Modes of Thought*

OT: *The Organisation of Thought*

PM: *Principia Mathematica*

PNK: *An Enquiry Concerning the Principles of Natural Knowledge*

PR: *Process and Reality*

RM: *Religion in the Making*

SYM: *Symbolism, Its Meaning and Effect*

SMW: *Science and the Modern World*

Conference Presentations

This doctoral thesis includes chapters presented at the 13th International Whitehead Conference, University of Munich.

- Chapter 3: THE WHITEHEADIAN CATEGOREAL SCHEME
- Chapter 6: PANEXPERIENTIALISM AND PANPSYCHISM

Acknowledgments

I would like to express my sincere gratitude to my two supervisors, Professor Sebastien Gandon and Professor Jean-Michel Roy for their patience, support, and invaluable feedback throughout the process of completing this doctoral dissertation. The expertise and encouragement of my supervisors were instrumental in helping me shape my research questions and methodology. Their thoughtful feedback and insights have been invaluable in refining my arguments and ideas.

I also wish to thank my husband, Dr. Isaac Awuye, for his unwavering financial support and encouragement throughout this journey. His patience, love, and willingness to listen to me talk endlessly about my research have been crucial in helping me to stay motivated and focused. I could not have completed this project without him. I also like to express my heartfelt gratitude to my parents and sister for their constant support, encouragement and love throughout my life. Their belief in my abilities has been a source of strength and inspiration. Finally, my appreciation goes to Dr. Matt Segall for his insightful comments and critiques on the ideas I present in this doctoral research.

In the words of Whitehead, “No one who achieves success does so without acknowledging the help of others. The wise and confident acknowledge this help with gratitude”.

Abstract

This thesis explores the philosophy of Alfred North Whitehead and its application to contemporary philosophical debates. It evaluates the problem of the bifurcation of nature and whether Whitehead's speculative metaphysics can provide an adequate solution. To understand Whitehead's thought, all his works must be evaluated as attempting to overcome the bifurcation problem in various ways. This research thesis endeavors to reconcile the aspects of Whiteheadian texts that point toward this holistic project of speculative metaphysics. Whitehead presents his metaphysics in the form of categorical schemes that represent the reality of actual entities and their relations. By elaborating on the scheme, this thesis seeks to render speculative metaphysics comprehensible to a broader audience of Whiteheadian readers.

Consequently, this thesis contends that the fallacy of a bifurcated nature lies at the base of other philosophical difficulties, such as the question of consciousness. The problem of both modern science and philosophy, according to Whitehead, is the failure to recognize and account for subjectivity as an intricate part of reality. Whitehead's process philosophy offers an alternative view that sees the universe as a dynamic process of the 'becoming' of actual entities. These actual entities are perpetually interactive, non-reductive subjective experiences with the capacity for rational choice in varying complexities of function. This perspective asserts that experience permeates all aspects of reality, while what is termed 'consciousness' is a specific form of the function of experience under certain conditions. The thesis shows that Whitehead's approach provides a means to reconcile our conscious selves with the structure of cosmic events. In summary, this thesis contributes to the reviving of Whitehead by analyzing process philosophical responses to the 'hard problem' of consciousness.

Résumé

Cette thèse explore la philosophie d'Alfred North Whitehead et son application aux débats philosophiques contemporains. Elle examine le problème de la bifurcation de la nature et la question de savoir si la métaphysique spéculative de Whitehead peut fournir une solution adéquate. Pour comprendre la pensée de Whitehead, il faut évaluer l'ensemble de ses œuvres, qui tentent de surmonter le problème de la bifurcation de diverses manières. Cette thèse de recherche s'efforce de réconcilier les aspects des ouvrages de Whitehead qui s'orientent vers ce projet holistique de métaphysique spéculative. Whitehead présente sa métaphysique sous la forme de schémas de catégories qui représentent les principaux aspects de la réalité des entités actuelles et de leurs relations. En développant ce schéma, cette thèse tente de rendre la métaphysique spéculative compréhensible à un public plus large de lecteurs de Whitehead.

Par conséquent, cette thèse soutient que l'erreur d'une nature bifurquée est à la base des autres difficultés philosophiques telles que la question de la conscience. Selon Whitehead, le problème de la science et de la philosophie modernes est l'incapacité à rendre compte de la subjectivité en tant que partie intégrante de la réalité. La philosophie du processus de Whitehead offre une vision alternative qui considère l'univers comme un processus dynamique de "devenir" d'entités actuelles. Ces entités sont des expériences subjectives perpétuellement interactives et non réductives qui ont la capacité de faire des choix rationnels dans des fonctions plus ou moins complexes. Cette perspective affirme que l'expérience imprègne tous les aspects de la réalité, tandis que ce que l'on appelle la "conscience" est une forme spécifique de la fonction de l'expérience sous certaines conditions. La thèse montre que l'approche de Whitehead fournit un moyen de réconcilier notre conscience avec la structure des événements cosmiques. En résumé, cette thèse contribue à la renaissance de Whitehead en analysant les réponses de la philosophie du processus au "problème difficile" de la conscience.

INTRODUCTION

This thesis explores the problem of the bifurcation of nature and its implications for our understanding of consciousness through the lens of Alfred North Whitehead's process philosophy. Alfred North Whitehead was a British mathematician, logician, and philosopher. He was well known for his remarkable career in mathematics, especially evident in his collaboration with Bertrand Russell on arguably the most significant work in Logic and Mathematics of his time, titled the *Principia Mathematica*. Whitehead was born on February 15, 1861, in Ramsgate, Kent, England, to a family of well-educated professionals. His father, Alfred Whitehead, was a minister and schoolmaster just like his father before him, and his mother, Maria Sarah, was the daughter of a solicitor. Whitehead's family encouraged the pursuit of education to the highest echelons as his three siblings were either mathematicians, philosophers, feminists, or historians. At a very young age, Whitehead was home-schooled by his father and older brother in Greek, Latin, and Mathematics but he was quickly distinguished for his interest in science, literature, and history. His frequent allusions to poetry and literature in his scientific and metaphysical works stemmed from his Victorian exposure.

He entered Trinity College, Cambridge, in 1879, pursuing a bachelor's degree in mathematics. His undergraduate thesis was titled *The Doctrine of Limits, with Its Applications in Calculus and Physical Science*. In this work, Whitehead explored the concept of limits in calculus and discussed their applications in both mathematics and the physical sciences. His undergraduate thesis was highly regarded, gaining him the reputation of a talented mathematician and scholar. It also laid the foundation for his later works in mathematical logic and philosophy of science.

He met most of his influences who featured prominently in his scientific and philosophical ideas at Trinity College. He pursued further studies at Cambridge in mathematics after which he was appointed a lecturer in mathematics at the College in 1885. During that time, he was awarded a Trinity College fellowship and his dissertation was on Maxwell's Electricity and Magnetism. Although this work remained unpublished, it played a significant role in the chain of intellectual events that culminated in his speculative thought. He believed that mathematical concepts and structures could provide a deeper understanding of the natural world, and his work attempted to develop a more precise and rigorous mathematical formulation of Maxwell's theory. This work was an unraveling of his view that psychological experience and the axiomatic foundations of mathematics should be joined to the physical point of view.

In 1890, Whitehead married Evelyn Wade, the daughter of a wealthy businessman with whom he had two sons. Evelyn was gifted in the arts and was a student at the Royal Academy of Music in

London. She was also particularly passionate about education. Whitehead attributes most of his ideas in *Aims of Education* to her practices and innovative approaches to teaching.

Throughout the 1890s, Whitehead continued to make significant contributions to the field of mathematics and logic, publishing a series of papers on topics such as algebra, calculus, and the foundations of geometry. Whitehead's intellectual life is often divided into three main periods. The first corresponds approximately to his time at Cambridge from 1884 to 1910, principally characterized by works on mathematics and logic. The highlight of this period was his work with Russell.

The second period, from about 1910 to 1924, corresponds to Whitehead's work in metaphysics and the philosophy of science. In his *Autobiographical Notes*, Whitehead writes that his philosophic writings started in London at the latter end of the war¹ and that the London Aristotelian Society was a pleasant center of discussion and close friendships. Whitehead had already delivered philosophical papers at the British Association for the Advancement of Science and the Aristotelian Society in this period. His notable works at the time include his educational essays in *The Organisation of Thought*, *An Enquiry Concerning the Principles of Natural Knowledge*, written by the end of the First World War, and *Concept of Nature*. The period was defining for Whitehead as his philosophical ideas began to take shape, and certain influencing notions began to emerge. The *Concept of Nature* particularly began his worldview of cosmic interconnectedness and interdependence as an objection to scientific materialism at the time. Some of his major influences were Henri Bergson and Henri Poincaré on the idea of interconnectivity. Their insistence on intuition as an alternative to a mechanistic view of the world helped shape Whitehead's position on intuition and duration in his philosophy of organism.

The third period, from approximately 1924 to the end of his life in 1947, is classified as Whitehead's Harvard days. Whitehead held the position of professor of Philosophy at Harvard University from 1924-1937. During this period, he developed his ideas on the importance of education to the development of society and the nature of religion and its relationship to science and philosophy. This period climaxed in his magnum opus, *Process and Reality* in 1929, after it had previously been presented as a series of Gifford lectures at the University of Edinburgh in Scotland. *Process and Reality* presents his mature philosophy of organism, which has significantly influenced contemporary philosophy, ecology, theology, and other areas of knowledge over time.

Writing a biography on Whitehead is often considered an arduous task because he was extremely private. Lowe(2019) recalls that Whitehead did not keep a diary and rarely wrote letters as

¹ See further, Alfred North Whitehead, "Autobiographical Notes," in *The Library of Living Philosophers*, vol. III, ed. P. A. Schilpp (La Salle, IL: Open Court, 1941).

he believed they would detract from his work.² Furthermore, in his final will, he instructed that his letters to his wife be destroyed, leaving a significant gap in his biography since she was a crucial figure in his life. It is clear that Whitehead valued his privacy greatly, which adds to the air of mystery surrounding him. Whitehead is often described as having arrived on the philosophical and scientific scene at the wrong season. This wrong timing is based on two main reasons. First, at the time of Whitehead's cosmology, physics was moving in a different direction toward developing quantum mechanics and relativity theory. Some of these groundbreaking ideas were the development of quantum mechanics in the early 1900s by physicists such as Max Planck, Albert Einstein, and Niels Bohr as well as Einstein's relativity theory in 1915 which was revolutionary for the understanding of space and time in modern cosmology. Whitehead's cosmology of "occasions of experience" emerged when the prevailing view was rather the discrete, quantized nature of matter and energy based on Newtonian physics. One could say that too much was happening on the scientific scene, so Whitehead passed unnoticed.

Second, because of the prevalent emphasis on developing mathematical models of the physical world that could be tested through experiments, Whitehead's process thought was not well received by physicists at the time. It was an era of important experimental verifications such as the Stern-Gerlach experiment performed in 1922 by Otto Stern and Walther Gerlach to provide further evidence for the emerging theory of quantum mechanics, as well as the Eddington experiment in 1919 also to confirm Einstein's theory of general relativity. All these contribute to Whitehead's invisibility and the relative silence on his philosophical contributions.

The little gathered about his life makes an interesting tale of a man who thought deeply about everything and believed in pursuing one's ideas to the uttermost. He dedicated his life to understanding cosmological unity although his ideas conflicted with the century's philosophy. On the philosophical front, considering the times, the odds were greatly stark against him and the popularization of his ideas. This was partly because Whitehead, as a philosopher, was very difficult to pin to a particular school of thought. This may have also contributed to his unpopularity. He was neither an analytic philosopher, although his work in *Principia* was a major contributor to the analytic school, nor was he a phenomenologist. His ideas were a mix of both schools. Some of his colleagues who disagreed with his process-oriented universe were Russell, Broad, and Quine, his student at Harvard. Others also included Wittgenstein who disagreed with Whitehead's philosophy of language which described language as fundamentally metaphorical and poetic instead of a logical structure.³ Perhaps Whitehead's

² Victor Lowe, *Alfred North Whitehead: The Man and His Work: 1910-1947* (Baltimore: Johns Hopkins University Press, 2019).

³ Ray Monk, *Ludwig Wittgenstein: The Duty of Genius* (New York, NY: Penguin Books, 1990).

ideas are suitable for a time such as ours as we continue to grapple with the implications of quantum mechanics and other developments in physics on the one hand and the push for the legitimacy of the self in all its authenticity to the neglect of the collective. Our world today must find a way to cohabit with these two spheres to restore faith in the order of the cosmos.

The purpose of my doctoral thesis is trifold. Firstly, it aims to introduce Whitehead in the simplest ways to a broader philosophical audience by presenting his ideas more clearly and concisely. Secondly, I aim to clarify his process methodology, its aims, purposes, and applications. Lastly, I intend to carefully apply specific areas of Whitehead's process metaphysics to contemporary issues on consciousness. The objective is to take Whitehead from the shadows of the blanket ideology of panpsychism and show that his position has more in common with contemporary neurocognitive theories of consciousness than other panpsychist propositions.

Chapter One examines the historical context of the bifurcation problem, including the role of Ancient Greek philosophers and contemporary doctrines of science and philosophy that perpetuate a divide between subjective and objective reality. Whitehead aptly describes the twentieth-century quantum and relativistic revolutions in physics as evidence that the scientific materialism ideas of "simple location" and "nature at an instant" have been dispensed with. These current theories of physics reveal that the boundaries of energy and experience are rather fuzzy. However, the difficulty lies in capturing this interdependence and interconnection in ontological theories. For philosophers and scientists, the doctrine of matter steeped in the substance-property ontology is difficult to shake off. The chapter presents what Whitehead prescribes as the task of the philosopher and the scientist in uniting their spheres of knowledge to reflect the unity of reality.

Chapter Two focuses on Whitehead's motivations for metaphysics and the influences of his peers and teachers on his metaphysical treatise. Whitehead concludes from the discussions of chapter one that metaphysics is equipped to overcome the bifurcation of nature. However, the history of metaphysics up to the twentieth century had led to a certain aversion toward its utility and ability to provide the answers it claims to seek. The chapter addresses this antipathy towards metaphysics from logical positivists like Russell, Wittgenstein, and Carnap. It concludes that an evaluation of the arguments against metaphysics reveals that its utility is inescapable and thus requires revision not outright rejection. This revision comes in speculative metaphysics which reunites rational and empirical ideas with imaginative thought. Therefore, language is crucial in this system and must be properly suited for metaphysical exploration. As such, speculative thought rejects the narrow linguistic analysis and its almost sterile logical positivism.

Chapter Three delves into the details of Whitehead's speculative metaphysics. In this chapter, I present the categorical scheme of Whitehead's *Process and Reality*. The scheme represents the pillars

of speculative thought retrieving from experience a comprehension of the nature of the cosmos. His Philosophy of Organism offers up actual entities against the lifeless nature that Descartes, Galileo, and Newton imagined. Actual entities are processes instead of static substances and they are interdependent and do not exist in complete isolation. According to Segall(2020), the entities described in Whitehead's metaphysics make natural science philosophical again by bridging physical causes and motions with the conscious reasons and emotions by which we apprehend them.⁴ Chapter three concludes by raising a few difficulties associated with the categories and how Whitehead's principles attempt to overcome them.

Chapter Four opens by addressing the three facets of Whitehead's complete philosophy which is simply an imitation of the character of an actual entity. The Whiteheadian thought system comprises a transcendent methodology, a particular application, and the symbiosis between method and application. One of the areas of application of the philosophy of organism is in the theories of perception. This chapter considers Whitehead's theory of perception and its relationship to the earlier problems of bifurcation, and the problem of correlationism. The chapter comprehensively analyzes the classical position of sense-perception and the difficulties it presents in understanding causality. I discuss in this chapter the onto-epistemic response of philosophy of organism to the problems of correlationism by juxtaposing the responses of organic, speculative, and agential realism.

Chapter Five is another application of Whitehead's philosophy of organism to the problem of consciousness. I discuss in this chapter that this directed response to the question of consciousness is termed panexperientialism. The chapter discusses panexperientialism from a functionalist perspective and how it fulfills the three important criteria of functionalist theories. These are emphasis on the function of states, multiple-realizability, and explanatory power. Classical functionalists struggle to explain the zombie thought experiment because of the attachment to strict materialist ontologies. However, panexperientialism, although it describes actual entities as emerging initially from the physical, allows mentality to spring out of that initial physical prehension. In this way, it is legitimate to say that experience is always grounded in the physical but not limited by it. The consideration of panexperientialism as a functionalist theory is to integrate the descriptions of individual brain states' functions into the larger cosmological framework.

Finally, Chapter Six compares Whitehead's panexperientialism with other thought experiments, such as Mary, the brilliant scientist. This thought experiment is evaluated by comparing it with Russellian panpsychism. Although panexperientialism and panpsychism have some commonalities,

⁴ Matt, Segall. "The Varieties of Physicalist Ontology: A Study in Whitehead's Process-Relational Alternative," *The Journal of Philosophy, Theology, and the Sciences*. Vol 7, Issue 1 (2020).

they differ in certain respects. This chapter shows how Whitehead's panexperientialism can benefit some problems of Russellian panpsychist interpretations, especially on the combination problem. Besides the conceptual differences between panexperientialism and panpsychism, this chapter exposes other fundamental differences between both schools.

In conclusion, this doctoral dissertation contributes to the ongoing philosophical discussion about consciousness and its relationship to reality, offering a unique perspective of Whitehead's process philosophy. Contemporary philosophy is catching up to the problems Whitehead raised in his works, and this research hopes to assist in rendering Whitehead more accessible and as one of the alternative ways to think about the hard problem of consciousness among other metaphysical solutions.

Chapter 1

THE BIFURCATION OF NATURE

The theory of 'prehensions' embodies a protest against the 'bifurcation' of nature. It embodies even more than that: its protest is against the bifurcation of actualities (Whitehead 1929, 289).

Introduction

The philosophy of Whitehead presented a certain peculiarity for his epoch while maintaining its usefulness in our day. He describes his philosophy as speculative because it envisages a holistic and coherent approach to describing the elements of experience. Speculative philosophy, by its style and content, is furnished with a certain malleability that draws back the abstractions of thought into the practicality of living. However, Whitehead seldom regarded himself as a philosopher although he dedicated the latter parts of his career to understanding and reconstructing this speculative method of philosophy. It is conceivable that his detachment from the archetypal philosopher's disposition may have motivated his more revisionary style of metaphysics.

In his entourage, in the 1900s, there was a growing buzz around philosophical matters of epistemological and metaphysical significance.⁵ Among these philosophers was Bertrand Russell, who worked closely with Whitehead on one of the century's landmark works on mathematics and logic. The century equally marked an anti-idealism revolt towards a novel logic in which Russell played a significant role. It is also established that Whitehead was often among these great scholars of the philosophical intelligentsia. Although his immediate environment was often saturated with topics on history, politics, matter, mind, and the essence of philosophical work, Whitehead remained concerned with mathematics until after nearly two decades when he (re) surfaces with his philosophical theses. Based on these and other interesting circumstances surrounding Whitehead's work, it is imperative to understand the motivations of his shift into philosophy, what his first opening philosophical treatises were, why he remained dormant at the dawn of such philosophical discourse or maybe to evaluate if he had always been a philosopher?⁶

In this chapter one, I focus on Whitehead's entry into the philosophical arena. By this, I mean, what were the first philosophical topics that Whitehead presented in his debut in philosophy? A lot is

⁵Cf. Victor Lowe, "Understanding Whitehead," *Revue de Métaphysique et de Morale* 69, no. 2 (1962). According to Lowe, during Whitehead's early days at Cambridge, he was a member of a discussion group called *The Apostles* where, as the only mathematician, he was keenly interested in ideas that touched on all facets of life that the group often discussed. Lowe(2019) continues on the unconventional nature of Whitehead's career interests and his teaching of courses that were not typically of his field. He was often found in clubs such as the *Critical society* where he presented in 1913, a paper titled, "The Role of Exact Reasoning in Practical Affairs and the Philosophy of Science in poetry" (Lowe 2019,154).

⁶According to Lowe(1962), throughout his forty-year career as a mathematician, his conversations and reflections bordered on the various sides of human existence. It appears that the pursuit of Philosophy was Whitehead's way of presenting his habitual pursuit of maximum generality to the widest field there is.

revealed in the first works of any philosopher. They constitute what the philosopher seeks to be identified by or the deep questions that ground his beliefs. For Whitehead, he enters with a critique of philosophy and science. Far from intending to impose any superior normative standards, Whitehead looks to draw the attention of seasoned philosophers and scientists of the century to how far their ideas had strayed from everyday experience.

First, I will present the problems Whitehead finds in modern philosophy and science. I will attempt to define the characteristics of these problems by piecing together the critiques he makes of modern philosophy in his early works. I will detail an exegesis of these criticisms, i.e., their characteristics throughout his writings and the implications of their associated notions. Secondly, I will present a historical and conceptual trajectory of how this identified problem enters philosophy and science. On this aspect, I offer an account that retreats as far back as the terms employed by Greek philosophers and their implications on the structure of philosophical thought. Thirdly, I will equally detail the protests Whitehead makes against modern scientific theories and significant philosophical movements of the twentieth century as a perpetuation of the initial Greek problems. Fourthly, I describe the complementary tasks of science and philosophy required to avoid the problems Whitehead identified. Lastly, I offer a summary of the chapter with an anticipatory perspective of Whitehead's proposed solution. I discuss Whitehead's solution *via negativa*, implying an indirect definition or a definition of what something is not, to delineate the scope of his solution more clearly. I use the example of Barad's onto-epistemic solution as a template of what to avoid or eliminate when attempting to overcome the bifurcation problem.

1.1 Identifying and Defining the Problem of Bifurcation

In the philosophical literature on Whitehead, his ideas are often evaluated according to the order of their writing. Although this has had appreciable success, it has equally led to the characterization of different "Whiteheads" over time. Whitehead I is the mathematician famously known for his *Principia Mathematica* with Russell. Then, another Whitehead II, the philosopher of science, who worked on an alternative to Einstein's theory of relativity. Finally, there is the Whitehead III of the 1920s and 1930s with an almost impenetrable metaphysical treatise in speculative philosophy.

On the contrary, another approach is necessary to preserve continuity in the works of Whitehead as representing a unified structure of thought. I have realized over the years that the thematic evaluation style of Whitehead offers the fairest and probably the most straightforward approach to his ideas. I reason that Whitehead's writings go through significant terminological changes from his early epistemological work to his latter metaphysical ones. These changes have been

considered to represent shifts in his ideologies, therefore projecting Whitehead's philosophy as contradicting theses interspersed with interesting ideas.⁷ In addition, because Whitehead seeks to produce a holistic body of works, no singular essay covers a principal subject without delving into other areas he deemed related. His theories do not follow systematically in the order of their appearance. His writing style may lose the reader in repetitions and anticipatory hypotheses that are difficult to grasp at the moment but become clearer in other works. Therefore, Whitehead suffers great misinterpretation due to the limitation of his work to their particular production periods.

There is a significant gap in the philosophical literature as most philosophers either consider his latter works as representing the 'truer Whitehead', therefore set aside the others, or assume that for the latter Whitehead, the topics which were important for him as a mathematician and theoretical physicist between 1890 and 1920 play no role in his metaphysics after 1922. This reading limits Whitehead to either a simple metaphysician with no distinctive contributions or a mathematician with no business engaging in metaphysics. Admittedly, the latter works show a more poised, mature, and fluid expression of his thoughts, yet it is but a gathering of all the ideas he had acquired—written or unwritten over the trajectory of his life.

I aim to trace the development of specific themes throughout Whitehead's oeuvres, making his application to specific contemporary difficulties significantly easier. What I mean by thematically is to consider the three infamous Whiteheadian critiques:

- The bifurcation of nature,
- The fallacy of misplaced concreteness,
- The error of simple location,

As elucidated in his works:

- The Concept of Nature,*
- Science and the Modern World,*
- Process and Reality.*

The critiques, although three, embody a single fundamental error exemplified in several ways. Therefore, they are referred to collectively, by Whitehead, as *theories of the bifurcation of nature*. The critique Whitehead levels against modern philosophy and science is the problem of the bifurcation of nature. Unfortunately, Whitehead's writing style often excludes straightforward definitions because he couches his position in critiquing existing ideas. However, a practical way to construct a definition

⁷ Susan Stebbing(1930) said reference to Whitehead's metaphysical treatise: 'Whether it is the product of thinking that is essentially unclear but capable of brief flashes of penetrating insight; or whether it is too profound in its thought to be judged by this generation, I do not know. Reluctantly I am inclined to accept the first alternative'. See L. S. Stebbing, *Review of Alfred North Whitehead's Process and Reality*, *Mind* 39 (1930): 475.

is to adopt a patchwork system by gathering the instances in which the term or related descriptions are stated.

The bifurcation of nature is specified in his work *Concept of Nature*.⁸ It is defined in these terms:

What I am essentially protesting against is the bifurcation of nature into two systems of reality, which, in so far as they are real, are real in different senses. One reality would be the entities such as electrons which are the study of speculative physics. This would be the reality which is there for knowledge, although on this theory it is never known. For what is known is the other sort of reality, which is the byplay of the mind. Thus there would be two natures, one is the conjecture and the other is the dream. Another way of phrasing this theory which I am arguing against is to bifurcate nature into two divisions, namely into the nature apprehended in awareness and the nature which is the cause of awareness. The nature which is the fact apprehended in awareness holds within it the greenness of the trees, the song of the birds, the warmth of the sun, the hardness of the chairs, and the feel of the velvet. The nature which is the cause of awareness is the conjectured system of molecules and electrons which so affects the mind as to produce the awareness of apparent nature. The meeting point of these two natures is the mind, the causal nature being influent and the apparent nature being effluent (Whitehead 1920, 30–31).

From the above, this is the core of the bifurcationist theory of nature. It is any theory in which reality is perpetually divided into two realms: the apparent and the causal. This division identifies the latter with the subtle yet very potent causes of the events in nature and the former as simply a gimmick of the mind. The theories of the bifurcation of nature appear in different forms in modern scientific and philosophical thought. For instance, some are more easily identified in the distinction between nature as causal and experience as apparent. This distinction is particularly illustrated by the scientific theories of light and sound, among others, that create the wedge between the individual's subjective reality, on the one hand, and scientifically investigated 'matter' on the other. Such theories describe the vision of color as the effect of light entering the eye or sound as the product of the vibration of waves that enter the ear. It appears that neither color nor sound has a proper place in the entity that produces it, rather, they are the effects of that entity on the mind. I will describe this form of bifurcation encapsulated in modern scientific theories collectively as *strong bifurcationism*.

There are other theories of bifurcation, which are not intently 'vicious' but 'subtle', present as well in philosophy. They exist as, on the one hand, the separation of the components of experience itself into primary and secondary characteristics because of accepting certain qualities over others. On the other hand, such subtle bifurcations also take the form of a methodological separation of epistemic knowledge and ontological foundations.

⁸ Alfred North Whitehead, *Concept of Nature* (Boston: Beacon Press, 1920).

The first type of bifurcationism among attributive properties in philosophy divides experience against itself. It presumes some characteristics of the perceived object are common to both the objective and subjective worlds, while the others are merely ‘psychic additions’ of the mind. These commonalities are primary and true to the object, while “what we really observed in nature, its colours and its sounds and its touches are secondary qualities; in other words, they are not in nature at all but are accidental products of the relations between nature and mind” (Whitehead 1920, 141).

The second form, which is a split between epistemology and ontology is a bifurcation of method. This separation unwittingly prioritizes the study of those attributes considered primary such as the object's mass over the investigation of the nature of secondary qualities felt. This method of reasoning elevates so-called principles of knowledge over the elaboration of underlying metaphysical assumptions. The first and the second forms mentioned constitute philosophical bifurcations that I will collectively refer to as *weak bifurcationism*.

It is important to offer other defining characteristics of both strong and weak bifurcationism. Two other noteworthy instances employed by Whitehead fall under either strong or weak bifurcationism. Firstly, there is the critique of the *error of simple location*. The error describes the doctrine of matter as an underlying substance. It is classified under strong bifurcationism as it is the error of scientific materialism. This error of the scientific “doctrine of matter[is] held in conjunction with an absolute theory of time” (ibid, 22). The same can be said for the relations between matter and space.⁹ In other words, the error of simple location is the error of absolute space and absolute time. The first assumption the error of simple location makes is that the fundamental constituents of nature lie beyond the activity of perceptive minds. Secondly, it implies that an independent ‘matter’ is in absolute space and time. This doctrine of matter excludes it from any interaction with its environment, yet ‘matter’ is said to constitute all material entities.

The resulting understanding is that “every material entity is not really one entity. It is an essential multiplicity of entities. There seems to be no stopping this dissociation of matter into occupying multiplicities short of finding each ultimate entity occupying one individual point” (ibid). Whitehead insists that this implied doctrine of detached multiplicities is certainly not what science intends or what we know from our experience. However, the doctrine of matter as the nondivisible substratum of the world offers such unavoidable implications. The erroneous consideration of matter as a fundamental element becomes more obvious in science when it[science] is pushed to accept the assimilation of space and time¹⁰. The reason is that the fundamental relations of entities become more

⁹ Ibid.,22.

¹⁰ Whitehead refers to the ideas of spacetime proposed by Einstein around the time he wrote CN.

evident when the values of space are merged with time. But for observed fact, the suspiciousness of the doctrine of simple location is obvious at first glance.

Secondly, in *Science and the Modern World*, Whitehead introduces another example of bifurcation, which he calls the *fallacy of misplaced concreteness*.¹¹ This is what is characterized as “the intermediate form” (ibid, 42) that is more difficult to recognize. This type of fallacy exemplifies weak bifurcationism because of the subtlety of its influence. He offers further illustrations in CN as follows:

The intermediate form allows that the nature we are discussing is always the nature directly known, and so far it rejects the bifurcation theory. But it holds that there are psychic additions to nature as thus known, and that these additions are in no *proper* sense part of nature. For example, we perceive the red billiard ball at its proper time, in its *proper* place, with its *proper* motion, with its *proper* hardness, and with its *proper* inertia. But its redness and its warmth, and the sound of the click as a cannon is made off it are psychic additions, namely *secondary qualities* which are only the mind's way of perceiving nature. This is not only the vaguely prevalent theory, but is, I believe, the historical form of the bifurcation theory in so far as it is derived from philosophy. I shall call it the theory of psychic additions. This theory of psychic additions is a sound commonsense theory which lays *immense stress on the obvious reality* of time, space, solidity and inertia, but distrusts the minor artistic additions of colour, warmth and sound (Whitehead 1920, 43, emphasis mine).

This instance of weak bifurcationism in philosophy does not accept this classical separationism through and through. It is in the form of the primary and secondary qualities assumption but a lot more subtler implications proceed from it. The disposition of measurability assumes that some impressions in experience are not representative of the object in nature itself but the play of the mind. Therefore, any authentic theory of nature must exclude these aesthetic impressions and study only those measurable attributes by objective standards. From this insistence on measurability, modern philosophy places epistemology before ontology because of the assertion that the question of perception requires answers before any cosmology can be constructed. This has become the standardized approach to philosophical inquiry. However, we recognize that epistemology does not proceed on neutral grounds either because it already presupposes certain assumptions about the nature of reality and what can count as knowledge. Philosophy is left with a false hierarchy of methods, where epistemology takes precedence over ontology, even though they are necessarily connected.

Early on, I indicated that modern science often gives in to strong bifurcationism while modern philosophy adheres to weak bifurcationism. However, by the example of the fallacy of misplaced concreteness above, Whitehead shows that the error of psychic additions must have been the historical form of the error of the doctrine of matter. In short, this weak bifurcationism describes the

¹¹ Alfred North Whitehead, *Science and the Modern World* (Boston: Beacon Press, 1925).

dispositionalism from which the strong bifurcationism grows. The character of the former is one of methodological preference due to valuing science as an epistemic undertaking over philosophy which is largely metaphysical. I used the term *weak* not to undermine its level of influence but, on the contrary, to highlight the subtleness of its power, the gradual way in which its theories unknowingly become concretized.

For Whitehead, this weak bifurcation emerged from the Greeks' assertion of substance or substratum, *ousia*, as ontological endurance or permanence apart from which nothing can exist. This notion led to the categories of Aristotle's primary substance as an object of predication yet not being itself predicable of anything else. The initial separation trickles down from Greek philosophy to twentieth-century materialism, dualism, and idealism. It underscores the question of self, the 'I,' or in the Lockean distinction of the 'person' and the 'man,' of phenomenal and functional consciousness, what *is* and what *ought*, etc. Weak bifurcation is the intuition that makes us believe we must make our experiences fit an 'objective' world. Whitehead calls it a 'slippery slope' in *The Organization of Thought*¹². He says, "We must not slip into the fallacy of assuming that we are comparing a given world with given perceptions of it. The physical world is, in some general sense of the term, a deduced concept. Our problem is, in fact, to fit the world to our perceptions, and not our perceptions to the world" (Whitehead 1917, 228).

From the above citation, our inversion of the task of fitting the world to our perceptions leads to looking to the mind to explain those aspects that fail to fit into the mold of our understanding of this physical world. Whitehead determines that the approach of "calling in the mind" to explain its perception of nature is partly based on the implicit assumption "that the mind can only know that which it has itself produced and retains in some sense within itself, though it requires an exterior reason both as originating and as determining the character of its activity" (Whitehead 1920, 32). Our vision of the world is thus that the mind stands outside of nature and looks upon it and nature 'does things' to the mind to produce its perceptions which in a sense are not true reflections of nature. We are thrown into a metaphysical "chimera," seeking what is "outside" the scope of our natural knowledge.¹³

¹² Alfred North Whitehead, *Organization of Thought* (Boston: Beacon Press, 1917).

¹³ Whitehead states: "But in considering knowledge we should wipe out all these spatial metaphors, such as 'within the mind' and 'without the mind.' Knowledge is ultimate. There can be no explanation of the 'why' of knowledge; we can only describe the 'what' of knowledge. Namely we can analyze the content and its internal relations, but we cannot explain why there is knowledge. Thus, causal nature is a metaphysical chimera; though there is need of a metaphysics whose scope transcends the limitation to nature. The object of such a metaphysical science is not to explain knowledge but exhibit in its utmost completeness our concept of reality"(Whitehead 1920, 32). It is obvious that Whitehead strives to highlight the limitations of our quest for knowledge while carving out new territories that have been left unattended because we are focused on explaining the mind in order to explain nature. It is this distinction between "what is known" and "what is" that nudges philosophy into a more obvious bifurcation in the of a metaphysical substratum view of the world, meaning the mind attaches attributes to bare entities in nature(Ibid.).

Theories of materialism and dualism have failed to demonstrate any real interpenetration among the elements of experience, yet Whitehead will not fall in the direction of Hegelian and Bradleyan idealism either. In idealism, reality depends solely on the mind, thus a form of separation between the *Absolute* or the Hegelian *geist* and the reality of relations. We are at a crossroads between the claims of two schools of thought “that is, the older philosophy [which] conceives the thing as directly perceived” and “scientific thought [for which] the ultimate thing is never perceived. It is impossible to reconcile the two points of view” (Whitehead 1917, 179). Before considering what types of solutions are available, it is imperative to trace the source and the trajectory of the bifurcation problem.

1.2 Backward from the Greek ‘matter’

The previous §1 and §2 described Whitehead’s ‘grand’ entrance into philosophy by his critique of philosophy and scientific materialism. I presented modern science’s problem as engaging in strong bifurcationism, while philosophy is guilty of the more subtle weak bifurcationism. The focus was to show how both disciplines are unable to unify all the aspects of experience in their descriptions of the world. This section is a historical account derived from the notions of the Greek philosophers showing the initial conceptions of these ideas that have now dominated modern thought. According to Whitehead in CN, “the philosophy of nature took a wrong turn during its development in Greek thought” (Whitehead 1920, 24). I will develop this ‘wrong turn’ to answer the question: What Greek conception(s) led to modern-day matter?

The occurrence of matter as simply localized in a region of space-time is an ancient concept held in the Greek philosophies of the Aristotelian and Platonic eras. Beginning from the vague suppositions of Plato to the anchoring of Aristotle’s analysis of the relations between matter and form, the ancients laid the bedrock of the intuitive bifurcation today.

In CN Whitehead says:

In this way, matter has emerged as being the metaphysical substratum of its properties, and the course of nature is interpreted as the history of matter. Plato and Aristotle found Greek thought preoccupied with the quest for the simple substances in terms of which the course of events could be expressed. We may formulate this state of mind in the question, what is nature made of? The answers which their genius give to this question, and *more particularly the concepts* which underlay the *terms* in which they framed their *answers*, have determined the unquestioned presuppositions as to time, space and matter which have reigned in science(Whitehead 1920, 16–17).¹⁴

¹⁴ The words in italics represent my personal emphasis that embody the three points of entry from which I would describe the influence of Greek philosophy on the theory of matter.

In the above-cited text, Whitehead refers to the thought configurations responsible for the erroneous suppositions of nature. In his explanation, he outlines three main access points through which the Ionian quest for simple substances resulted in contemporary matter. These three are the essential conduits through which the doctrine of matter begins its evolution and prevalence in science and philosophy.¹⁵

The first of the three are *terms* that underlay concepts. I will examine the Greek terms pertinent to the discussion. This concerns the terms in ancient Greek exegesis on the question of reality and its constituents. I will evaluate the significance of terms such as the ‘physical,’ ‘substance,’ and ‘nature,’ as those descriptions Whitehead holds responsible for scientific materialism and its associated contemporary philosophical fallacies. Many concepts used by philosophers are known to have their origins in ordinary language, however, after extended use in philosophy, they take on new forms and different philosophical implications.

Let us begin with the Greek term *physis* which translates into Latin *natura* or simply nature in English. It is derived from *phyesthai* or *phynai*, which means “to grow”, “to develop”, or “to become”¹⁶. The conventional translation of *physis* into Latin peels off part of its initial meaning. The Latin *natura* from the verb *nasci* meaning “to be born,” restricts *physis*, from one of its implications of emergent growth to the notion of “being born”. The Heideggerian argument will serve as a good basis for illuminating Whitehead’s critique of the Greeks.

From ancient texts, we can determine two semantic fields that describe the use of *physis* among presocratics, including the Milesian school. First, *physis* meant “essence” as a designation of the natural form or constitution of an individual living entity and second, it implied *archē*, as the “source” or “origin” from “beginning of growth” up to “all nature”—*physis* implied a cosmic force of nature’s emergence and order. In this second broader sense, *physis* meant “that from which” a certain being is given, and in the first narrower sense, it implied what Aristotle described as “the genesis of growing things.”¹⁷ However, Plato’s discussions in his *Phaedo* reveal other differences between *being* as

¹⁵ Whitehead describes the pervasiveness of the bifurcation of nature in the preface of concept of nature as a surety for the misunderstanding of his thesis. He insists that because modern natural philosophy is “shot through and through with the fallacy of bifurcation, any reader of his work that indulges in this erroneous conceptual framework will find all that he has written as “unintelligible” (Whitehead 1920, VI).

¹⁶ Cf. Hjalmar Frisk, *Griechisches etymologisches Wörterbuch (Dictionary of Greek Etymology)* (Heidelberg: Carl Winter, 1960).

¹⁷ See further the work of McClure (1934) and Lovejoy (1909) on the dominant interpretation of the term *physis*. McClure highlights the traditional view of the term versus what the Ionians sought to do. The generic attribute of nature according to the Ionian term identified this extended nature with a particular aspect definite entity in order to give it concreteness. Whitehead’s specific reference to the Ionians on their response to the question of what nature is made of, highlights the latter’s quest for the concrete attribution of nature to a specific entity or being.

observed in the senses and the non-corporeal concept of *being*, unknown to the senses. The several resulting dichotomies generate important philosophical debates over the term.

Prominent among the philosophers who evaluate these disparities is Martin Heidegger, the existential philosopher who presents a conceptual evaluation of the etymological implications of *physis*. Although Whitehead and Heidegger were born twenty years apart, throughout their philosophical discussions, they explored similar interpretations of the structure of the world. Their ideas, *prima facie*, appear poles apart; and there is indeed little evidence that either read the works of the other¹⁸. However, in the critique of the concept of *physis* and the changes it brought on in philosophy, both of them are seemingly in agreement.

Whitehead and Heidegger exhibited uniqueness in philosophical style, drawing on etymology and associated connections to retrieve a more original sense from familiar expressions. They often let words speak anew, discarding the conceptual implications they might have carried up to that point. For example, Heidegger uses the everyday word for event, *Ereignis*, to describe “event of appropriation” in which humans rediscover their, *eigentliche*, ‘a proper relation of belonging to being’, and through which beings are brought back into their appropriate interrelational agency in the world. This is remarkably similar to Whitehead’s use of ‘event’, which denotes the interrelatedness of actual entities in the process of experience (which is ‘being’ in the real sense for Whitehead).

Whitehead was non-anthropocentric; therefore, his philosophical pursuits were of a broader kind. In contrast, Heidegger pursued a phenomenological ontology centered on the human understanding of self-*dasein*. Heidegger’s work on metaphysics, submitted two years before the publishing of Whitehead’s PR, raises questions about the style and significance of metaphysics. This implies that both of them employ this critique of classical Greek to quite different ends. Nevertheless, I will borrow Heidegger’s explanations as they help enrich the conceptual trajectory Whitehead builds. This recourse to the work of Heidegger will play a binary role in the current discussion. First, it offers a clearer perspective of Whitehead’s argument against the doctrine of matter as issued from Greek misconceptions. Second, Heidegger’s work is employed here to support Whitehead’s position that language structure influences the approach to metaphysics.

The Heideggerian thesis asserts that Western thought is trapped in the uncertainties of ontology because it had completely ignored the concept of being (*sein*) and focused rather on entities (*seiende*).

¹⁸ We can discuss the life and motivations of the two Philosophers who although lived in the same period, born Whitehead in 1861 and Heidegger in 1889, as being totally independently of each other. Although the works of both Heidegger and Whitehead have been separated into two distinct modes of philosophic thought - Existential Philosophy and Process Philosophy respectively, there are important similarities to their philosophical endeavor.

The term *physis* explained in *Introduction to Metaphysics*¹⁹ is “the being of beings” because it is “what emerges from itself” or “the unfolding that opens itself up” (Heidegger, Fried, & Polt 2000, 15). In another explanation, Heidegger says *physis* is “the coming- into- appearance in such unfolding and holding itself and persisting in appearance – in short, the emerging abiding sway” (ibid). By this pluralist understanding of *physis*, the Ancients implied no ontological oppositions between nature as the process of coming into being or as a source of being and nature as a particular instance of being.

Now, for Aristotle, even though “being is spoken of in many ways”, the primary meaning of being is “substance” (Categories 4–5; Metaphysics VII). Substance, *ousia*, is the enduring substratum (*hupokeimenon*) of something that underlies changes in its qualities, location, and so on. The substance of something remains constantly present despite all other changes through time. Aristotle’s understanding of substance also narrows the scope of *physis*. In his metaphysics, Aristotle argues that substances are the world’s most fundamental and real entities and that everything else can be understood in terms of their relationship to substances. He also distinguishes between primary substances, which are individual entities such as people, animals, and plants, and secondary substances, which are categories or kinds of things such as “human being”.

Heidegger argues in *The End of Philosophy* that because Aristotle wants to bargain between a materialistic and an idealistic understanding of substance, his metaphysics led to a distinction between these two categories with priority given to one over the other.²⁰ A substance is either a particular something, a “this”, or it is the universal characteristic that makes a particular thing what it is. According to Heidegger (1973), these two notions of substance in Aristotle become the fundamental metaphysical distinction between, on the one hand, “thatness” (*Daß- sein*, literally “that-being”) or existential (existence) and “whatness” (*Was- sein*, literally “what-being”) or *essentia* (essence) on the other. This Aristotelian distinction implied that essence and existence are “modes of presencing whose fundamental characteristic is *energeia*” (Heidegger 1973, 8–9). Subsequently, *energeia* is translated in the course of the history of metaphysics as *actualitas*, actuality, and reality.

For Heidegger, this conceptual trajectory is a decline from the greatness of the Greek philosophical beginnings, leaving metaphysics to struggle with the *ontic* and *ontological* at the heart of the misapprehensions about human nature. Following this primary understanding, Heidegger demonstrates that the concept of *physis* ties us to a particular realm of beings, that is, natural beings, whereas the original “essence” of *physis* is supposedly emergence and self-showing without restriction. The restraint, as given with the concept, which theoretically can be dispensed with, comes into play

¹⁹ Martin Heidegger, Gregory Fried, and Richard Polt, *Introduction to Metaphysics* (New Haven: Yale University Press, 2000).

²⁰ Martin Heidegger, *The End of Philosophy*, trans. Joan Stambaugh (New York: Harper and Row, 1973).

only when one attempts to grasp the happening of *physis* in contrast with production involving human control. The restriction was misleadingly attached to *physis* as the fact of emergence, causing us to lose sight of their original meaning and the true nature of reality.

This Heideggerian explication demonstrates the terminological changes that Whitehead explains as those terms which led to the concepts and subsequently the answers to the Ionian question of “What is nature made of?” (Whitehead 1920, 17). Whitehead speaks directly of the ontological implications on modern natural philosophy without explaining the initial epistemic gaps caused by the narrowing of the preliminary implication of the term.

At this stage, the general philosophical intuition has become the elaboration of reality in terms of a certain substratum that underlays all appearances of beings. The initial terminological disparity has become the conceptual framework in which philosophical answers must be staged. However, over time, the principles that the Greek geniuses sort after, as underlying the order of nature, no longer stirred the heart of the general educated public. Instead, there was a shift towards more restricted areas of specialization. Nevertheless, the Greek anchor of seeking a substratum still lingered in scientific and philosophical thought and only deepened with the emphasis on restricted knowledge inquiry.

Whitehead posits that the dwindling interest in elaborating the structure and order of nature as the Greeks saw it extended to the close of the Middle Ages. He asserts this could be attributed to a great many factors. However, Whitehead believed it was more beneficial to investigate why the pace of scientific and philosophical evolution suddenly quickened in the sixteenth and seventeenth centuries. This investigation was much of Whitehead’s concern in *SMW*, which is a treatise on Western culture and the insurgence of their dominant knowledge preoccupations. Whitehead believed in piecing together the peculiar philosophical positions of each epoch because they were windows into the rational disposition of humans. He describes his work in *SMW* as “a sympathetic study of main ideas as seen from the inside” (Whitehead 1925, viii), highlighting the importance of a prevalent philosophy.

The sixteenth century, he describes as the “age of ferment” (*ibid*,1), saw a disruption of Western Christianity and the rise of modern science. It was an important break from the previous century’s steepness in faith and mysticism and the relative silence on science and philosophical knowledge. The rise of the scientific movement was confined to only a few intellectual elites yet had far-reaching implications. As Whitehead puts it, “the quiet growth of science has practically recoulored our mentality so that modes of thought which former times were exceptional are now broadly spread through the educated world” (Whitehead 1925,2). Whitehead is certainly aware that the emergence of this scientific mind was not completely sudden, as it had been brewing among European societies for

ages. However, the sixteenth century strengthened it in a most obvious way. It was evidence of the unseen collaboration of religion and science towards a unique goal. The century's scientific movement planted a mentality or a certain dispositionalism that altered metaphysical and imaginative thought so that the old stimuli provoked new responses.²¹ Whitehead says the disposition, according to William James, to confront 'irreducible, stubborn facts' (ibid, 3), made a remarkable difference in how we viewed the world. Modern thought conveyed a growing passion to relate the general principles of their Greek metaphysical years to the novel irreducible stubborn facts of the new science.

Whitehead shows the collaborative effort it took to bring science to the point of the eighteenth and nineteenth centuries. He praises the influences of the two historical revolts, the Reformation, and the Scientific Revolution as essentially two sides of the same movement of thought propelling scientific advance while the Greek view of nature colored this background. The cosmology transmitted by the Greeks described an overly dramatic world with an overly dramatic finality. Nature was simply a drama with each thing playing its part, while the scientific revolution focused on the specific finer details of those parts.

At the point when Newtonian physics appears on the scene, it is no surprise it takes the tone it does. The fusion of this dramatic style and the irreducible stubborn facts of experience expressed in science produced an understanding of the world where certain elements were static and changeless through all the changes of motion. Therefore, the properties of mass, for example, became established as the concrete aspect of nature, lending to the idea of matter as that substratum with the property of mass. This underlay the philosophy of natural science for almost two centuries until scientific experiments took a different turn, rendering classifications of entities more complex than the simple atomic forms. However, because science and philosophy can be mutually beneficial, they can also be reciprocally distractive such that philosophical ideas have sought to establish close affinity with scientific theories over the years. In this vein, the scientific doctrine on matter made its way back into the philosophical sphere expressed as Lockean primary and secondary qualities.

Whitehead's historical account in *SMW* was written in retrospect to explain the basis of his critiques and ideas on nature. He underscores the importance of a historical account: "New epochs emerge with comparative suddenness if we regard the scores of thousands of years throughout which complete history extends" (Whitehead 1925,1). In *SMW*, Whitehead does not proceed to a linear historical investigation of the birth of modern science. For him, it is not a question of fixing dates but rather of discovering works and men through which the great principles developed modern science.

²¹ Whitehead 1985, 2.

Thus, not only the vision of the Greeks but also the Byzantine civilization and the practical orientation of the Benedictines allowed science to discover the immanent order of things. In the same way that the positive advancements of science are due to all these influences, the bifurcations in their theories come from these influences.

He insists that "In all times and places, there have been practical men to tackle "irreducible and obstinate facts"; in all times and places, there have been men with a philosopher's temperament to tackle the elaboration of general principles"(ibid,3). The construction of science is the framing in a more rigid structure, the tendencies of men throughout history. Nevertheless, it is impossible to think without establishing a link between the facts and the principles or indicating a "passage" from the concrete to the abstract. Although generalizations and abstractions are the mainsprings of all thought, this does not mean that philosophical investigation remains within the framework of epistemology. For Whitehead, philosophy is not a question of understanding knowledge by making its theory or history but rather of explaining this necessary passage that leads from the perception of facts to the conception of principles. In this way, it is understood that facts and principles, percepts and concepts come from the feeling immanent to any experience.

1.3 To the Modern Era of Simple Location

The main point of the above discussions was to bring us from the Greek conception of *physis* to the modern doctrine of matter. This doctrine of matter in scientific spheres is the mechanistic characterization of existence in absolute space and time. This is the error of simple location. However, Whitehead's time was distinguished by the search for a new physics that answered the questions that Newtonian absolutism had rendered perplexing. Whitehead considered himself part of this novel movement in science which sought to rethink the specifications of time and space relations to matter. The error of simple location is a strong form of bifurcation issuing from scientific materialism's conception of the world and the roles entities play in its animation.

What constitutes such an error? The error of simple location is one of the complex Whiteheadian descriptions of bifurcationism. We understand two basic characteristics of this error: it is an error of science, and it is grounded in the doctrine of matter and its relations to space and time. However, its exact implications remain unclear. The initial intuition based on the specificities is that it is purely an error of absolutism of space and time. However, Whitehead rejects Einstein's theory of

space-time which does not hold time and space as absolutes.²² This rejection extends the complexity of what *simple location* really means. We might find clearer meanings by comparing other philosophers' definitions of the fallacy of *simple location*.

Arthur. O. Lovejoy affirms this difficulty of understanding the fallacy of simple location in *The Revolt against dualism. An enquiry concerning the existence of Ideas*.²³ He purports that seven possible definitions can be inferred because of the vague characterizing of simple location. I will discuss only one of them that can help delineate the problem. It is the definition Lovejoy(1963) terms 'singular location'. Per Lovejoy's reading of Whitehead, he assumes that the argument against matter in a definite space-time region suggests that Whiteheadian entities are in a "sort of duplicity or multiplicity of spatial situations" (Lovejoy 1963,162) so, the critique of simple location is that those theories imply 'singular location' of entities. Lovejoy precedes with the all-important clause "in some sense" that the Whiteheadian entity is in "two or more places at one determinate time (presumably in a single reference system)" (ibid, 165). Lovejoy's attempt at a positive definition offers an angle to analyzing the critique of the fallacy of simple location. Now, we may compare what we already know about the fallacy of simple location to Lovejoy's definition.

Firstly, we know its exemplification is found in the theories of scientific materialism. However, Lovejoy extends the reach of this critique to the general description of entities which implies the "denial of the possibility of such a plurality of simultaneous positions in a defined system" (ibid). To some degree, Lovejoy grasps Whitehead's intuition in the sense that there is "multiple realization" of events in nature. What is erroneous in his characterization is that his tag of 'singular location' only explains one end of Whitehead's intended response.

Secondly, on the matter of space and time, Whitehead replaces the doctrine of absolutism with that of abstract relations. This means space and time are considered abstractions from the relation of extension among entities. Lovejoy's 'singular location' captures the Newtonian error but fails to consider the implications of the Einsteinian account of nature as Whitehead intended. He attests in CN his general agreement with Einstein's investigation however, Whitehead argues that the nature of

²² Arthur Lovejoy(1930) explains that Whitehead's assertion is rather puzzling. In fact, the dual compatibility of simple location when equally "consistently applied from the standpoint of either the relational or the absolute theory of space and time; and that, taken in one way or the other, this is the idea which has dominated modern science since the seventeenth century." See in Arthur Lovejoy, "The Revolt against Dualism," in *The Revolt against Dualism: An Inquiry concerning the Existence of Ideas* (New York: Dover Publications, 1930),19.

Lovejoy argues in one of the first attributed definitions, that the "relational theory of space, etc., seems to correspond to Whitehead's definition of "the fallacy of simple location, "while the alternative Whitehead proposes as an organic view bears semblance with the definition of the absolutist theory. This makes it difficult to show the critique as "formulable in terms congruous with the latter view (absolutist view), as well as with the former" (relational view). This view amongst others were debunked by Lowe (2019) as an erroneous definition of the relational view to which Whitehead refers.

²³ Arthur Lovejoy, *An Enquiry concerning the existence of Ideas* (New York: Dover Publications, 1963).

Einstein's interpretation leaves him open to terse translations such as the one reported in a well-known evening paper at the time as "space caught bending" (Whitehead 1920, 166) following the experimental confirmations of Einstein's relativity theory.

Instead, Whitehead seeks to make an important distinction among the complex relation of things posited in nature for awareness. He states, "Nature is known to us as complex of passing events. In this complex, we discern definite mutual relations between component events" (ibid). Some of these elements appear to express longer durations than others, so depending on how sufficiently abstract we define an event, it could be characterized as changeless. The matter of changelessness is a matter of definition. For this, he uses the example of Cleopatra's Needle situated at Charing Cross embarkment to say that "the more abstract your definition the more permanent the needle" (ibid, 167). Therefore, multiple locations without expressing the mutual structural relations between the characterized events are no different from simple or singular location. Although Whitehead embraces pluralism, he does not advocate for a generic pluralistic characterization of all entities. Whitehead's critique borders on the complex location of some constituents of nature but does not entirely deny that some entities can and are singularly expressed.

In effect, 'simple' location is the critique against the establishment of 'multiply' located matter and 'singular location' of other entities but, more importantly, the failure to highlight the relations of abstractions that characterize them. It forms the basis of the distinction between an event and an object elaborated in one of Whitehead's early works, *An Enquiry Concerning the Principles of Natural Knowledge*, under "The Natural Elements"²⁴.

He defines both terms as follows:

Events: 14'1 Events are the relata of the fundamental homogeneous relation of 'extension.' Every event extends over other events which are parts of itself, and every event is extended over by other events of which it is part. The externality of nature is the outcome of this relation of extension. Two events are mutually external, or are separate, if there is no event which is part of both. *Time and space both spring from the relation of extension.* (Whitehead 1919, 61, emphasis mine)

Objects. 15'1 Objects enter into experience by recognition and without recognition, experience would divulge no objects. Objects convey the permanences recognised in events and are recognised as self-identical amid different circumstances; that is to say, the same object is recognised as related to diverse events. Thus the self-identical object maintains itself amid the flux of events: it is there and then, and it is here and now; and the 'it' which has its being there and here, then and now, is without equivocation the same subject for thought in the various judgments which are made upon it" (Whitehead 1919,62).

²⁴ Alfred North Whitehead, *An Enquiry Concerning the Principles of Natural Knowledge* (Cambridge: Cambridge University Press, 1919).

By the descriptions given above, Whitehead does not entirely deny 'singular location' either. He protests against the consideration of singular elements as the basis of all reality without considering the extensive abstraction by which that entity is given permanence. Matter should be ascribed the quality of being an event, not an object. In that sense, its duration and fundamentality are relative to certain conditions of other entities.

At least, 'single location' in the sense of individual expression is possible with objects (eternal objects). Their connections do not identify them with space and time because eternal objects are not extended. They are mere potentials. However, their recognition happens when they are included in a particular event. This means that the fallacy of 'simple location' is also definable as the failure to distinguish between the 'maintained' object and the flux of events because they are both evaluated from the same degree of abstraction. However, the relation of flux among events is what generates the temporal and spatial dimensions. Therefore, there are different approximations of time scales depending on the relations among the entities. Any element considered permanent and unchanging renders it out of relation and independent. To sustain the relatedness of the cosmos, entities must be in some perpetual flux.

On the other hand, although an object appears 'maintained', it can be multiple and complex in its expression in events precisely because of its relatedness. Events are related by extending over each other while objects are given by their ingression into events. Whitehead clarifies the distinction in PNK: "The chief confusion between objects and events is conveyed in the prejudice that an object can only be in one place at a time. That is a fundamental property of events; and whenever that property appears axiomatic as holding of some physical entity, that entity is an event" (Whitehead 1919,65).

Whitehead(1920) defines the scope of objects, their ingression into events, and the comparison of events only made possible by comparing objects.²⁵ However, through the critique of simple location, two branches of discussion are open concerning perception. The primary one entails how through perception, we can distinguish and conceptualize events and objects. Moreover, a deeper epistemic problem is how 'matter' is recognized as what it is if the distinction between events and objects is such

²⁵ In CN, Whitehead engages us on the distinction between object and event. He defines objects as the virtue by which events can be recognised. He says: "It is impossible to recognise an event, because an event is essentially distinct from every other event. Recognition is an awareness of sameness. However, to call recognition an awareness of sameness implies an intellectual act of comparison accompanied with judgment. I use recognition for the non-intellectual relation of sense-awareness, which connects the mind with a factor of nature without passage. On the intellectual side of the mind's experience, there are comparisons of things recognised and consequent judgments of sameness or diversity. Probably 'sense-recognition' would be a better term for what I mean by 'recognition'(Whitehead 1920, 142). With such a distinction based on recognition, Whitehead admits that the awareness of an object occurs in a mode of intellectual comparison. In this mode, the mind is participating in the abstracting of the recognised object based on the judgement of sameness. This mind-engineered activity cannot take place with events because they are unidentical and acquaintance with their passage is through a non-cognitive mode of perception.

that only objects are recognizable, yet it is an event that has spatiotemporal relations. These questions are addressed by Whitehead's theory of perception in chapter four of my research thesis. The main point I am attempting to drive is that the critique against the doctrine of simple location maintains multiple implications. Some of these implications include the insistence on the plurality of events distinguished by levels of abstractions of relations. The relations of events are both internal and external. In addition, no sense can be made of any cosmology without the fundamental positing of relations. All these implications contradict what the fallacy of 'simply located' matter stands for and in the absence of these precisions, scientific materialism would always consider abstracted relations as concrete fact.

The purpose of this distinction in the account of the evolution of ideas is to show how the fallacy of simple location comes to be in modern science. It is the product of a denial of internal relations brought on by the idea of substance-based cosmologies. By differentiating between objects and events, Whitehead, as a preamble to his metaphysics, secures the mind from its natural tendency of splitting into a substance and predicate relation. The cosmology, he proposes, is no longer substance-based but flux-centered.

There is only one type of entity in the cosmos, and this entity is itself a process. However, the process instantiates a complex of relations. This contradicts scientific materialism, which also postulates a singular substance, matter, or material, yet it is described as constant and independent. Events and objects represent some of the relational dualities that Whitehead's monism can exploit because of the plurality of process entities. The object in its relation can pervade "its neighborhood" which is its event by ingression, and the event can have other complex relations with other events, such as extending over and being contained in other events.²⁶

The problem of scientific materialism is no different from the traditional problem of philosophy, which is the absence of an adequate theory of relations. For Whitehead, it is vital for his ontology to allow ontic diversity and explain how diverse individuals are really and truly related. He must present a principle by which a plurality of instances of process-type entities have real relations among them. The principle by which he shows this is prehension. Prehension ensures that the relation among entities can be internal to one relatum and external to another. It is in perception that he

²⁶ Whitehead says this about the scope of influence of objects: "An object is ingredient throughout its neighborhood, and its neighborhood is indefinite." He continues by explaining the relevance of this pervasive feature of objects to individual perceptions by concluding: "Finally therefore we are driven to admit that each object is in some sense ingredient throughout nature, though its ingression may be quantitatively irrelevant in the expression of our individual experiences" (Whitehead 1920,142). He foretells in part the ontological schema that he draws up in latter works by mentioning the quantitative aspect of ingression as irrelevant in contrast to the qualitative aspect of objects that are directly felt in our individual experiences. While in other modes, the quantitative aspects of events are given relevancy and its qualitative side diminished in persistence.

demonstrates this asymmetrical relation. Whitehead affirms that “The subject of knowledge is such a relatedness which cannot be understood without reference to the general characteristics of perception. Our perception of natural events and natural objects is a perception from *within* nature, and not an awareness contemplating all nature impartially from without”(Whitehead 1920, 13, emphasis mine). By this asymmetrical relation time and causality are also accounted for. The details of prehension exemplified in the theory of perception and causality are covered in chapters three and four of this research work.

Returning to the historical trajectory of the doctrine of matter, Whitehead has brought us up to the modern period. The modern era is often qualified as the age of reason, in contrast with the medieval period, described as an age of faith or superstition. However, Whitehead proposes a different perspective on this characterization. He considers the modern age to have come as a result of a shift from a rather rational era to one of historical thinking which included the empirical approach. The moderns did not seek the ultimate reasons for things and events but the knowledge of the more restricted spheres of thought whose questions are satisfied by less ultimate answers. In particular, modern science attempts to comprehend the sources of things instead of their purposes or deepest natures. Whitehead argues, "It is a great mistake to conceive this historical revolt of modernism as an appeal to reason" (ibid, 8). On the contrary, for Whitehead, the modernist revolt “was through and through an anti-intellectualist movement. It was the return to the contemplation of brute fact; and it was based on a recoil from the inflexible rationality of medieval thought” (ibid).

This transition from ‘reason’ of the medievalists to the attention to specifics and causes of things is considered to have had a great advantage by Whitehead. Science owes its advancement up to this era to this move. This is why Whitehead hails the seventeenth century as the "period of genius" by which science has made important leaps. Yet, this move came with its own losses. The focus on particulars instead of ultimates led to the non-exploration of some core ideas of modern science. These scientific positions worked well; for example, Newtonian physics had great success therefore, the suitability of its implications appeared to be vouched for.

However, the philosopher’s response to this narrowing system of science was not supposed to be a critique of the scientific ideas but to attempt a justification of these abstractions. However, when Hume’s critique of causality was introduced, the Newtonian conception appeared to no longer hold sufficient basis in the natural sciences as well. Following this, Kant comes to reform philosophy instead of proposing a radical shift in the way we thought of scientific abstractions. Kant, by doing this, not only restores and retains the function of the causality of the natural sciences but maintains, as well, all the fundamental unevaluated implications of the Newtonian theory of nature.

Sooner than later, the limits of physics became apparent as it began to develop. Certain inquiries failed to conform to the fundamental notions that the modern era had established. The choice lay between a reconception of nature to take these new developments into account or nothing. This, for Whitehead, was not a choice but an obligation if we maintain that science is not a fairy tale. Scientific accounts must refer to specific realities in nature. Whitehead underestimated the power of the anti-intellectualism of this as foundational to modern thought. While he, among other thinkers, struggled to make sense of the non-Newtonian world and its consequences on understanding the cosmos, the majority turned their backs on this inquiry, becoming more radically anti-rational.

If we understand modernity as Whitehead does, then we must accept vastly different implications of what truly characterized the period. One such implication is the discovery that the anti-rationalism at the heart of the modern age has become rather ever more radical than we estimate. From Whitehead's point of view, Hume and Kant introduce a second phase of modern anti-rationalism while Nietzsche, Heidegger, and Derrida can be described as carrying this anti-rationalist attitude to a still further extreme. A 'postmodernist' era takes on a new implication for Whitehead, although he never directly used the term. It designates the emergence of new 'root metaphors' or paradigms, radically thought through and rigorously assessed against the whole range of evidence.²⁷ Whitehead's postmodernism is antimodernist in that it appeals to the rationalism of the era that preceded modernism. It is no longer confined only to the reform of individual disciplines but also the reconception of the organization of knowledge as a whole.

In conclusion, the twentieth century began with its intuitive bifurcation taken from the earlier Greek thinkers. It proceeded to divide reality into the two worlds of mind and matter. The latter was dispersed of any religious concerns so that it could be explored by objectifying scientific methods. Its conclusions were radical, as its method was even more restrictive in studying scientific matter. The world was divided into independent composite parts, all playing their 'dramatic' roles and consequently divided into sections so that one could be examined independently of the others. These systematic explanations might work if the world indeed was like a machine. The function of a machine's separate components is not significantly impacted by how they fit together as a whole. It is conceivable to understand the 'whole' as the joint operation of the components if one looks at each component of a machine independently. It is precisely this machine-based thinking that directs the

²⁷ The construction of new root metaphors are suited for describing Whitehead's work because root metaphors designate the fundamental and pervasive conceptual frameworks or underlying images that shape our understanding of the world. They are the basic, deep-seated metaphors that structure our thoughts, language, and perception of reality. See further the work of Stephen C. Pepper, "Metaphor in Philosophy," in *Dictionary of the History of Ideas* (Charlottesville: The Electronic Text Center, 2003), <http://etext.virginia.edu/cgi-local/DHI/dhi.cgi?id=dv3-23>. I term Whitehead's root metaphors organic because they highlight interconnectedness, interdependence and self-regulation. I describe this further with my illustration of the Escher's drawing Hands in chapter five of this research work.

most critical problems of understanding consciousness. It is indeed no surprise that modern and postmodern science and philosophy imported this mentality into the descriptions of consciousness. This abstracts the conscious experience and studies it completely apart from the system of relations that produce it. Even within the circles of research and education, modern science and philosophy implied a dichotomy between disciplines that played major roles in this study of the ‘cosmic machinery’ and those that were declared too subjective to be relevant. Science was considered the victor, advancing the course of civilization and philosophy the villain, with it, religion, and all other non-conforming disciplines. In philosophy, those ideas which aligned with scientific methods were deemed saved from the ontological ties of the discipline. The conclusion is evident, metaphysics becomes ‘irksome’ to many scientists and philosophers alike.²⁸

Whiteheadian postmodernism begins by insisting that such bifurcations and fragmentation are contrary to the reality of the interconnection of things and that this pattern of relations is constitutive of the relata. What is said from this perspective cannot be contained within the organization of knowledge based on modern principles. Whiteheadian postmodernism moves beyond Kant and Hume to recover something from the rationalism earlier rejected by modernity. This does not mean that Whitehead returns to the mode of thought that preceded modernity but brings back contributions in that earlier period that were obscured by the modernist stance against it.

1.4 The Tasks of Science and Philosophy: Epistemology and Ontology

Whitehead identifies the early development of two key areas of knowledge as crucial. First, there is physics. Both relativity and quantum theory undo the assumptions of modern physics and provoke the introduction of a reconstruction of the scientific program. This is where Whitehead, himself a mathematical physicist, develops his relativity theory because he appears dissatisfied with the conceptual foundations and implications of Einstein's theory and attempts to avoid some of its paradoxes. The second area is philosophy. He states in SMW:

The history of philosophy runs curiously parallel to that of science. In the case of both, the seventeenth century set the stage for its two successors. But with the twentieth century a new act commences. It is an exaggeration to attribute a general change in a climate of thought to any one piece of writing or to any one author. No doubt Descartes only expressed definitely and in decisive form what was already in the air of his period. Analogously, in attributing to William James the inauguration of a new stage in philosophy, we should be neglecting other influences of his time. But, admitting this, there still remains a certain fitness in contrasting his essay, Does Consciousness Exist? published in 1904, with Descartes' Discourse on Method,

²⁸ Whitehead uses the word “irksome” to describe the disposition towards metaphysics by some of his readers(Whitehead 1925,157).

published in 1637. James clears the stage of the old paraphernalia; or rather he entirely alters its lighting... (Whitehead 1925,143).

In previous discussions, I focused on the aspects of the bifurcation of nature that concern scientific methods and theories more than philosophical ones. I also confirmed that the air of scientific materialism had already blown into philosophy, as Whitehead (1925) confirms that “the seventeenth-century science has saddled philosophy” (ibid, 36). Philosophy’s fallacy of misplaced concreteness led to its insistence on prioritizing an analytical approach to addressing philosophical questions. On the philosophical front, Whitehead believes William James is the Einstein of philosophical progress. He judges that “The scientific materialism and the Cartesian Ego were both challenged at the same moment, one by science and the other by philosophy, as represented by William James with his psychological antecedents; and the double challenge marks the end of a period which lasted for about two hundred and fifty years.” (Whitehead 1925,143). Consequently, James’ perception of experience constituted one of the pioneering ways philosophy could break free from the restrictive prioritization of epistemology over ontology.

In modern philosophical thought, it is characteristic for epistemology to always come first. This epistemology is predicated on the primacy of sensory experience. Modern philosophy assumes that ontological explanations do not answer the epistemically salient questions of perceptual knowledge. However, for Whitehead, James’ theory of experience shows that any ontology that does not account for sense perception and thought is woefully insufficient. Ontology and cosmology are essential for Whitehead, as they were generally for classical and medieval philosophy. Understanding human perception and knowledge is among the most crucial things to do in any genuine philosophical endeavor. They are the inescapable aspects of reality that are real and not conjurations of the mind. James brings back the old tendency to think holistically about conscious experience and the cosmos.

What Whitehead insists on as the way to approach a holistic account of the world is quite different from the contemporary idea that one must begin from epistemology and only raise issues about the reality of worlds after we have shown how such questions can be answered epistemologically. Such an order, as discussed, constitutes the weak bifurcation of methodological approaches to the study of reality built on the false assumption that it can secure a more reliable foundation for philosophy. Philosophy does not have to prioritize epistemology to construct a sound theory of perception. A complete cosmology must entail a complete epistemology.

The solution to bifurcationism must necessarily consist of two parts: a revisionary aspect consisting of a newer kind of metaphysics of experience, and a prescriptive methodological aspect of an onto-epistemological framework. The newer metaphysics must clarify theories of perception by

examining the modes by which information is abstracted in experience. It must account for the differences in impressions of the senses so that the vague and the vivid aspects of perceptual information are not considered independently. This revisionary aspect of the solution would require philosophy to reconstruct the generalities that underlie all forms of experience, while the second prescriptive part is a reciprocal function between science and philosophy. Science provides specific epistemic explanations, while philosophy measures its alignment with the elements of experience. Consequently, the relationship between science and metaphysics is one of reciprocal interdependence, not exclusivity. In OT, Whitehead insists:

Science only renders the metaphysical need more urgent. In itself, it contributes little directly to the solution of the metaphysical problem. But it does contribute something, namely, the exposition of the fact that our experience of sensible apparent things is capable of being analysed into a scientific theory, a theory not indeed complete, but giving every promise of indefinite expansion (Whitehead 1917,153).

Metaphysics embraces the apparatus of commonsense thought and analyzes abstractions, while science harmonizes them into its theorizing. The purpose of the method of extensive abstraction, for science, provides synchronization of experience with doctrines and physical laws, while metaphysics launches a speculative analysis of the foundational ideologies of these established theories. For example, Whitehead's solution against the error of the doctrine of simply located matter in scientific materialism comes in the form of his reinterpretation of the empirical basis of Einstein's relativity theory. The scientific theory is formulated in PNK as demonstrating such a possibility using the method of extensive abstraction to logically abstract Minkowski's space-time geometry from our everyday experience of spatiotemporal events.²⁹ By this, the abstractions considered in the relativity theory of space-time are grounded in the texture of experience. Both science and experience proceed from the same sets of abstractions, so philosophy's task is to guard against a deviation from such modes and an over-emphasis on the abstracted entities. As Whitehead's relativity theory is derived from the simplicity of common experience to the specific abstractions of spatial and temporal values, so is the speculative philosophy of organism, a description of the generalities of experience to the specificities of an organism. It constitutes an elaboration of the organic structure of entities as exemplifying the general regulative principles of the extended actual world.

²⁹ In PNK and CN, Whitehead reinterprets Minkowski's spacetime by abstracting it from our everyday spatiotemporal perceptions. His position was that the metric of physical space cannot be determined by physics. This is because the interpretation of space-time already comes with our recognition of congruence. He also argues that the Einstein theory results in the bifurcation of space-time into the space-time of the general theory of Relativity, and the apparently uniform space-time of our common sense-experience. Cf. The explanation of Whitehead's theory in Ronald Desmet, "The Minkowskian Background of Whitehead's Theory of Gravitation," in Vesselin Petkow (ed.), *Space, Time, and Spacetime: Physical and Philosophical Implications of Minkowski's Unification of Space and Time* (Chicago: University of Chicago Press, 2010), 3-24.

The route that Whitehead suggests is no easy road because the model of expressing thought in a substance-attribute form is the “most natural ideas of the human mind” (Whitehead 1925,45). The natural inclination supported by the structure of our linguistic expression is responsible for unquestioning our modes of abstraction. We accord a certain concreteness to our abstractions because those abstractions themselves are the only ways we know the world. Whitehead does not imply a sort of representationalism, he is a realist who believes that we perceive things as they are. However, because “thought places before itself bare objectives”(Whitehead 1917, 12) that are only intelligible to our human mind when abstracted from the complex of relations, abstractions are our only entry into the knowledge of the world. It should not be mistaken that an abstract implies an unreal entity. On the contrary, Whitehead declares that “To be an abstraction does not mean that an entity is nothing. It merely means that its existence is only a factor of a more concrete element of nature” (Whitehead 1920,171). Therefore, when Whitehead says space and time are abstractions, he does not mean that they do not express for us real facts about nature. What is intended is that “there are no spatial facts or temporal facts apart from physical nature, namely that space and time are merely ways of expressing certain truths about the relations between events” (ibid,168).

Assuming, on the one hand, that abstractions are epistemological presuppositions because they are the demonstrative gestures of the relations of the actual world and the observing mind, and on the other, the reality of that world is constituted by a plurality of experiences, then experience has both an epistemological and an ontological dimension. Experience, according to Whitehead, must be posited as the fundamental onto-epistemic claim from which we can proceed in cosmology. Whitehead spells out the necessity when he argues that:

The contrary doctrine, that there is a 'togetherness' not derivative from experiential togetherness, leads to the disjunction of the components of subjective experience from the community of the external world. This disjunction creates the insurmountable difficulty for epistemology. For intuitive judgment is concerned with togetherness in experience, and there is no bridge between togetherness in experience, and togetherness of the non-experiential sort(Whitehead 1929, 190).

According to philosophers who share an affinity with Whitehead’s process thought, such as Stengers and Latour³⁰, this onto-epistemological gap constitutes a true bifurcation. For Latour, the separatist move is comparable to the destruction of a structural frame of reference based on fundamental elements or ultimate blocks of reality.³¹ This predisposition to consider the

³⁰ Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2005)

³¹ Bruno Latour, "Foreword," in Isabelle Stengers (ed.), *Thinking with Whitehead: A Free and Wild Creation of Concepts* (Cambridge, Massachusetts: Harvard University Press, 2011), xii.

epistemological activity distinct from ontology circles back to the presumption that something is underneath our experience. Whitehead's reference to this is summed in his infamous quote from his Harvard lectures as "nothing behind the veil of becoming"³². The metaphorical "veil" is the consequence of looking behind the attributes for the substance. According to Whitehead, there is nothing but the process of becoming real in varying degrees of togetherness. The qualities of degrees of abstraction do not equate to hierarchies of epistemic truths. Therefore, the consideration of physics, for example, as inherently more valuable in its knowledge production than the elaboration of the metaphysician or the religious man, or the expression in the painting of the artist conveying a certain profoundness of thought, implies a false hierarchy of knowledge. In Whitehead's way, the assumption that there can be what is known distinguished from how, and when we know is to bifurcate existence into knowing beings and static barren nature. Accordingly, "there is no holding nature still and looking at it"(Whitehead 1920, 65) because aspects of nature include our active attachment to the ongoing process, which is our experience. The poet is no less knowledgeable of nature than the physicists despite the latter's concentration on specific types of complex abstractions.

1.5 The Acceptance Stage, where to go from here?

A recurrent idea in Whitehead's works is the complex relatedness of the actual world on all fronts: metaphysically, religiously, in education, politics, and science, among others. In one of his works, *Adventures of Ideas*, published after SMW, Whitehead sought to establish human civilization as an emergent feature of the union of all facets, each holding very profound cosmological significance. In the pursuit of the solidarity of the cosmos, Whitehead regards his work in philosophy as one of the many novel ideas that lure our minds toward a turnaround. The shift from the ideas to which our minds have been accustomed is a genuine difficulty because they have, in honesty, served our current dispensation and we grieve our loss. Philosophy suffers the pain of this loss and may be partly responsible for the unwillingness to change. Whitehead appears to demonstrate the stages of this 'grieving' process in SMW as discussed. It begins with a denial of the problem of bifurcation. The ancient Greeks denied the implications of their conceptual narrowing of the terms that described nature. This denial continues into the obstinateness of the scientific materialists to admit the inadequacy of their account in representing the reality of experience. To the practical men, they were firm in their resolve because their positions were justified as long as they offered pragmatic value. This 'denial' stage is followed by the introduction of Einstein's theories of relativity which made the

³²Alfred North Whitehead, *The Harvard Lectures of Alfred North Whitehead, 1924–1925: Philosophical Presuppositions of Science*, edited by Paul A. Bogaard and Jason Bell (Edinburgh: Edinburgh University Press, 2017).

bifurcation problem too huge to ignore. These interpretations led modern science into an intellectual bargain, still holding on to its mechanistic separations—a bargain between the conciseness of scientific theories and the unpredictability of quantum theories. The subsequent stage in the point of the ‘grieving’ stage is the unwillingness to let go of the many progressive ideas that scientific materialism introduced despite its limitations. The final point is where Whitehead places philosophy now, the ‘acceptance’ stage of yielding and asking what do we do next?

The answer may lie in looking to the world because it is experiencing alongside philosophy. It tells science and philosophy where they have gone wrong by being obstinate in conforming to theories that bifurcate reality. Whitehead says in PR that “in the temporal world, it is the empirical fact that *process* entails loss: the past is present under an abstraction. But there is no reason, of any ultimate metaphysical generality, why this should be the *whole* story” (Whitehead1929,340, emphasis mine). If indeed every process entails a loss, and the past is always present under abstraction then this loss experienced by philosophy and science is no true loss. We evaluate theories because they are in our present abstracted experiences as evidence of our past. We do not need to tear down all our progress to build back up as those errors are useful in the present, and we need to determine a way to shape our current understanding by drawing from past errors because they have become ‘immortal’.

The union of the ontological and the epistemological is not an ontological construct such that nature itself must achieve a certain symbiosis. It is instead a reevaluation of the thinking technique to inculcate the already existing union in our reflections. The fundamental claim for Whitehead is that we do not experience the world but are the experience of the world itself. Therefore, the fundamental constituents of nature are simply experiences, the non-reductive interactions between entities. It is important to note that Whitehead does not claim that entities precede experience. Instead, experience indicates entities such that to be an entity simply denotes a birth from previous experiences and a directionality into future experiences. Entities are abstractions from ongoing processes revealing their interdependency on other experiential occasions.

I, here, adopt Whitehead’s style of approaching novel ideas which is to identify conceptually proximate elucidations, taking what is necessary and discarding what contradicts our project. I chose to use one of the prominent post-modernist feminist philosophers, Karen Barad, who promotes a reinvestigation of the metaphysical outline of our explanations. Barad argues in her Theory of agential realism in *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*³³ that,

³³Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007).

We do not obtain knowledge by standing outside of the world; we know because “we” are part of the world. (“Posthumanist Performativity: Toward an Understanding of How Matter ...”) [...] The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter, and discourse (Barad 2007, 185).

As suggested, Whitehead’s solution lies in an onto-epistemology as a relational ontology in which epistemological truths are given through ontological relationships. This is identical to Barad’s fusion of relationality and differentiation as primary dynamics of the material-semiotic, ontology, and epistemology. Nonetheless, one must exercise caution in the fusing of epistemology and ontology. Although relational ontology seeks to decentralize human-centered cosmology, it must not eliminate the human agent’s peculiarities. It is easy to reinterpret Whitehead’s onto-epistemological method by conferring complex intellectual capacities on non-human entities under the guise of ubiquitous perception. This is evident in Barad’s relational ontology, which is defined as a fluid, non-binary state that implodes the natural and the artificial, nature and culture, subject and object, machine and organic body, narrative, and reality, etc.

Following Barad, the ontological inseparability of phenomena is described as follows:

I take the primary ontological unit to be phenomena, rather than independent objects with inherent boundaries and properties. In my agential realist elaboration, phenomena do not merely mark the epistemological inseparability of ‘observer’ and ‘observed;’ rather, phenomena are the ontological inseparability of intra-acting ‘agencies.’ That is, phenomena are ontological entanglements... Phenomena are the basis for a new ontology. Phenomena are what are observed in laboratories, but they are more than that: they are the basic units of existence (Barad 2007, 333).

There are two key problems associated with the dissolutive stance Barad takes. First, there is the epistemic problem of the need to reinsert the human agent to make any sense of the ‘phenomenon’, which is here described as both ontological and epistemic. This implies that Barad’s aim to completely detach humanism from objectivity fails. By reintroducing the human agent as an interpreter of the contents of phenomena, epistemology becomes superior to ontology. Second, Barad’s posthumanism claims an ontological objectivity that cannot be thoroughly demarcated. Drawing heavily from Bohr’s reformulation of objectivity, Barad agrees that objectivity does not require an absolute separation of the subject and the object. Bohr’s disambiguation theory emphasizes the context of knowledge production as the basis of objectivity. According to Calvert-Minor in *Epistemological Misgivings of Karen Barad’s ‘Posthumanism,’* this characterization reflects a human-centered approach while Barad aims to achieve the contrary to “make(s) matter important again.”³⁴ For Barad, “disambiguation

³⁴ Chris Calvert-Minor, "Epistemological Misgivings of Karen Barad’s ‘Posthumanism’," *Human Studies* 37 (June 2013): 13, doi:10.1007/s10746-013-9285-x

becomes embodied within material configurations” (Barad 2007,19), and matter becomes the key determinant of objective reality by creating ‘agential cuts’ within a phenomenon.

In short, for Barad, since there is no inherent distinction between object and apparatus, the property(objectivity) in question cannot be meaningfully attributed to either the abstracted object or an abstracted measuring instrument (as Bohr suggested). The alternative solution, following Barad, is to attribute the property to phenomena that she believes are physical-conceptual ‘intra-actions’. Therefore, any unambiguous account requires a “description of all the relevant features of the experimental arrangement” (ibid). The controversy with this assertion is that in Barad’s attempt to circumvent human subjectivity, she offers too little precision about objectivity. Because Barad insists that this objectivity is given only by matter, there are no boundaries of inclusion or exclusion to determine which matter or classes of matter define the intra-acting agencies. One could probably include all of the matter in the universe. Barad, in an attempt to rectify the impassable bridge of social epistemologists of the postmodern era, may also have fashioned another bifurcation by advocating for epistemic saliency of matter³⁵.

Contrary to Barad’s explanations, Whitehead does not claim that reality is a disorganized mix of things, nor does he consider actual entities as non-binary. He seeks to explain the emergence of these dualist ideas from the initial unity of subjective experiential life. It is in this that the onto-epistemological status of Whitehead’s schema differs from Barad’s. Instead of ‘phenomena’ at the heart of Barad’s onto-epistemology which withholds ontological and epistemological priorities from any agent acting within its [phenomenon] confines, Whitehead’s onto-epistemology presents the union of both aspects. His solution is not one of either of the two but both. Whitehead proposes to take the inseparability thesis steps further, showing that phenomena (much like actual entities) do not have to exclude the human agent. In other words, the defect in Barad’s onto-epistemological module creates a loophole for the reintroduction of a form of humanism for the sake of rationality and objectivity, while Whitehead’s system never excluded the human anyway.

Additionally, from Whitehead’s perspective, objectivity is not definable in terms of the absence of a human agent (Barad) or the production of knowledge (Bohr) because every event is from the subjective perspective of a particular actual entity or group of entities (human or non-human). Therefore, objective values must not be ascribed by elimination but by inclusion. Barad rightly identifies objectivity as relational such that the phenomenon which defines the property is an interaction of the material and the cultural. However, it barely holds when considered as ontological objectivity. Other forms of defining objectivity can achieve both of Barad’s aims of inclusion of matter

³⁵ See further, *ibid*,128.

and operation within epistemic practices yet do not result in the mechanistic theory of Barad. Whitehead defines objectivity as issued from all forms of entities, human and non-human constituting the past of any actual occasion. This criterion, in principle, offers a prior basis for setting the boundaries that determine the meaningful configurations of the world. In this way, the understanding of the objective criterion as a quality of any epistemological endeavor can be expressed as a relation of the subject to the world.³⁶

Chapter four of this thesis offers the details of Barad and Whitehead's realist positions. However, they serve a particular purpose here: to show what Whitehead *does not mean* when he sets out to unify ontology and epistemology. This way, we know the pitfalls to avoid in our onto-epistemic practice. Whitehead represents a way to evade re-establishing the dichotomy of nature and/or society that Barad set out to eliminate. In lieu of nullifying the human entity, philosophers must ensure the human and non-human together emerge from cosmogenesis. However, to do this, science must be careful of the tendency to be overly objectivist while philosophy guards against over subjectivism.

We can conceive of a non-bifurcated nature by making objectivity both an ontological and epistemological criterion. The latter prescribes objectivity as a 'gesture' of the mind. This gesture is one of recognition that what is presently witnessed is because of an influencing past. We know objectivity from experience because we are aware that what is immediately present comes from an efficacious past. The awareness of such an immediate past is a relational non-perceptual interaction between the present entity and the collective from which it is born. Ontologically, objectivity is an internal relation in which the contents of the past are present in the immediate entity. The internal constitution of an entity is derived from its consumption of past data. In simple terms, an entity has objectivity because it recognizes itself as the culmination of the act of conspiracy of the past world to produce it, and it experiences the inclusion of those past contents as its causal conditions.

From Barad's phenomena, two key principles must guide the move against the weak bifurcation between epistemology and ontology.

1. The first principle is not to exclude certain experiences from the account of the world, i.e., eliminating human agents. There is a uniqueness about humans that does not have to be sacrificed to achieve holism and homogeneity.
2. The second principle is to determine how the demarcations of abstractions are made. Without such a principle, no logical relations are possible.

³⁶ As cited in Karen Barad, "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs* 28, no. 3 (2003).

These two principles underlie the theory of relations according to the metaphysics of prehension, which I will discuss in the ensuing chapter two of my research.

Summary

This chapter attempted to answer three important questions of *what*, *who*, and *where*. The first questions are: *What* subject led Whitehead into the philosophical sphere? Again, *what* are the details of his discussions? I presented Whitehead's philosophical debut as characterized by his accusation of modern science and philosophy of the error of bifurcation. I described that according to the details he offers, the bifurcation problem is the account of nature that separates the experiential 'inner' from the scientifically explained 'outer' world. I identified that the problem of the bifurcation of nature comes in two forms. I considered one as a 'strong' bifurcation because it produces scientific theories based on this separation of realms of existence. The other I termed 'weak' bifurcation because it is the more subtle division done by philosophy to distinguish between seemingly permanent qualities (primary qualities) and those that appear easily altered (secondary qualities).

The second question is, *who* are the culprits of this error of bifurcation of nature? Whitehead states that there are two ways this history can be read, either forward or backward, and for the history of thought, both methods are required.³⁷ I presented the Greek term *physis* as devolving from its implication of 'process' to the restrictive meaning of 'substratum' through the works of Plato and Aristotle. I further explained how this conception carried on through medieval times to the modern era as the doctrine of scientific matter. I concluded that the doctrine of matter became the scientific evidence of the substance-attributive description borrowed from the Greeks, while primary and secondary qualities and the privileging of epistemology over ontology stayed with modern philosophy. The forward historical account is where Whitehead brings us to contemplate the journey of our ideas and how they were shaped by all kinds of men, genius and senseless alike. The study of history reveals this fact that civilizations "are driven by their thoughts as well as by the molecules in their bodies, by intelligence and by senseless forces" (Whitehead 1933,46). Therefore, we must accept what has so far been given and forge ahead.

This brings us to the third question the chapter attempted to answer, which is: *Where* do we philosophers, scientists, and ordinary men alike go next from this point? Whitehead appears to propose an interrelated path which is an initial construction of a new kind of metaphysics and a subsequent provision of an onto-epistemic frame of conceptual reference. The former is to abandon the theory of

³⁷Whitehead 1925, 3.

substances for a theory of experiences, and the latter is to reconsider a homogeneity among entities while recognizing the plurality of relations.

Chapter 2

WHY METAPHYSICS?

No science can be more secure than the unconscious metaphysics which tacitly it presupposes. (Whitehead 1925, 197).

In the previous chapter, I explained that Whitehead introduces himself to philosophy through his critique of the bifurcation of nature. I showed how he traces the influence of this problem from the Ancients to the contemporary theories of physics and philosophy. This chapter seeks to evaluate why Whitehead chooses metaphysics as the appropriate tool to solve the problem of the bifurcation of nature. It centers on a rediscovery of metaphysics in the particular sense that Whitehead found suitable for his philosophical schema. The chapter consists of four parts. The first §2.1 describes the influences on Whitehead's philosophy from the metaphysical climate of the century to the individual minds he encountered. I intended to show the connections between Whitehead's critique of scientific materialism and the focus of philosophical discourse between the late nineteenth and twentieth centuries. The second §2.2 discusses the historical distaste for metaphysics that grew from the end of the nineteenth through to the twentieth century. I discuss the positions of Russell, Wittgenstein, and Carnap on the utility of metaphysics for the enterprise of knowledge and the errors of metaphysical statements. Thirdly, §2.3 discusses Whitehead's analytical status in response to the early analytic school, which opposed metaphysics. I will discuss how the understanding of Whitehead as an early analytic philosopher and not as being against it could be a beneficial insight into his thought patterns and methodology. In §2.4, I examine the function of metaphysics and/or philosophy. I analyze how the functions prescribed for metaphysics lend themselves to the peculiar method of speculative philosophy. I also discuss the restraints of language in this endeavor. I additionally offer a comparative analysis of the implications between Strawson's distinction of descriptive and revisionary metaphysics and Whitehead's speculative method. I will show how Strawson's style participates in the error of bifurcation.

2.1 What Motivations for Metaphysics? The Philosophical and the Personal for Whitehead

The matter of the suitability of metaphysics makes its 'quasi-sudden' appearance in PR. I describe its introduction as quasi-sudden because Whitehead only hints in previous works at the need

for a holistic metaphysical study of questions about nature but does not engage in any prescriptive venture.³⁸

In general, Whitehead's works cover a wide range of subjects, yet, they can be classified under three major themes: Logic, Epistemology, and Metaphysics. The first works concern primarily the logico-mathematical connections in experience. This quest culminated in his work with Bertrand Russell, the *Principia Mathematica*, which was seminal, especially for its deviation from Aristotelian logic. The period following this saw Whitehead's pursuits in epistemology, where his need for a unification with common sense further developed. Whitehead's epistemology engages in a classification of events and objects with an application of his method of extensive abstraction to overcome the separatism of science and commonsense. Through the elaboration of his epistemological tendencies through a historical and conceptual tracing of modern science, he arrives at the brink of metaphysics. Whitehead is faced with daunting ontological problems that compel the elaboration of a metaphysical scheme to support his holism of coherent, logical rules. Why did Whitehead choose metaphysics instead of epistemology or the philosophy of science, or any other area of knowledge? Given his awareness of the weakness of prior metaphysical attempts and their tendency to drift too far from the facts of common sense, why was he insistent on its revitalization?

The discussions from the earlier chapter terminated at the point of Whitehead's distribution of tasks for both science and philosophy. He insisted that it was time for philosophy to embrace a new mode of thought that will break it from the cycle of bifurcations. It is important to take note of the philosophical climate at the time of Whitehead's writing. This will reveal an understanding of the critiques, terms, and fundamental questions that characterize his philosophy.

The dominant philosophical movement around the time of Whitehead was British idealism highly influenced by the German idealists of the previous century. The movement supported the ideas of philosophers like Thomas Hill Green and Francis Herbert Bradley who proposed a version of absolute idealism. With roots in the philosophies of Spinoza, Kant, and Hegel, these men were often described as English Hegelians or sometimes neo-Kantians, Bradleyans, or 'Green parrots' after Thomas Green. Their type of idealism asserted that reality consisted of a single unified consciousness or cosmic experience.

³⁸ In the Preface to the second edition of the PNK (dated August 1924), Whitehead was already stating that he hoped 'in the immediate future' to embody the standpoint of his epistemological inquiries 'in a more complete metaphysical study'. Again, in CN he talks of the need for a metaphysics "whose scope transcends the limitation to nature. The object of such a metaphysical science is not to explain knowledge but exhibit in its utmost completeness our concept of reality" (cf. Whitehead 1920, 32).

The idealist position, held principally by Bradley, argued that the appearances of the world as discrete entities represent a single indivisible whole whose nature is purely mental, or spiritual.³⁹ Their position suggested that ordinary experience was an illusion displaying the world in fragmented bits. These fragments were, only for the purposes of our experiencing, discrete but existed only because of their relations with other things, in reality, to *all* things.

2.1.1 Influences from Bradley's Idealism

The problem of the century that interested the British idealists was the nature-spirit problem. On this, Bradley offers his metaphysics as an emergent, more specific philosophical discussion of the nature of 'feeling' intended as a synonym for 'sensation'. James Bradley, in his paper *The Critique of Pure Feeling: Bradley, Whitehead, and the Anglo-Saxon Metaphysical Tradition* estimates that the positions of others like J.S Mill about the nature of feeling facilitated the move of British philosophy in the direction of some original unity between the questions of the 'feeling nature' and 'spirit'. Bradleyan idealism took up this originality of the question, and by merging the 'feeling' of Hegel and Mill, he transformed the query from a psychological to a metaphysical category intended for the unity of nature and spirit. However, Bradley's 'feelings' were non-discrete or non-relational in nature, thereby sustaining an idealist view of no immediate apprehension or direct knowledge of particulars. The objective world is but a product of our ideas.⁴⁰

When one considers this terminology of 'feeling', the connection between Whitehead's philosophy and his British idealist predecessors is obvious. It is clear that the problem of the bifurcation of nature is identical to the problem of the nature-spirit dichotomy. Furthermore, his elaborate thesis on the notion of feeling in the philosophy of organism comprises terms and metaphors associated with the idealism of his time. The one thing that may have played to Whitehead's advantage was his bid to unite science and metaphysics, therefore, contemporary scientific developments during his time were incorporated into his description of 'nature' in terms of the mutual immanence of both its mental and physical aspects.

Not only does his critique of the bifurcation of nature come from the idealist movement, but his definition of experience as a process reveals a non-substantivist rendering of Bradley's 'substance feeling'. Whitehead thinks Bradley's position is erroneous because it "accepts the language which is developed from another point of view" (Whitehead 1929, 167). For him, Bradley remains entangled in

⁴⁰F.H. Bradley, *Appearance and Reality*, 2nd ed. with appendix (Oxford: Oxford University Press, 1897).

the problematic status of Locke's substance by making the whole of experience itself the substrate. This was a problem of Locke as well, inherited from his Newtonian view of the world. Bradley engages in the bifurcation of nature through the substance-quality dichotomy because feeling, as described in his works, had become a substance whose qualities we know. Whitehead set out to remove this dichotomy yet keep the salient aspects of Bradley's idealism. For example, he holds on to the aspects of Bradley's thesis on the functional role of feeling in objectification. In Whitehead's cosmology, the quality of 'feeling' is transformed and pushed beyond any cognitive descriptions that Bradley must have originally intended. Whitehead shifts from the substantivist definition to a functional concept of feeling when he develops his metaphysics. This kind of functional feeling will be assessed in chapters five and six of this research thesis concerning consciousness.

Another of the major points of culmination between Whitehead's philosophy and Bradley's is also found in the question of the reality of relations. The real question underlying the problem of relations is how the things of the universe can have any connection with one another without denying that they exist in their own right. Bradley (1897) develops a theory of relations after examining the distinction between primary and secondary qualities and between substantive and adjective.⁴¹ He establishes that these approaches to describing reality are incapable of rendering an understanding of reality because no real unity can exist outside of qualities or within them. Therefore, the classification of things into properties is theoretically unintelligible. Based on this premise, Bradley embarks on a discussion of relations and qualities. We can deduce four condensed arguments that are sufficient to summarize Bradley's theory of relations.

Initially, Bradley (1897) argues that qualities are nothing without relations. For qualities are different from one another, so "Their plurality depends on relation, and, without that relation, they are not distinct" (Bradley 1897, 18). Qualities are not conceivable as possessing a character distinct from other qualities. Therefore, their difference in itself implies a relation. Second, qualities taken with their relations are equally unintelligible because qualities cannot be reduced to their relations. The qualities must support their relation; in this sense, they make the relation. There is a difference in each quality by this claim because, as he says, "Each has a double character, as both supporting and as being made by the relation" (ibid, 26). I shall now explain this a little further. A quality termed Q has a ground q and a consequent q_1 of the relation. The ground q represents the difference upon which the distinction between the quality and the ground is based, while the consequent q_1 is the distinctiveness that results from their connection. The two aspects are different from each other, yet each of them taken by itself is not Q . We might ask here how q and q_1 are related. A response might lead to the postulation of

⁴¹ See further, Bradley 1897, Chapter II.

further diversities of q with the grounds qq and probably a consequence of q_1q_1 . This postulation of further grounds and consequents may continue *ad infinitum*. Bradley terms this a dissipation into “the principle of fission which conducts us to no end” (Bradley 1897,26). A third argument from Bradley is that a relation cannot exist without qualities. There must be related things to make the relation, and these must be the qualities. Therefore, there are no relations without qualities. Finally, when considering how relations stand with their qualities, it is clear that new connecting relations must be introduced to relate qualities to their original relation. For example, quality A and quality B are connected by a relation C . However, a fourth relation, D , must be introduced to relate the quality A to C . and so on *ad infinitum*. We are faced with an identical non-ending postulation of further relations. The main positions in the four claims on relations sum up to the following ideas:

The first and the third points are claims about the contradictions of external relations, while the second and fourth hold that internal relations are equally contradictory. For Bradley, because of these contradictions, neither type of relation can be said to characterize ultimate reality.⁴² His position is that “To take reality as a relational scheme, no matter whether the relations are 'external' or 'internal', seems therefore impossible and perhaps even ridiculous. It would cease to be so only if the immediacy of feeling could be shown to be merely relational” (Bradley 1914, 190).

There is an additional characteristic of Bradley's doctrine regarding internal relations that needs elaboration. It is between the micro-level relations and the supra-relational level, the ‘Absolute’. In this ‘Absolute’, Bradley claims that all relations are internal. As a matter of degrees of truth and reality, internal relations more closely represent reality as One rather than many. Thus, they are to be considered more authentic. Bradley distinguishes himself from the pluralist thesis of independent individuals and prioritizes mutual dependence. Accordingly, he implies that relations do exist and, in some sense, exist as qualifying the Absolute, but in a distorted way. However, the internal relations are less distorting than the external ones.

William James and Russell, among others, criticized Bradley’s position. First, according to James, Bradley fails to realize that we must commence our elucidations with the parts instead of the whole. As such, he postulates individual drops of experience which are interpenetrating as constituting the web of reality.⁴³ Subsequently, conjunctive relations are provided by the continuity of these penetrating moments. Conjunctive relations are those relations that are perceived as continuous with the stream of experience. The description James(2008) uses is ‘drops’ interpenetrating others of the

⁴² F.H. Bradley, *Essays on Truth and Reality* (Oxford: Oxford University Press, 1914).

⁴³ William James, *A Pluralistic Universe*, edited and introduced by H.G. Callaway (Newcastle upon Tyne: Cambridge Scholars Publishing, 2008).

same stream to form a continuum. A conjunctive relation is the sense of continuous flow we experience as the past enters the present, representing the internal relation among the parts.

Additionally, James(2008) employs disjunctive relations to express the external relations between the parts of reality. A disjunctive relation describes the experience of separation or mere *withness*, such as the disunion felt in the breaks between an experience lived and another only conceived. For James, relations are experienced as a continuity, though the intellect may stand in the way of our intuitive grasp of such reality. According to James, the intellect works with a type of patchwork or postmortem dissection because it cannot keep up the pace of the immediacy of the present. He intended to supply a mediation between the extremes of absolute independence and absolute mutual dependence.

James advances this position by asking: “May not the flux of sensible experience itself contain a rationality that has been overlooked, so that the real remedy would consist in harking back to it more intelligently, and not in advancing in the opposite direction away from it ...?” (James 2008,73). By this mediation, James provides a synthesis of rationalism and empiricism. For James, the world is a mix, with some parts of reality as conjunctive relations and others as disjunctive. However, these disjunctive parts may be joined together by intermediaries that are themselves conjoined. In place of absolute unity or absolute disunity, James contends that the world is a concatenated unity so long as some path of conjunction is available between disjointed parts. According to this account, both disjunctive and conjunctive relations are just as real as the terms that they relate.⁴⁴

Nonetheless, Bradley(1935) rejected James's account of conjunctive and disjunctive relations because he claimed that such distinctions are merely abstract constructions that do not reflect what is given to immediate experience.⁴⁵ For Bradley, in our awareness of temporal and spatial diversity, we do not have the experience of a relational form but rather a fluid whole. Therefore, relations are distinguished rather at the conceptual and not at the experiential level. On this point, James, in turn, accuses Bradley of mistaking the relation of conceptual for perceptual form instead of explaining how they play complementary roles. The relation for James must be a part of the immediate feeling so that continuity is a definite sort of experience. This certainty is explained in *Some Problems of Philosophy*⁴⁶ when he says, “the feeling of thunder is also the feeling of the silence as just gone....” (James 1911, 92-93).

⁴⁴ William James, *Essays in Radical Empiricism* (New York: Longmans, Green and Co., 1912).

⁴⁵ Cf. F.H. Bradley, *Collected Essays, Volume II* (Oxford: Oxford University Press, 1935), 654-55. *Essays on Truth and Reality*.

⁴⁶William James, *Some Problems of Philosophy* (New York: Longmans, Green and Company, 1911).

2.1.2 From James' Psychology to Speculative Metaphysics

The difficulty of the problem of relations and the failure of many to oppose it successfully was because most of the philosophers, including Bradley, understood relation as an external 'go-between'. This means they did not consider the relations as part of the related things but as an abstract union taken from the actual concrete relatedness of time. This error was realized by James early; therefore, he sought to include relations within the subjective experience. James and Whitehead approach the problem of relations from this context of immediate experience.

The influence of James on Whitehead is no secret. In almost all his works, Whitehead refers explicitly to him as a remarkable influence in shaping his perspectives. In the previous chapter, I showed how Whitehead speaks of the great treatise of James', *Principles of Psychology*, as the beacon of hope for a new philosophical approach in which rationality married with rigid empiricism. Of the many influences of James' ideas on Whitehead, the concept of the actual occasion could pass as one of the greatest in Whitehead's metaphysics.

James' psychological groundwork was the basis for the metaphysical principles Whitehead elaborates in PR. Furthermore, the basic concept of 'prehension', which describes the actual occasion's grasp of its immediate past, bears a remarkable affinity to the Jamesian concept of conjunctive and disjunctive relations and his notion that reality exists in growing transitions. Bradley, James, and Whitehead agree on the central place of 'immediate experience' or 'feeling' in their metaphysical systems. Bradley's "finite centers of experience," James's "drops of experience," and Whitehead's "actual occasions" all refer to the same concrete facts of immediate feeling.

Both James and Whitehead seem to be working towards Bradley's condition that the difficulty of exhibiting the reality of relations "... would cease to be so only if the immediacy of feeling could be shown to be merely relational" (Bradley 1914,190). In a paper entitled *William James and Whitehead's Doctrine of Prehensions*, Victor Lowe speaks of this Jamesian view of the connection of experience.⁴⁷ Lowe(1941)reinterprets James' explanation that the parts of experience are held together from next to next by relations that are themselves parts of experience and components contributing to those drops of experience. In the spirit of this elucidation, Whitehead proposes the actual occasion whose defining characteristic is its prehension of past actualities. By the relation of prehension, Whitehead avoids any notion of a relational unit that comes in-between independent actual occasions. There is nothing between actual occasions but other actual occasions. In *Whitehead and Bradley: A comparative Analysis*, Leemon McHenry explains that relations "between" are nothing

⁴⁷ See further Victor Lowe, "William James and Whitehead's doctrine of prehensions," *Journal of Philosophy* 38, no. 5 (1941): 113-126.

more than derivative abstractions from concrete processes. They are parts of the internal mechanism of the process.⁴⁸ McHenry (1992) cites the following example. Logically speaking, the relation aRb is read as "the relation of a to b" not "a in relation to R in relation to b" (McHenry 1992,84). The occasion of experience a is not simply related to another b by 'airy' strands.⁴⁹ It is, rather, immanent in that occasion if that occasion occurred in its past. Whitehead implied this when he explained that his actual occasion is an inversion of Bradley's doctrine of actuality. Each occasion represents elements of the whole, whereas, for Bradley, the Absolute contains everything, and one single experience represents only a part of that whole.

2.1.3 Influence from Ward and McTaggart

Aside from the influence of Bradley and James that imprinted on his metaphysics, Whitehead worked in close quarters with other idealists of Trinity College, Cambridge. Two of them are worthy of note. The first is James Ward, and the second is John M. E. McTaggart. Ward was the next 'James' after William James, who substantially influenced Whitehead's metaphysical position. One could say Whitehead inherited the method of speculative philosophy from William James, but its applications to particular instances bear the influences of Ward. The structure of metaphysics that Whitehead develops in PR draws on three fundamental ideas of Ward's philosophy of nature.

Firstly, the critique of 'simple location' or 'vacuous matter' is identical to Ward's criticism of 'lifeless matter'.⁵⁰ Ward (1899) argued that the concept of lifeless matter in science is incapable of explaining the contingency and novelty of reality obvious in experience. Ward puts it straightforwardly: "The dualism of Matter and Mind: 'Science' decides to treat the former as fundamental, the latter as episodic" (Ward 1899, Lecture 1). He argues that the view of inert material particles subject to strict deterministic laws does not provide an adequate ontology for biology, because it [inert matter] is explanatorily vacuous on the emergence of life from lifeless matter. Ward's system, beginning from the refutation of naturalism and dualism, aimed at establishing a panpsychist metaphysics grounded in the theory of evolution. Ward also contends, as Whitehead does, against scientific materialism, accusing it of mistaking the abstract for the concrete. Ward claimed that the scientist must first investigate the notions derived from his empirical basis to avoid error. In his words, the error occurs when he (the scientist) "confounds his descriptive apparatus with the actual

⁴⁸ Leemon B. McHenry, *Whitehead and Bradley: A Comparative Analysis* (State University of New York Press, 1992).

⁴⁹ The term 'airy' threads is used in Bradley (1922) 'They neither hang by these airy threads from the past, nor perish internally in a vanishing network of never-ending relations between illusory units. The real, as it comes to us in sense, has nothing of all this'. F. H. Bradley, *Principles of Logic*, Vols. 1 and 2 (Oxford: Oxford University Press, 1922).

⁵⁰ James Ward, *Naturalism and Agnosticism* (London: Adam and Charles Black, 1899).

phenomena it is devised to describe” (Ward 1899, 81). The theory of materialism is evidence of a kind of metaphysics that comes from the scientist’s lack of understanding of his own procedure. This is what in SMW becomes Whitehead’s infamous fallacy of misplaced concreteness.

Secondly, the replacement of substantivist philosophy with the notion of feeling in process metaphysics also takes part of its traits from the Wardian modification of Leibniz’s monads.⁵¹Ward(1907) described his entities as rather “... conative, that is, are feeling and striving subjects or persons in the widest sense, not inert particles, or things”(Ward 1907,260). Another example is found in Ward’s reconception of the subject and object, replacing the notion of viewing the two terms as reflecting a logical and static relationship. A similar consideration is found in Whitehead’s ‘superject’ as the subject, which emerges from the interaction of the objective data and the subject prehending it. Given his psychological disposition, Ward also works towards understanding feeling, cognition, and conation as the various aspects of a fundamental cycle where the interaction between subject and object becomes apparent from the alternating predominance of one or the other factor. Whitehead inculcates this into the three-fold dimension of prehensions: the feeling of taking the data, the cognition of rational choice of the occasion, and the volition of the actual entity that gives up itself for future concrescences. Subjects become objects, and objects become subjects depending on the perspective of the prehensive activity.

Lastly, Whitehead’s position on God reveals the discussions that most likely animated his discursive crowd. His signatures of the ‘ultimate creativity’ and ‘dipolar’ nature of God directly respond to Ward’s criticisms. Ward opposed Leibniz’s position on God as related to the world of monads and as their guide to realizing societies of ever-increasing perfections. For Ward, God could not be both a *primus inter pares* as well as the ontological foundation of the world of monads. He must necessarily be considered completely transcendent.⁵²Whitehead’s process-based God appears to be an attempt at a rectification of this perception of necessary transcendence.

Similarly, we can talk of J.M.E McTaggart, also influenced by Ward, as another of Whitehead’s significant inspirations. McTaggart had adept knowledge of Hegelian idealism. In Lowe’s(1941) account of Whitehead, he states that during a seventieth birthday celebration, Whitehead is reported to have said his reason for not discussing Hegel was that he had read only a single page of him, but his friendships with McTaggart and Lord Haldane had effected a Hegelian

⁵¹ James Ward, *The Realm of Ends or Pluralism and Theism: The Gifford Lectures Delivered in the University of St. Andrews in the Years 1907* (Cambridge: Cambridge University Press).

⁵²See further, Pierfrancesco Basile, "James Ward," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, (2021).

influence.⁵³ A remarkable sign of McTaggart's influence on Whitehead's metaphysics is the understanding that contemporary scientific discoveries could contribute enormously to philosophical discourse.

First, McTaggart held a strong position on the importance of metaphysical inquiry based on metaphysical claims in science. He held that the assertion that empirical sciences, like physics, provide knowledge of ultimate reality is not an empirical claim but a metaphysical one about physics. Consequently, if such a claim can be evaluated, its assessment is clearly beyond the domain of physics.⁵⁴ We can identify this with Whitehead's characterization of metaphysics as the critique of abstractions of science and as the definition of the relatedness of the ultimate generalizations of all fields of knowledge.

Second, McTaggart was also known for his theory on the illusion of time. McTaggart (1921) contradicts the Bergsonian account of the reality of continuous time. He builds two notions out of what he characterizes as temporal orders of the passage of time. They are termed the *A-series* and *B-series*. The A-series characterizes a series of positions of events from the past through to the present and to the future. The B-series represents a series of positions of events running from the descriptions of 'earlier' to 'later'. He held that time is illusory because the necessary time series (A-series) is inherently contradictory, therefore, cannot support time as real. McTaggart's Paradox states that if we consider the A series, we arrive at A properties that are compatible and incompatible with each other.

McTaggart's position is hence:

Past, present, and future are incompatible determinations. Every event must be one or the other, but no event can be more than one... The characteristics, therefore, are incompatible. But every event has them all. If M is past, it has been present and future. If it is future, it will be present and past. If it is present, it has been future and will be past. Thus all the three characteristics belong to each event (McTaggart 1921, 468).

McTaggart's paradox on the continuity of time was instrumental to Whitehead's epochal theory of time in opposition to the Humean concept of seriality. Whitehead's epochal theory sought to unite the reality of Bergson's *durée* with the truth of our experience. On this, Whitehead postulates time as an abstraction from a more concrete relation of nature, thereby bypassing this paradox of unreal time of McTaggart. He represents time in 'epochs' or 'durations' instead. McTaggart acknowledges his close relationship with Whitehead and credits him for ideas instrumental to his work in the preface of his work, delivered after Whitehead's Turner lectures, published as CN.⁵⁵

⁵³ See Lowe 1941, 259.

⁵⁴ John. McTaggart, *The Nature of Existence*, Vols. 1-2 (Cambridge, UK: Cambridge University Press, 1921).

⁵⁵ See preface of McTaggart 1921.

2.1.4 Internal Influencing Factors

The above discussion focused on exploring the external factors that influenced Whitehead's venture into metaphysics. However, exploring the internal considerations also at play in his life is expedient. The internal factors here refer to the nature, structure, and trajectory of Whitehead's thought, demonstrated through his written works. Whitehead appears to have been on a certain passionate pursuit of not only some professional or academic aspiration but a personal understanding of existence. Lowe(1941) describes Whitehead's life as highlighting moments of intermittent statements of philosophical doctrines, not particularly intended to be philosophical but revelatory of how Whitehead viewed his knowledge enterprise.

Born to a family of religious educators, Whitehead appears determined to pursue his own path, especially concerning religious and philosophical beliefs.⁵⁶ He was quite fascinated with debate groups as he is also known to have joined the Aristotelian Society in 1915. The society had Russell and Moore as active members as well as C. D. Broad, an Apostle and benefactor of Ward's ideas. It was a close-knit circle of exchange, so everybody was conversant with the positions of the other. Whitehead is known to have been a frequent participant in the discussions from 1915 to 1924 and chaired many sessions on diverse topics.⁵⁷

Whitehead's proximity to deep metaphysical debates in these groups cannot be overstated in our discussion of the influencing factors of his speculative philosophy. However, what remains remarkable is how he was determined to find metaphysics on his own. It seems Whitehead embarks on his own cartesian *tabula rasa* to rid himself of the preconceived metaphysical dogmas only to re-find and redefine them in PR. This insistence on discovering truths for himself could also be interpreted as the fruit of the influence of the proceedings of the Cambridge Apostles and the Aristotelian Society. Being a member of these groups, especially the Cambridge Apostles, was no small feat, and this could easily be described as the climax of Whitehead's Cambridge education. Even Lowe(1941), in his biography, credits Whitehead's sharpness of mind and soundness of judgment in his later writings to his Apostle membership.⁵⁸

Whitehead's milieu, which I have detailed, appears identical to other philosophers, mathematicians, and logicians of his time. However, it is surprising to observe his philosophical stance

⁵⁶ Whitehead's father was an Anglican minister who headed Chatham House Academy that had been previously managed by his father before him.

⁵⁷ Although the minutes of the Aristotle Society of during that time did not survive the German bombings of London during the Second World War. Lowe(1941) writes that during the period of the meetings, Whitehead presented a total of seven papers which were republished on the hundredth anniversary of Whitehead's birth for proceedings on The Interpretation of Science.

⁵⁸ See Lowe 1941, 178.

that separates him from the rest. To what can we attribute this difference? Could this be a result of the allure of calm and temperate reactivity that is often used to describe his disposition? Whitehead is depicted as a loner, with many acquaintances but no close ones, and often described as ‘reserved.’ He believed less in controversial arguments and more in finding gems in the ideas of others instead of being outrightly dismissive. He often gave students and speakers at his discussions compliments on their work before offering his criticisms, a quality that he employs even in his philosophical writings. This measured disposition may have accounted for the fallow philosophical period where Whitehead, although surrounded by many philosophical revolutionists of his time, made extraordinarily little contribution to the philosophical discourse during that period.

A more convincing explanation for Whitehead’s uniqueness is in his overall intellectual pursuit. As a speculative physicist, logician-mathematician, or philosopher, Whitehead was interested in unifying descriptive generalizations from which scientific abstractions took root. We can trace this to his Trinity College Fellowship Dissertation in 1884 on Maxwell’s Electricity and Electromagnetism. Whitehead’s aim of understanding the nature of mathematics as the most general science of the physical world was present in his unpublished study of Maxwell’s work.⁵⁹ He pushes the idea further in a subsequent work, *On Mathematical Concepts of the Material World*, where he evaluates the empirical basis of our knowledge of space, time, and matter. This begins his expansion into philosophy as founded on the desire to show that the view of psychology and of axiomatic foundations of mathematics should be joined to the physical point of view. His attachment to Maxwell’s position is maintained in his metaphysics in *PR On strains*:

There is nothing in the real world which is merely an inert fact. Every reality is there for feeling; it promotes feeling, and it is felt. Also there is nothing which belongs merely to the privacy of feeling of one individual actuality. Fundamental equations in mathematical physics, such as Maxwell’s electromagnetic equations, are expressions of the ordering of strains throughout the physical universe (Whitehead 1929,311).

Consequently, Whitehead took issue with the physicist’s conception of the interrelations of space, time, and matter as he considered them too narrow. In his *The Anatomy of Some Scientific Ideas*, published in *The Organization of Thought* in 1917, Whitehead argues that scientific abstractions of physics, although derived from thought, are discerned from the relatedness present in the perceptual flux of experience.

However, Lowe(2019) classifies the above works as under Whitehead’s pre-speculative epistemology. He asserts that based on private conversations with Whitehead, the works of 1915,1916, and 1917 are not to be viewed as preparation for his later metaphysics. They make up, instead, the

⁵⁹See Lowe 2019, 14.

preliminaries to Volume IV of *Principia Mathematica*.⁶⁰ Lowe reiterates that Whitehead's philosophical interests grew out of initial motives to provide a logical analysis of space for the *Principia*.⁶¹

Granted that this interpretation, reportedly of Whitehead in hindsight of his writings,⁶² offers an understanding of the kinds of solutions Whitehead required, his quest to unify the relations of experience and scientific concepts is a recurring theme in all his works: extending from the epistemological to the metaphysical. In my opinion, it is just as mistaken to completely dissociate his earlier works from his metaphysics on the argument that they were solely intended as preludes to the next volume of the *Principia*. Whitehead's initial aim may have been to provide a logical basis for geometric relations in the *Principia*. However, even in the course of his writing, he commented that he recognizes that he is confronted with a much bigger problem beyond mathematics and logic that needed to be addressed if any progress was to be made.⁶³ This bigger problem was identical to the ideas he had entertained for a while. An alternative interpretation of the questions in his work between 1884 to 1917 is to consider them as embryonic forms of the larger generalities expressed in his concluding metaphysical scheme.

The interpretation of Whitehead's epistemic work as inseparable from his overarching metaphysical goal is consistent with some of his descriptions in OT, considered as an 'epistemic pre-Harvard work'. In this work, he writes about the gap between what he explains as "inferential construction" and the ordinariness of experience:

This fact is concealed by the influence of language, moulded by science, which foists on us exact concepts as though they represented the immediate deliverances of experience. The result is, that we imagine that we have immediate experience of a world of perfectly defined objects implicated in perfectly defined events, which as known to us by the direct deliverance of our senses, happen at exact instants of time, in a space formed by exact points, without parts and without magnitude: the neat, trim, tidy exact world which is the goal of scientific thought. My contention is, that this world is a world of ideas, and that its internal relations are relations between abstract concepts, and that the elucidation of the *precise connection* between *this world* and the *feelings of actual experience* is the *fundamental question* of scientific philosophy (Whitehead 1917,110, emphasis mine).

⁶⁰ This work was never completed even though Whitehead had intended to do so even after he went to Harvard. See further, Lowe 2019, 92.

⁶¹ Ibid., 93.

⁶² See Whitehead in conversation with Victor Lowe (Lowe 1941, 95).

⁶³ On October 13th, 1913, while Whitehead worked on the *Principia*, he writes a letter to Russell about a bigger issue that confronted him. On the connection of relations. He wrote: "The whole [subject] depends on the discussion of the connective properties of multiple relations. This is a grand subject. It merges into the discussion of Cl-, * where_ is a cardinal number, preferably inductive. I call such things "multifolds"" (Ibid.,93). It is obvious that Whitehead despite his occupation with geometrical proofs in the *principia* was equally concerned about the connecting properties of relations as "larger than mathematics and logic" as cited in *ibid*, 93.

The fallacy of misplaced concreteness is predicted here as the error of assuming that the ‘smooth’ properties of geometrical entities are the starting points of science. It could be said that Whitehead’s metaphysics would not have developed if these pre-speculative epistemologies were not established. However, they point in the direction of speculative metaphysics as an answer to the problems Whitehead identifies. It is correct, then, to say that Whitehead's proclivities, either in logic, mathematics, or physics, created the tools needed to reformulate metaphysics as a suitable solution to the problems of understanding reality. His epistemologies contained in them the metaphysical seeds that were later exploited for process philosophy. These epistemic premises in mathematics and logic explain why Whitehead’s metaphysics maintains its mathematical style. His metaphysics is a reconsideration of the implicit principles that ran through his mathematics, logic, and physics over time.

Whitehead seeks a peculiar function for his metaphysics that distinguishes itself from classical metaphysics. It is incoherent to describe any of his ideas as metaphysical or non-metaphysical based on any other definition other than Whitehead’s. This is because whatever judgment is given to his oeuvres would be done based on metaphysics as understood by philosophers of his time. According to such criteria, even his PR, considered his thoroughgoing metaphysics would equally be deemed non-metaphysical because it proposes a very atypical kind of metaphysics.

Did Whitehead always have metaphysics as a final goal in sight? Probably not, if this means he set out specifically to produce a metaphysical treatise. But one could argue yes, given that his knowledge of the discipline and his academic and socio-cultural background made metaphysics possible. A rather accurate inquiry will be: what was Whitehead’s definition of metaphysics? The response is in his work *The Principle of Relativity with applications to physical science*.⁶⁴

At the same time, it is well to understand the limitations to the meaning of philosophy in this connection. It has nothing to do with ethics or theology or the theory of aesthetics. It is solely engaged in determining the most general conceptions which apply to things observed by the senses. Accordingly, it is not even *metaphysics*: it should be called *pan-physics*. Its task is to formulate those principles of science which are employed equally in every branch of natural science (Whitehead 1922, preface).

This definition of metaphysics as a ‘pan-physics’ reveals Whitehead’s stance on the importance of metaphysics even for science. Whitehead does not approve of the perception that science makes metaphysics obsolete. Contrarily, “science renders the need for metaphysics urgent” (Whitehead 1917,190). However, the need is not in holding philosophy up to the methodological standards of

⁶⁴ Alfred North Whitehead, *The Principle of Relativity with Applications to Physical Science* (Cambridge: Cambridge University Press, 1922).

science nor in the idealist claim that science and metaphysics study two distinct levels of reality. For Whitehead, science and metaphysics represent two aspects of the same human enterprise to offer a better sense of our world.

2.2 A Historical Aversion Towards Metaphysics

The conception of the ‘Absolute’ of Bradley and its association with Hegelian idealism set a certain tone for metaphysics. I have discussed how James and Whitehead dealt with some of the problems of idealism. However, the effect of idealism and the air of mysticism it cast on metaphysics rippled throughout the century. At one point, in the early part of the century, Russell, Moore, Wittgenstein, and Carnap sought to rid philosophy of this metaphysical position. The logical positivists of the century began to consider metaphysics as nonsense, which may have accounted for the extraordinarily little metaphysical thesis produced among the English thinkers at the time. Whitehead takes on this mission at this pivotal time when the aversion toward metaphysics, especially the speculative kind, peaked. In this §2.2, I will assess the arguments against metaphysics by Russell, Wittgenstein, and Carnap. This is to evaluate Whitehead's contentions in his move toward metaphysics and how he intended to overcome them with his speculative method.

2.2.1 Russell on Metaphysics

Russell is noted for his strides in the area of analytic philosophy. Although a small portion of his works are directly and overtly metaphysical, he contributed largely to the subject. I will assess his most important claims on the purpose of metaphysics and if anything could be done about the problems it faces. In *Problems of Philosophy*, Russell espouses great concern for the aims of philosophical studies and the basis for the validity of those purposes.⁶⁵ In the opening statement of the work, Russell affirms that his task is to derive “something positive and constructive since merely negative criticism seemed out of place” (Russell 1912, *preface*). Although this Russellian work highlights epistemological more than metaphysical evaluations, it is one of the overtly critical treatises of metaphysics that began Russell’s analytic revolution. In chapter XIV on the limits of philosophical knowledge, Russell opens:

In all that we have said hitherto concerning philosophy, we have scarcely touched on many matters that occupy a great space in the writings of most philosophers. Most philosophers—or, at any rate, very many—profess to be able to prove, by *a priori* metaphysical reasoning, such things as the fundamental dogmas of religion, the essential rationality of the universe, the illusoriness of matter, the unreality of all evil, and so on. There can be no doubt that the hope of finding reason to believe such theses as these has been the chief inspiration of many life-

⁶⁵ Bertrand Russell, *The Problems of Philosophy* (New York: Oxford University Press, 1912).

long students of philosophy. This hope, I believe, is vain. It would seem that knowledge concerning the universe as a whole is not to be obtained by metaphysics, and that the proposed proofs that, in virtue of the laws of logic such and such things *must* exist and such and such others cannot, are not capable of surviving a critical scrutiny. In this chapter we shall briefly consider the kind of way in which such reasoning is attempted, with a view to discovering whether we can hope that it may be valid (*ibid*, Chapter XIV).

He makes several arguments; however, two of these stand out. First, Russell argued that metaphysics should be done with systematic rigor and logical consistency. Second, since metaphysical questions cannot be demonstrably true, philosophy aims not to achieve certainty but to disassociate our minds from pure dogmatic inclinations. Additionally, in *Our Knowledge of the External World*, Russell reiterates his position on metaphysics.⁶⁶ He reveals that “every philosophical problem, when it is subjected to the necessary analysis and purification, is found either to be not really philosophical at all, or else to be, in the sense we are using the word, logical”(Russell 1914,42). He implied that philosophical problems failed to meet the standards of logical rigor according to the forms of propositions and inferences. Although logical fiction can be substituted for entities supposed by metaphysics, these entities are neither completely asserted nor denied.⁶⁷

Russell adopts a strong attitude of not believing anything without empirical or logical evidence. Therefore, because metaphysics was not considered part of empirical knowledge or consistent with logical propositions, it could not provide any certainty. The epistemological commitment that the immediate objects of acquaintance are our sense-data, i.e., sensations and qualia, drives metaphysics into silence on any empirical truths. He considered traditional metaphysics of the Hegelian type as lacking the philosophical grammar that could render their demonstrations more consistent. In this tradition of apprehension towards metaphysical inquiry and the logical accuracy of metaphysical statements, subsequent positivists follow.

2.2.2 Wittgenstein’s Ladder of Metaphysics

This stage of the progress of the positivist move, whose groundwork in formal logic has now largely been laid by Russell, introduces the infamous Ludwig Wittgenstein. Wittgenstein expressed his views on metaphysics in the *Tractatus*, published in 1921 through the influence of Russell, which

⁶⁶ Bertrand Russell, *Our Knowledge of the External World as a Field for Scientific Method in Philosophy* [The Lowell Lectures, 1914] (London: Open Court Publishing).

⁶⁷ The distinctive character of the theory of definite descriptions of entities are called the “incomplete symbols” and the entities themselves “logical fictions”. Logical constructions differ in whether they involve explicit definitions or contextual definitions, and in the extent to which their result should be described as showing that the constructed object is a mere “fiction”.

came to be considered highly significant on the subject of metaphysics.⁶⁸ Wittgenstein states the following to sum up the value and the method of metaphysical thought.

The right method of philosophy would be this. To say nothing except what can be said, i.e., the propositions of natural science, i.e., something that has nothing to do with philosophy: and then always, when someone else wished to say something metaphysical, to demonstrate to him that he had given no meaning to certain signs in his propositions. This method would be unsatisfying to the other he would not have the feeling that we were teaching him philosophy, but it would be the only strictly correct method. My propositions are elucidatory in this way: he who understands me finally recognizes them as senseless, when he has climbed out through them, on them, over them. (He must so to speak throw away the ladder, after he has climbed up on it) He must surmount these propositions; then he sees the world rightly. Whereof one cannot speak, thereof one must be silent (Wittgenstein 1933,189).

The above extract raises two facets of the *Tractatus*. In the first aspect, Wittgenstein explains the relation of philosophy to language by what he describes as picture theory. Picture theory is the depiction of reality through a general propositional form. His theory distinguishes what can be ‘shown’ from what can be ‘said’. Metaphysics is considered as what can be shown and not what can be said of reality. The implication is that metaphysics cannot claim to say anything correct. Russell clarifies this point in his introduction to the *Tractatus* as follows: “Every philosophical proposition is bad grammar, and the best that we can hope to achieve by philosophical discussion is to lead people to see that philosophical discussion is a mistake”(ibid).

The second aspect is the metaphorical ladder to which Wittgenstein equates the whole *Tractatus*. According to Wittgenstein, the work must simply be valued as a ladder of elucidatory use to philosophy by which we can rise above propositions. This above dimension represents the true position of philosophy because “Philosophy is not one of the natural sciences”. He further claims, "The word ‘philosophy’ must mean something which stands above or below, but not beside the natural sciences” (ibid, 44). From this elevation, one must throw away the proverbial ladder by which “he sees the world rightly” (ibid,90) and realizes no logical descriptions can be clear enough to elucidate the depicted things.

The overtly staunch anti-metaphysical stance in *Tractatus* is admittedly more severe than those alluded to by Russell (1912&1914). Even Russell admits in the preface that the concluded thesis's disturbing nature is “leaving him with a certain intellectual discomfort” (Wittgenstein 1933,18) as Wittgenstein places ethics among the mystical inexpressible region while ably conveying ethical opinions. Russell meant that the normative tone of the *Tractatus* and its contents appear to contradict. Wittgenstein makes a fundamental metaphysical assumption about the world to convey the idea that

⁶⁸ Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*, [Reprinted, with a few corrections] (New York: Harcourt, Brace, 1933).

we must not make such metaphysical statements. If Wittgenstein is right, then we must not speak of what we must not speak of! Such statements are necessarily grounded in a certain ethical foundation that is wholly metaphysical. The claims about metaphysics failing to offer coherency and logical consistency are grounded in the metaphysical claim to the existence of some coherent, logical truth. Metaphysical claims in all areas of knowledge appear indispensable, and to attempt to avoid it is to fall into an infinite regress of attempting to ground assumptions. From this perspective, Carnap offers a response to why this argument should not be considered grounds for the utility of metaphysics.

2.2.3 Carnap and the Anti-metaphysical Project

Rudolf Carnap's anti-metaphysical project was among the most dominant of the twentieth century. Carnap argued that metaphysical statements, referred to as "pseudo-statements," are without cognitive meaning because they cannot be empirically verified or falsified. Carnap held that meaningful statements must be either analytic (true or false by definition) or synthetic (empirically verifiable or falsifiable). Metaphysical statements, on the other hand, are neither analytic nor synthetic and therefore lack cognitive content. Carnap, influenced by Ludwig Wittgenstein's ideas, emphasized that logical propositions are tautologies—vacuous statements that are true by virtue of their logical form rather than conveying substantive empirical content. In Carnap's framework, the primary sources of knowledge are logic and empiricism, but logical propositions, while important for structuring language and thought, do not provide meaningful empirical information about the world. Metaphysical statements, for Carnap, lack both the logical precision of tautologies and empirical verifiability. As a result, Carnap argued that metaphysics falls outside the realm of meaningful discourse because it fails to meet the criteria of logical or empirical significance.

The assessment of metaphysics, including its meaningfulness and status as a science, hinges entirely on the understanding and interpretation of the term "metaphysics." Carnap shared his attitude towards metaphysics in several of his writings, such as *Pseudo-Problems in Philosophy*⁶⁹, *The Elimination of Metaphysics through logical analysis of Language*⁷⁰, and *Empiricism, Semantics, and Ontology*⁷¹. These works interest this section because of their insistent anti-metaphysical message. Carnap argues from verificationism as the basis for eliminating metaphysics in *Pseudo-problems of*

⁶⁹ Rudolf Carnap, "Pseudoproblems in Philosophy," in *The Logical Structure of the World & Pseudoproblems in Philosophy* (Open Court, 1928).

⁷⁰ Rudolf Carnap, "The Elimination of Metaphysics Through Logical Analysis of Language," in *Logical Positivism*, edited by A. J. Ayer (New York: The Free Press, 1959).

⁷¹ Rudolf Carnap, "Empiricism, Semantics and Ontology," *Revue Internationale de Philosophie* 4, no. 11 (1950): 20-40.

Philosophy.⁷² He reveals that logical analysis demonstrates that metaphysical statements are pseudo-statements whose language promotes logical faults that ‘infect’ the use of certain words such as ‘to be’, leading to ambiguities that metaphysics fails to clarify.⁷³

Three types of arguments are derived from Carnap’s criticism of metaphysics. Before I identify these, it is important to show Carnap’s distinction between internal and external frameworks. According to Carnap(1950), one of the tasks of philosophy might be argued to be the logical reconstruction of scientific sentences in formally precise linguistic frameworks. For this task, if the target sentences belong to a sufficiently empirical aspect of science, they will be possible to reconstruct with sufficient formal precision because of the nature of the study of science itself. In such reconstructions, the parts of science concerned will be *internal* to the framework in which it is reconstructed. This framework lays down the rules that support scientific sentences with the help of logical, analytic postulates, or inductive rules. The frameworks in which scientific languages and theories are reconstructed are called *object frameworks*. Therefore, these sentences within the object framework are described as internal to it. The internal questions are answerable within the framework by fixing the logical rules and syntax of the language. They do not make claims about the external world but establish the resources for discussing it.

Carnap(1950) contrasts the internal questions with those he considers external to such a framework as the ones stated in traditional metaphysics. The external questions go beyond the boundaries of a specific linguistic framework. They are concerned with broader issues, such as choosing the best linguistic framework or making claims about the existence of something independent of any particular framework. The external sentences of metaphysics do not ask whether something exists within the rules of some (explicitly specified) framework, but whether something exists, *period*. The inquiry of existence is itself separated from the very language framework in which the question is articulated. Therefore, because of the nature of external questions and their attendant sentences, they have no cognitive significance, i.e., they cannot be identified as true or false. In this context, Carnap argued that fixing the rules of a language framework is a matter of choice, and individuals should exercise tolerance towards different choices made by others.

⁷² The argument Carnap puts across can be summarized as follows according to Darren (2018)

S or –S is conceivable

It is not the case that evidence which would support S or –S is conceivable.

Therefore, S does not have factual content.

See argument also in Dominic Bradley, "Carnap’s Epistemological Critique of Metaphysics," *Synthese* 195, no. 5 (2018): 2247-2265.

⁷³ Carnap 1959, 986

When the above distinctions are applied to metaphysical claims, there are three possible interpretations. Either, 1) reframing metaphysical sentences logically and in sufficiently clear and precise terms may not be possible. Alternatively, 2) these metaphysical claims are reconstructed as scientific claims in the precise linguistic object framework. Or 3) metaphysical statements can be reconstructed to adhere to the formal meta-framework or otherwise semi-formalized. In this case, metaphysical claims will represent the philosophical claims concerning the linguistic (semantic, syntactic, logical, pragmatic) properties of object frameworks for reconstructing science. Metaphysical statements will be external to such an object framework.

In option (1), Carnap's first type of critique of metaphysics states that the nature of philosophical sentences does not conform to logical syntaxes even though they might appear as correct in the grammar of natural language.⁷⁴ They are simply nonsense as they do not have any theoretical content. In option (2) of the possibility of metaphysics considered within the linguistic framework of objective scientific sentences. Such statements of metaphysics can then be adequately evaluated and disconfirmed. At this point, metaphysics can be inculcated into scientific practice and measured by the rigor of scientific verificationism. The last option (3) leads to Carnap's third type of criticism of metaphysics. Carnap allows metaphysical claims to assume another form when made sufficiently precise. In this form, they might not be scientific-synthetic claims at the object framework level, which are verifiable but may either refer explicitly to features of a linguistic framework and, in such a sense, qualify as metalinguistic and framework-relative. Alternatively, they could turn out to be analytic in a framework. Therefore, they would be object-linguistic and framework-relative with their status as derivable and expressible by metalinguistic means.

Carnap's perspective on metaphysics can be understood through two key ideas. First, he suggests that metaphysics can be seen as an internal question closely intertwined with scientific inquiry. In this view, metaphysical propositions should either be verifiable or logically true within the framework being considered. Alternatively, Carnap argues that metaphysics can be seen as an external question where different linguistic frameworks are equally valid, and pragmatic considerations should guide their choice. Tolerance becomes crucial in this context, as no framework is inherently superior to another.

However, the challenge with metaphysics lies in its oscillation between claiming truth in the scientific sense (position 1) and hiding behind the guise of a question of framework choice that has no

⁷⁴ Carnap uses the example of Heidegger's well-known claim, "Das Nichts selbst nichtet" ("The Nothing itself nihilates"). For him, such metaphysical sentences are revealed to be pseudo-sentences by logical analysis because they carry no factual content that can be demonstrably true or false (See Carnap 1950).

definitive answer (position 2). Metaphysical statements cannot be dismissed merely as speculative or fairytales. They may be described as “the expression of the general attitude of a person towards life (*Lebenseinstellung, Lebensgefühl*)” (Carnap 1950,988).

According to Carnap, the problem remains that metaphysicians stubbornly refuse to acknowledge their limited role, resulting in self-delusion within their reasoning and in their misleading promises to others. Metaphysics presents itself as something it cannot truly deliver, creating a deceptive façade. Carnap argues that metaphysics falls short as a replacement for art and music because it falsely claims to offer substantive theoretical content that it is ultimately incapable of providing.⁷⁵

However, Carnap (1963) realizes soon after that the distinction between science and philosophy is not as clear as he presupposed it.⁷⁶ The traditional metaphysics he criticizes does not fall squarely into his rigid framework characterizations. Carnap (1963) explains:

In earlier periods, I sometimes made attempts to give an explication of the term “philosophy”. The domain of those problems which I proposed to call “philosophical” became step by step more comprehensive... Yet actually none of my explications seemed fully satisfactory to me even when I proposed them; and I did not like the explications proposed by others any better. Finally, I gave up the search... it is unwise to attempt such an explication because each of them is more or less artificial. It seems better to leave the term “philosophy” without any sharp boundary lines (Carnap 1963b, 862).

On this, he admits some of the things he had previously excluded as “metaphysical”, thus nonsensical, could be regarded as concerned with legitimate framework problems. He concludes that “many metaphysical theses and discussions can certainly be regarded as more or less conscious preparatory stages on the way to a systematic logic and science and as preliminary to framework analyses” (ibid). On this front, he points to the works of Whitehead, Aristotle, Leibniz, Kant, and Peirce, as examples of attempts in the order of the framework analysis of which he speaks.

However, Carnap (1963) insists he does not imply that normative and value sentences are altogether meaningless (like how he characterized some metaphysical statements). This possible reading of Carnap is similar to Russell's discomfort about the position of the *Tractatus*. Carnap clarifies that normative sentences represent legitimate external questions as long as they are taken for what they truly are, noncognitive or practical questions regarding the acceptance or use of frameworks.

Nonetheless, there are other difficulties one may have with Carnap's stance. First, Carnap purports to eliminate metaphysics based on its meaninglessness by supposing a predefinition of ‘meaning’. The definition of meaning can be described as being *external* and therefore does not fall

⁷⁵ See the comparison with some metaphysical works like Nietzsche's *Thus Spake Zarathustra*, on which Carnap(1932a) argues that Nietzsche does not choose the misleading theoretical form in his metaphysics, but the form of art and of poetry.

⁷⁶ Carnap, Rudolf. "The Philosopher Replies." In *The Philosophy of Rudolf Carnap*, edited by Paul A. Schilpp, 859-1013. La Salle, IL: Open Court, 1963.

within the object framework of the empirical sciences. Carnap recognizes later that metaphysics may be a meta-linguistic or semi-object framework, yet he fails to identify if it is still to be evaluated by the criterion of science. If yes, then it falls into the cycle of using science to verify science, but if no, then he has not eliminated metaphysics nor left its grasp.

Secondly, in the details of scientific theorizing, because of the specific entities studied by the individual divisions of science, they are levels of abstraction that are taken for granted with no definite explication of what they imply. To construct a framework internal to science is to develop a categorical scheme based on such abstractions. This scheme will express the generalities that cut across the relatedness of the supposed abstractions. By such generalities, Carnap brings metaphysical claims even within the object framework of science.

Whitehead may have considered the arguments of Carnap as a perpetuation of the bifurcation in methodology. Carnap's approach prioritizes epistemological considerations, such as verification and meaning, while downplaying or disregarding ontological questions about the nature of reality. This perspective suggests that an object framework exists independently of experience, leading to the notion that science and metaphysics pertain to separate worlds. While science appears to abide by empirically and logically consistent rules, metaphysics is seen as lacking such consistency. However, Whitehead contends that as long as experience remains the foundation of our theorizing, we cannot escape metaphysics. He believes it is necessary to correct conceptual frameworks, but at the same time, the metaphysical endeavor should be preserved at all costs. Even in the case of Wittgenstein, metaphysical principles are employed to construct a ladder from which all metaphysical discourse can be evaluated, only to be cast aside afterward. Instead, Whitehead seeks to clarify and prune aspects of metaphysics using the tools of common-sense experience. By doing so, he maintains an equal emphasis on empiricism, logic, and metaphysics, finding value in all perspectives.

2.3 Whitehead and His Analytic Tendencies

I concluded in §2.1 on the influences on Whitehead ranging from the general philosophical climate to his encounters with prominent thinkers of his time. I demonstrated how each of them contributed to Whitehead's vision for the metaphysics he intended to construct. In §2.2, I showed how the positivist tradition of the twentieth century became synonymous with anti-metaphysics. Based on the conclusions of their positions, I asserted that metaphysics is firmly rooted in our knowledge of the experience of the world, therefore, cannot be eliminated but largely modified. The likes of Russell, Wittgenstein, and Carnap are not entirely disparate from Whitehead on this front. Especially from their philosophical, mathematical, and logical backgrounds, they appear to share several traits and

inevitably reach the conclusions Whitehead had already reached about metaphysics. In a profound sense, Whitehead had more in common with the analytic movement than he is given credit for, yet his metaphysics seems to be the deciding factor that excludes him from the early analytics.

In a paper by Ronny Desmet titled *Was Whitehead an Analytical Philosopher*, he addresses the controversy.⁷⁷ Desmet(2010), in his paper's opening lines, reveals that the initial spirit of analytic philosophy was birthed when logical analysis of mathematical concepts became a standard for conceptual elucidation in philosophy. This paradigmatic position meant literally applying mathematical logic to the problems of philosophy. Mathematical logic was to be differentiated from classical Aristotelian syllogistic logic taking its roots from the writings of mathematicians such as Frege, Peano, Whitehead, and Russell, as seen in the *Principia Mathematica*. I will stay within the confines of this definition without referencing the linguistic turn of the analytic movement, although some historians of philosophy specify this as its core.

Whitehead's mathematical logic is an obvious trait in several of his works, where he employs logical analysis to the concepts of space, time, and matter. These applications led to his attempt at a reinterpretation of space-time in his theory of relativity. The method of extensive abstraction used in this analysis is stated by Russell (1914) as significant in his method of construction detailed in the above work. This Russellian interpretation of Whitehead's extensive abstraction also inspired Carnap's first major work, *Der logische Aufbau der Welt*. Given these influences and the works presented in the *Principia*, it would be consistent to consider Whitehead's thought as analytic.

Nevertheless, one cannot escape the considerable differences between analytic philosophers and Whitehead, especially based on his support of metaphysics. Even in terms of clarity of writing and terminological astuteness, qualities that were indispensable to the analytics, Whitehead appears to lack greatly. It is no surprise that Whitehead is quoted, in the paper of George Lucas Jr., *Muddleheadedness and Simplemindedness – Whitehead, and Russell*, as saying: "Bertie thinks I am muddleheaded; but then I think he is simpleminded."⁷⁸ Russell's supposed description of Whitehead indicates what analytic philosophers thought of Whitehead's kind of philosophy.

Consequently, Pierfrancesco Basile's commentary on Desmet (2010) reveals this as a major difference between Whitehead and the analytic school. He writes in response:

There is one main aspect of Whitehead's philosophy which is quite contrary to the spirit of analytic philosophy—this is the systematic nature of his thinking, that is, his attempt to search for one solution to many problems, instead of just dealing with a single problem. You say this

⁷⁷ Ronald Desmet, "Was Whitehead an Analytic Philosopher?" in *Whitehead - The Algebra of Metaphysics*, ed. Ronald Desmet and Michel Weber (Louvain-La-Neuve: Les Éditions Chromatika, 2010), 211-248.

⁷⁸ As cited in George. R. Lucas Jr., "Muddleheadedness and Simplemindedness – Whitehead and Russell," *Process Studies* 17, no. 1 (1988): 26-39.

as well, but do not identify this as an anti-analytical aspect of this thought. [...] Instead of claiming that Whitehead is an analytic philosopher, it might be better to say that there is a strand of analytic thought in his writings (Desmet 2010, 244).

This strand of analytic thought is of interest to my present research for illuminating some aspects of Whitehead's metaphysics. One of the notable differences between the analytic tradition and Whitehead lies in their consideration of the universality of logic and its rigorous applicability. As a major example, Russell was an ardent advocate of logical systematization expressed through language. This sentiment towards logical accuracy and the infallibility was shared by the analytic philosophers, particularly Wittgenstein and Carnap, whose criterion for any worthwhile philosophical analysis was its conformity and interpretability into the logical language. Based on the above disposition, early analytic philosophers outrightly dismissed the enterprise of metaphysics as logically uninterpretable.

Whitehead is often read as having abandoned his mathematics and logic for metaphysics. However, if we stick to the premise that there is contiguity between Whitehead and the analytic philosophers and a continuous aim in his thought from his logical analysis to his metaphysics, we might obtain a different picture of Whitehead. Although he is quoted to have disclosed his cautiousness of overconfidence in logic, Whitehead still believed in its purpose for philosophy.⁷⁹ He believed that a union of science and philosophy could be done by employing logically coherent metaphysics resembling the mathematical logic he had initiated. For Whitehead, logical interpretations were not impossible for metaphysics, although logical coherency should not be considered its starting point. I will discuss how he evaluates the logical criterion of coherency and consistency in his speculative metaphysics in §2.4.

Why is it necessary to associate Whitehead with the analytic movement? The principal result of this consideration is that Whitehead, as an analytic philosopher, could offer a new perspective to his metaphysical method. James Bradley illustrates this position in his paper titled *The speculative generalization of the Function: A Key to Whitehead*.⁸⁰ He describes Whitehead's PR as a culmination of the *Principia*'s earlier mathematical and philosophical work. Bradley argues that the expression of 'imaginative generalization' employed in one of the three pillars of speculative thought is an

⁷⁹ Whitehead writes in SMW the following: "In formal logic, a contradiction is the signal of a defeat; but in the evolution of real knowledge, it marks the first step in progress towards a victory" (Whitehead 1925,260). In this quote Whitehead makes use of the term real knowledge as opposed to formal logic to underscore the difference he holds between truths established or dismissed by logical formulations and experience in its production of knowledge. He seems to attest to a greater authenticity of the latter than the former.

⁸⁰ Bradley, James. "The Speculative Generalization of The Function: A Key to Whitehead." *Tijdschrift Voor Filosofie* 64, no. 2 (2002) : 253–271.

alternative way Whitehead identifies his work as a ‘generalized mathematics’.⁸¹ As generalized mathematics, speculative philosophy is a buildup on the Frege-Russell generalization of the mathematical function.⁸² Bradley (2002) argues that Whitehead does not change camps when he builds his speculative metaphysics because it is in the same spirit as the analytic thought of the *Principia*.

Whitehead himself speaks of the alignment of his metaphysical principles with mathematical patterns. For instance, in MT, he says that “Poetry allies itself to metre, philosophy to mathematic pattern” (Whitehead 1917,238). In SMW, he also highlights that “The generality of mathematics is the most complete generality consistent with the community of actual occasions which constitutes our metaphysical situation” (Whitehead 1925,25). Consequently, for Whitehead(1925), it is accurate to say that “the harmony of logic lies upon the universe as an iron necessity” and the abstract patterns of relationships investigated by mathematics are “also imposed on external reality”. This imposition for Whitehead “is nothing else than the necessity of abstract logic which is the presupposition involved in the very fact of interrelated existence”. This related togetherness of the universe is “the primary article of metaphysical doctrine”(ibid,34).

From the above-cited works, Whitehead definitely thought of nature as a coherent, logical system. The occasions that make up the actual world are bound together by a logical framework approximate to the structure one investigates in mathematics. For Whitehead, the necessities of abstract logic are involved in the very fact of interrelated existence. Whitehead holds on to his mathematical disposition, yet his originality complements this aspect, which is experience.

Too often, because of Whitehead’s insistence on including the elements of experience, he is interpreted only on his rigid empiricism leaving out the mathematical interpretations that underlie the system of categories he elaborates. John Dewey was one of the principal readers of Whitehead who noticed this underlying mathematical generalization, although he expresses uncertainty in his reading of Whitehead in this way. He argues that the very definition of speculative thought as “the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted” is suggestive of the kind of structure exhibited in pure mathematics. This approach would seem to accord with the assimilation of the proper subject matter of philosophy (the constitution of nature) to that of mathematical theory. Dewey speculates that Whitehead substitutes abstract logical connectedness for concrete existential connectedness in experience.⁸³

⁸¹Whitehead 1985, 5. Also see Alfred North, Whitehead. *Essays in Science and Philosophy*. Philosophical Library, 1947, 109.

⁸² See Bradley 2002, 254 & Bradley 2003,145.

⁸³ Cited in Schilpp, Paul Arthur, editor. *The Philosophy of Alfred North Whitehead*. Tudor Publishing Company, 1941.

Consequently, if Whitehead thought that the scheme of nature and immediate experience are logical, every element of nature must ascribe to such inherent logical coherency.

To conclude, the association with the analytic movement is the recognition that Whitehead's work has, since its beginning, been concerned with a generalized logical method, and the imprint of the mathematical model is permanent.⁸⁴ This perspective sheds light on Whitehead's obscure ideas, and its mysticism is broken because his metaphysics is revealed as a logico-mathematical treatise of all kinds of experience. Metaphysics appears to be the logical conclusion for Whitehead's approach. His metaphysics is the relation between the mathematics of his previous writings and the empiricism of the latter.

2.4 The Speculative Metaphysical Method

In this §2.4, I will attempt to outline the features of Whitehead's metaphysical project. First, I will evaluate the role of language in metaphysics, according to Whitehead. Second, I will assess how the axioms of speculative metaphysics complement each other in their account of an underlying coherency in nature. Third, I will compare Whitehead's speculative metaphysics to the interpretations Strawson offers about the methods and functions of metaphysics. I will highlight the differences in their projects to show how the need for a complementary coupling between epistemology and ontology avoids bifurcationism.

I emphasized earlier that if one considers Whitehead as a part of the early tradition of analytics, then it is easy to understand that he identifies with the problems that the analytic thinkers ascribed to metaphysics. This allows us to view his speculative metaphysics as a response to those arguments. Whitehead constructs a speculative type of metaphysics to overcome these problems. To be "speculative" implies constructing hypotheses about what things are in themselves (including how they are related to other things) distinct from how they appear to us. He offers to combine the rationalist requirements for a metaphysical scheme with empirical evidence. In this way, empiricism is to satisfy the criterion of adequacy to all aspects of experience, and its rationalism is to be self-consistent and coherent.

Whitehead proposes that we begin with Nature as the common reference framework. This framework is identified as "that which we observe in perception through the senses"(Whitehead 1920,3). Both science and experience are concerned with Nature. Science examines the "self-contained for thought" aspects while our mind or thought is concerned with sense awareness.⁸⁵ Sense awareness

⁸⁴ Cf. Eames, Elizabeth Ramsden. *Bertrand Russell's Dialogue with His Contemporaries*. Routledge, 1989.

⁸⁵ Whitehead 1920, 3–4.

refers simply to those aspects of Nature that are penetrable to thought, while the aspects that concern scientific investigation are those that are 'closed to mind'. That is, their relations do not exhibit a reference to a perceiving mind. For example, sense-awareness refers to the red color of the rose; this is conceivable to the mind, while sense-perception is about the chemical compositions, such as the molecules that are the configuration of the rose.

The term 'philosophy' for Whitehead refers to all branches of philosophy, i.e., logic, epistemology, metaphysics, ethics, aesthetics, etc. In most of his writings, he does not uniquely characterize any of these branches separately. Whitehead considers them related, with each branch elaborated as an interdependent aspect of the discipline and metaphysics as the foundation. In his work, *Religion in the Making*, he defines metaphysics.⁸⁶ Metaphysics is 'the science which seeks to discover the general ideas which are indispensably relevant to the analysis of everything that happens'(Whitehead1926,72). The explanation of the general ideas is what Whitehead characterized as speculative philosophy. Speculative metaphysics, also termed the philosophy of organism, is therefore included in a larger cosmological account in which the relations of the areas of knowledge exhibit similar relations to the composites of the cosmos.

In CN, Whitehead explains that this is the purpose of the philosophy of science, which is to study the relations among the sciences. This investigation of the philosophy of science clearly references a particular ideal of unification. This means that the identification of relatedness or the absence of it among the sciences, for example, between biology and physics or between chemistry and archaeology, is rooted in the understanding that there is some universal relatedness by which these departments of knowledge stand in comparison. Whitehead insists that without this ideal, "philosophy must languish from a lack of interest" (Whitehead 1920,2).

Scientists understand that the relations between the fields of discipline transcend the boundaries of science itself and pervade the universe. Because of this pervasive order, the science departments can claim relatedness. However, not all the relations between the sciences enter into the philosophy of science. They are therefore subsumed into a larger unifying discipline that will "set in assigned relationships within itself all that there is for knowledge, for feeling and for emotion" (ibid).

While "philosophy of science is the endeavour to express explicitly those unifying characteristics which pervade that complex of thought which make it to be a science"(ibid), philosophy (metaphysics) is the expression of the relations between all spheres of knowledge. This definition prescribes the utmost task of philosophers in unifying concepts of science and experience so that the

⁸⁶ Alfred North Whitehead, *Religion in the Making* (Cambridge: Cambridge University Press, 1926).

metaphysical synthesis of generalizations reflects the relatedness that pervades both experience and science.

For Whitehead, bifurcationism is then the failure to recognize this ideal of pervasive relatedness which “claims allegiance even if you expel it” (ibid). Once this relatedness is ignored, we are left with fragmented areas of knowledge peddling fragmented ideologies with no internal cohesion or external connectedness. For example, the classification of science will have no meaning at all, or for experience, no two percipients can be said to perceive the same object or share any similarities. The recognition of the necessary interrelatedness of the world is required for science, religion, literature, politics, art, etc., to hold any meaning in the cosmos.

Anti-bifurcationism does not simply imply a terminological change, like the use of “process” in place of “substance” or the mere assertion that “everything is interrelated”. The task is definitely not as trivial as a change in terms. It carries enormous descriptive and revisionary responsibilities. The sheer avoidance of terms that overtly bifurcate, such as ‘substance’ and ‘attribute’ or ‘primary’ and ‘secondary’ qualities, without definite recourse to an alternative metaphysical system in which all facets of experiential life can be expressed is more destructive than any prior bifurcationist theory could ever be. This is because we will be robbed of the definite results that we have hitherto achieved through this bifurcationist system yet not offered any viable alternative. One can employ notions that indicate some so-called interactivity but be inadequate in interpreting certain spheres of experience. Just because the terms have changed does not imply their underlying implications have been satisfactorily altered. I will argue the possibility of this in chapter four, where I provide examples of theories of realism that fail the adequacy criterion.

2.4.1 Language as the Tool of Metaphysics

How, then, does Whitehead proceed with his speculative business? His process begins with ‘conceptual positioning’. This technique describes how Whitehead positions his ideas according to the theoretical antecedents in philosophical and scientific discourse. Whitehead begins his philosophy by referencing the parts of Newton, Hume, Locke, Descartes, Leibniz, Einstein, Bergson, and James, which are vital to his speculative exegesis. Each of these thinkers represents for Whitehead a certain viewpoint necessary to his speculative system, either supporting or contrasting it. His style is often interpreted in the literature as a sign of his admiration of previous thinkers or Whitehead’s modesty in ascribing his interpretations to their works.

Nevertheless, the frequency with which Whitehead does this and his insistence on referencing these thinkers, some of whose philosophies he may have misunderstood, requires we look much

deeper. It appears on closer inspection that such an approach is inescapable for both Whitehead and any philosopher who wishes to tackle bifurcationism from its roots. The reasoning is that because language is how these metaphysical assertions are presented, there is no escaping the conceptual histories that follow their terms and expressions.

Through language, one unwittingly indulges the eccentricities of the philosophers whose use of concepts has fixed metaphysical presumptions in ordinary speech. Earlier metaphysical notions gain a false air of exactness because their words and phrases have passed into current literature.⁸⁷ The current nature of philosophical discourse has ensured that literature expresses the larger generalities of metaphysics, even before any metaphysical theory is built. Therefore, language revision is necessary for philosophy because it (language) is its tool of trade. It must be reviewed as often as the physical sciences ensure that “preexisting appliances are redesigned”(Whitehead 1929,11).

However, this revision is not as straightforward as it is done in the sciences, which deal with specific abstracted aspects of nature. The language employed in science implies a specific reference in a definite framework, therefore, a revision of such vocabulary is less complex. For example, when a scientist uses the term ‘space-time’ it carries a definite implication for the physicist, devoid of any metaphysical assumptions that may underlie its meaning. I will explain this by comparing revisionary metaphysics to descriptive metaphysics in §2.4.3.

Nevertheless, the focus here is that because science deals with highly abstracted entities pertaining to clearly demarcated areas of study, its terms do not suffer much of the philosophical baggage that comes with metaphysical expressions in language. This is the argument Carnap makes about why metaphysics cannot claim to provide knowledge as its language is not referent to any definite objective framework.

On the contrary, metaphysics determines ideas implicitly assumed in propositions. Therefore any technical language of philosophy already demonstrates the earlier attempts by “various schools of thought to obtain explicit expression of the general ideas presupposed by the fact of experience” (ibid,12). Given that Whitehead describes that “every proposition refers to a universe exhibiting some general systematic metaphysical character” (ibid,11), the philosopher inherits language expressed in these existing technical ideas. This forms a kind of feedback loop between language and metaphysics. Language is used to express metaphysical presuppositions which are in turn anchored into the language that explains it. This is part of the self-referencing problem of metaphysics that the Analytical school criticized. Whitehead cites, “For example, consider the type of propositions such as 'The grass is green,' and 'The whale is big.' This subject-predicate form of statement seems so simple, leading straight to a

⁸⁷ Whitehead 1985,13.

metaphysical first principle, and yet in these examples, it conceals such complex, diverse meanings” (Whitehead 1929, 13).

The problem of metaphysical roots in everyday language reveals a more fundamental limitation of language transported to the level of the method of metaphysics. It reveals the problem that Bergson states as *spatialization*. Bergson describes in *The Creative Mind* his position on the accuracy of language.⁸⁸ He says, “My initiation into the true philosophical method began the moment I threw overboard verbal solutions, having found in the inner life an important field of experiment” (Bergson 1946, 89-90). Bergson explains that “thought and language, originally destined to organize the work of men in space, are intellectual in essence” (ibid, 80), implying an association with the intellect. This sets language apart from the immediate consciousness of our inner lives which is rather associated with intuition. He writes that “the intellect is destined first of all to prepare and bear upon our action on things,” and also, “if the intellect has been made to utilize matter, its structure has no doubt been modeled upon that of matter” (ibid, 38). Consequently, he avers in *Time and Free-will*⁸⁹ that space “clearly conceived by the human intellect, enables us to use clean-cut distinctions, to count, to abstract, and perhaps also to speak” (Bergson 1910, 97). Since language was “designed to organize human activity in space”, language is suited for describing spatial properties.

The tension between the intellect and intuition corresponds to that between the spatial and temporal dimensions of our experience. The argument Bergson advances then is that language, which is spatial, is the tool by which we also express the temporal dimension of experience (duration). The “error begins when the intellect claims to think one of the aspects as it thought the other, directing its powers on something for which it was not intended” (Bergson 1946, 95). This unfortunate error which Bergson calls the procedure of “converting intuition into symbols”, is what births language, thereby emphasizing that the outcome of “intellectualized time is space”, and hence, “the intelligence works upon the phantom of duration, not on duration itself” (ibid, 31).

Whitehead(1929) agrees with Bergson’s critique but proposes a caveat when he says:

On the whole, the history of philosophy supports Bergson’s charge that the human intellect spatializes the universe’; that is to say, that it tends to ignore the fluency, and to analyse the world in terms of static categories. Indeed, Bergson went further and conceived this tendency as an inherent necessity of the intellect. I do not believe this accusation; but I do hold that ‘spatialization’ is the shortest route to a clear-cut philosophy expressed in reasonably familiar language (Whitehead1929, 209).

Whitehead(1925) in SWM:

⁸⁸ Bergson, Henri. "The Creative Mind." *Philosophical Review* 55 (1946): 71.

⁸⁹ Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness* (New York: Humanities Press, 1910).

I agree with Bergson in his protest: but I do not agree that [spatialization] is a vice necessary to the intellectual apprehension of nature [...] There is an error; but it is merely the accidental error of mistaking the abstract for the concrete. It is an example of what I will call the 'Fallacy of Misplaced Concreteness.' This fallacy is the occasion of great confusion in philosophy. It is not necessary for the intellect to fall into the trap, though in this example there has been a very general tendency to do so (Whitehead 1925, 52).

This caveat is that Whitehead believes that the intellect is not bound to fall into this trap of misplaced concreteness. Therefore, we can salvage language as long as we hold the intellect from this error. This implies that ordinary language must be constantly modified. It must not ascribe to rigidity of any kind. Much like the process of the cosmos, language should be open-ended, in persistent formation and development. Philosophical progress is dependent on the extension of language beyond initial boundaries. In *Modes of Thought*, Whitehead(1938) describes the relationship between the two by asserting, "great difficulty of philosophy is the failure of language" (Whitehead 1938,39). Philosophy does not struggle because of a lack of internal structure in the cosmos or the knowledge of such a structure, but the language to frame it. Figuratively, philosophy must wrestle with its nemesis, language, to attain the goal of expressing what is already familiar in experience.

Whitehead (1954) is quoted to have said in a dialogue that this necessary union creates tension between philosophy and language.⁹⁰ He states that "the curse of philosophy has been the supposition that language is an exact medium. Philosophers verbalize and then suppose the idea is stated for all time. Even if it were stated, it would need to be restated for every century, perhaps every generation" (Whitehead 1954, 368).

Having astutely stated this difficulty, Whitehead himself must wrestle with language on two fronts. First is the problem of language as produced by the intellect and its limitation to express what is initially given in sense awareness. In CN, Whitehead calls it the 'definite loss of content' resulting from the translation from sense awareness to thought(intellect). He explains this loss is due to the constraint that "thought is communicable whereas sense-awareness is incommunicable"(Whitehead 1920, 13). We all face this universal problem, metaphysicians, and ordinary folk alike.

In line with this, Whitehead states:

Language halts behind intuition. The difficulty of philosophy is the expression of what is self-evident. Our understanding outruns the ordinary usage of words. Philosophy is akin to poetry. Philosophy is the endeavour to find a conventional phraseology for the vivid suggestiveness of the poet [...] and thereby to produce a verbal symbolism manageable for use in other connections of thought (Whitehead 1938, 49-50).

⁹⁰*Dialogues of Alfred North Whitehead: As Recorded by Lucian Price* (Westport: Greenwood Press, 1954).

Second, the metaphysician faces a supplementary hurdle in the form of taking the language that previous thinkers have already modified to construct their own ideologies. This is easier when philosophers carry on similar principles, so the supposed metaphysical assumptions in the language employed do not seriously constrain their elucidations. On the contrary, if the philosopher's theories conflict with those initial assumptions that I have now infiltrated language, the philosopher is confronted with notions that have "an enveloping suggestiveness and an emotional efficacy"(Whitehead 1927, 67).

Whitehead's speculative metaphysics breaks away from the tradition of substantivist metaphysics anchored in ordinary language. To completely avoid these suppositions is to commence by reconstructing an entire vocabulary for elucidating metaphysics devoid of presuppositions. Although this is obviously not a possible feat, supposing it were, even those new terms and concepts will emerge in relation to the older set, either in contrast or in agreement. Whitehead suggests that the notion of an ideal language suitable for ultimate generalizations must be set aside, and the philosopher, intending to correct the metaphysical underpinnings of propositions, must look to already existing notions and interpret them within his scheme. This can be done by associating key aspects with the positions of earlier thinkers and pruning them to complement the purpose at hand. For Whitehead, after this is done, these concepts, commonly used words, and phrases must be stretched and contorted to accommodate the aspects of the new ideas which were not captured in antecedent implications. This modification of philosophical language results in a certain metaphoric and flexible character. For "philosophy in its advance must involve obscurity of expression, and novel phrases" (ibid, 131).

This understanding makes Whitehead stand out, particularly in comparison to Bergson, because he does not deny the inaccuracies of language, nor does he totally dismiss its potency in conveying "philosophic generalizations" if employed carefully, bearing in mind its weaknesses. When language is stretched beyond its initial limits, we can arrive at approximations of the first principles.

He says:

Philosophers can never hope finally to formulate these metaphysical first principles. Weakness of insight and deficiencies of language stand in the way inexorably. Words and phrases must be stretched towards a *generality* foreign to their ordinary usage; and however, such elements of language be stabilized as technicalities, they remain metaphors mutely appealing for an *imaginative leap* (Whitehead 1929, 4, emphasis mine).

Whitehead admits that this aim of speculative metaphysics is criticized as overly ambitious because "European thought is presented as littered with metaphysical systems abandoned and reconciled" (ibid,14). It indicates that the philosophical voyage, especially in European languages, would entail the consistent use and correction of language as it pertains to some erroneous metaphysical assumption.

The style results in an inescapable mix of complex terms, definitions, and redefinitions of basic notions of language, probably in ways that are completely foreign to the ages of its use and self-referencing concepts. These attributes qualify the work of Whitehead, especially PR, as atypical and less reader-friendly. It often accords an air of uncertainty, of obscurity of thought, and difficulty to Whiteheadian thinking if they are not read through the lenses of the inescapable metaphysics in our language.

2.4.2 A Three-fold Method of Speculation

Whitehead(1929) defines,

Speculative Philosophy is the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted. By this notion of 'interpretation' I mean that everything of which we are conscious, as enjoyed, perceived, willed, or thought, shall have the character of a particular instance of the general scheme. Thus the philosophical scheme should be coherent, logical, and in respect of interpretation, applicable and adequate. Here 'applicable' means that some items of experience are thus interpretable, and 'adequate' means that there are no items incapable of such interpretation (Whitehead 1929,4).

Speculative metaphysics comprises three aspects: a) Evaluating and establishing propositions which are the generic descriptions of metaphysical truths. The aspect hinges on rationalism as the logical framework exhibiting a definite order, b) An imaginative leap from metaphorical propositions towards the events of experience, c) Applying descriptive notions to the character of everyday experience.

Speculative philosophy has its rational side expressed by the terms 'coherent', 'logical', and 'necessary', and its empirical side expressed by the terms 'applicable' and 'adequate'. First, for the rational side, Whitehead describes 'coherence' as the explanation of the obvious solidarity of the world. Coherency ensures that the fundamental ideas of the scheme presuppose each other and are incapable of abstraction just as the cosmos exhibits. The criterion of logic is what renders Whitehead unique because he waters down the importance of logic and assumes that logical contradictions are usually trivial at the beginning of any theory. He warns of a major fallacy of philosophy, which is to overestimate logical procedure. The overestimation is because 'Philosophy has been haunted by the unfortunate notion that its method is dogmatically to indicate premises which are severally clear, distinct, and certain; and to erect upon these premises a deductive system of thought'(Whitehead 1929,3). On the other hand, Whitehead emphasizes that "the accurate expression of the final generalities is the goal of discussion and not its origin" (ibid) and that 'deductive logic has not the coercive supremacy which is conventionally conceded to it. When applied to concrete instances, it is a tentative procedure, finally to be judged by the self-evidence of its issues" (Whitehead 1938,106).

Second, the criterion is that the system of general ideas must be 'necessary'. This quality is to follow from their logical and coherent conditions. It is a consequence of their complete generality. Because they are universal, such general ideas are necessarily exemplified everywhere. As Whitehead puts it, 'the philosophical scheme should be "necessary," in the sense of bearing in itself its own warrant of universality throughout all experience'(Whitehead1929,4). This universality requires the pervasiveness of its interpretations as guaranteed only by the diversity of its starting point. Whitehead is, therefore, open to all spheres of experience, religious life, social sciences, physics, arts, ethics, education, language, etc. For a system of thought to achieve the true metaphysical genuineness that Whitehead advocates, it must be applicable beyond the limited scope of its initial position after having achieved a sufficiently universal perspective. However, the starting point maintains its texture throughout the system and 'colors' the background of the theory. I will discuss in chapter six how Whitehead's metaphysics also maintains a certain aesthetic tone.

Third, the empiricist side of speculative philosophy offers the quality of applicability which chiefly operates as the litmus test of its rationalist side. It is the portions of flight from the "ground of particular observation" and the moments that it "lands for renewed observation rendered acute by rational interpretation" (ibid, 5). Applicability, therefore, constitutes the measure of the limits of the realism of abstractions. A scheme of metaphysical ideas or categories must be 'applicable' because some entities of experience, beyond the initially restricted locus from which the ideas originated, are interpretable through the scheme.

However, to be empirically justified, a scheme must also be 'adequate'; that is, be able to interpret every item of experience - ideas, physical elements, life, society, the mind, harmony, mathematical relations, eros, the ethical, the religious, etc. The adequacy criterion accounts for the collapse of 'rigid' empiricism because speculative philosophy seeks larger generalities in place of specific occasions of exhibition. Hence, 'Philosophy destroys its usefulness when it indulges in brilliant feats of explaining away'(ibid,17). For Whitehead, the charges of inadequacy and incoherence are the two main reasons for rejecting any metaphysical scheme.

Expounding on the metaphorical flight in motion, the general conditions of the ground of 'take-off' have been sufficiently 'delimited', and the 'control of altitude' relative to the ground has been established as being within the approximate range of possibility of returning to base⁹¹. Our current dilemma is moving from narrow-mindedness of experience to a metaphysical generalization, as

⁹¹ Cf. Whitehead's metaphor of flight cited here: "The true method of discovery is like the flight of an airplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation" (Whitehead 1985,5).

Whitehead prescribes. This impasse is concisely described by Elizabeth Kraus in *Metaphysics of Experience: A Companion to Whitehead's Process and Reality*⁹² as follows:

From an epistemic point of view, how is it even possible to move from the provincialism which must accrue to any sort of experience, however “common,” to a metaphysical generalization? Granted: every limited context is a subset of a larger context and hence displays the more general characteristics of the larger context; but how can these be distinguished from the more idiosyncratic characters? The problem is particularly acute when it is the ultimate generalizations which are sought, for, exemplified in every experience, they are for that very reason ordinarily unexperienced. They cannot be recognized in the contrast of their presence and absence because of the “no vacations” clause binding them. Therefore, the ultimate generalizations cannot be derived either by deduction from other generalizations or by induction from experience. Both methods leave the metaphysician taxiing around his home airport, unable to discern the nature of airports in general (Kraus 1998,45).

Kraus elaborates on Whitehead’s final criterion, imaginative rationalization, as the ‘leaping’ required to get the schema moving. The technique of imaginative generalization insures itself from absolute failure because its success is in the capacity of auto-assessment and auto-adjustment. The imaginative mind ensures that any failed component offers useful guidance for the other component parts. Whitehead, again, argues that “the reason for the success of this method of imaginative rationalization is that, when the method of difference fails, factors which are constantly present can be reexamined under the influence of imaginative thought. Each auxiliary assessment supplies the differences which direct observation lacks”(Whitehead 1929,5). Additionally, imaginative generalization “can even play with inconsistency; and can thus throw light on the consistent, and persistent, elements in experience by comparison with what in imagination is inconsistent with them” (ibid).

To ensure that these imaginative constructions have some applications, Whitehead insists that their construction “must have its origin in the generalization of particular factors discerned in particular topics of human interest”(ibid,6). The well-developed areas of inquiry can provide the requisite resources for metaphysical generalization. This means physics, psychology, aesthetics, ethics, and languages, as particular exemplifications of human experience, can be important sources of metaphysical generalizations. The procedure of ‘descriptive generalization’, means ‘the utilization of specific notions, applying to a restricted group of facts, for the divination of the generic notions which apply to all facts’(ibid,5). The divination of generic notions is the arduous elaboration process to create a scheme of metaphysical categories.

⁹² Elizabeth M. Kraus, *Metaphysics of Experience: A Companion to Whitehead's Process and Reality* (Fordham University Press, 1998).

As understood above, the goal is not to begin from a set of precise axiomatic certainties, “there is, in fact, not the language to frame it” (ibid,13). The objective is attained by establishing metaphysical truths through categorial obligations. Metaphysical categories, appropriately, are not “dogmatic statements of the obvious, they are tentative formulations of ultimate generalities” (ibid,8). Whitehead applies this idea by attempting a basic rendering of the most generic relations between entities. In his categorial scheme, he describes the primary notions “presupposed in our reflective experience—presupposed but rarely expressed in explicit distinction” (ibid,18).

So far, I have described speculative metaphysics as a threefold approach of rationalism, empiricism, and imaginative generalization. However, this form of speculative thought and the content it produces equally display complementarity. The structure mirrors the content elements (actual occasions) and cannot escape their ordering. The actual occasion in its existent relations exemplifies the grand scheme of relations that speculative metaphysics intends to exhibit.

Kraus(1998) explains the cooperation between the method and the content of speculative philosophy in an incisive way when she highlights:

The elaboration of a speculative scheme does not proceed in an ad hoc manner but is controlled each step of the way by the norms which govern the ideal product. The most fundamental criterion of any metaphysics is that it be self-referential, interpreting not only the world of experience but itself, its process of formulation, and its relation to other theories as well. Any philosophical theory should be the prime exemplification of itself if it is not to be useless speculation (Kraus 1998,45).

This is the kind of logical coherency Whitehead believes should be the target of philosophy not its initial starting point. There is logical coherency in speculative metaphysics, but it is the measure of the accuracy of the metaphysical scheme. The logically precise statements cannot be established a priori rather they are established after the fact. Undoubtedly, in the spirit of this stubborn fact of cooperation, we can have faith that the final ‘landing’ will determine the success of the ‘take-off’.

2.4.3 The function of a Metaphysician: Whitehead versus Strawson

Whitehead(1938) writes in MT on what he considers the fundamental task of philosophers:

What is the special function of philosophy? ... In order to answer this question, we must first decide what constitutes the philosophic character of any particular doctrine. What makes a doctrine philosophical? No one truth, thoroughly understood in all the infinitude of its bearings, is more or less philosophical than any other truth. ... Philosophy is an attitude towards doctrines ignorantly entertained... The philosophical attempt takes every word, and every phrase, in the verbal expression of thought, and asks, What does it mean? ... Of course you have to start somewhere for the purpose of discourse. But the philosopher, as he argues from his premises, has already marked down every word and phrase in them as topics for future enquiry. No philosopher is satisfied with the concurrence of sensible people, whether they be his colleagues, or even his own previous self. He is always assaulting the boundaries of finitude... [T]he scientist and the philosopher face in opposite directions. The scientist asks for the consequences

and seeks to observe the realization of such consequences in the universe. The philosopher asks for the meaning of these ideas in terms of the welter of characterizations which infest the world... The fallacy of the perfect dictionary divides philosophy into two schools, namely, the 'Critical School,' which repudiates speculative philosophy, and the 'Speculative School' which includes it. The critical school confines itself to verbal analysis within the limits of the dictionary. The speculative school appeals to direct insight, and endeavours to indicate the meanings by further appeal to situations which promote such specific insights. It then enlarges the dictionary. ... The use of philosophy is to maintain an active novelty of fundamental ideas illuminating the social system (Whitehead 1938, 171-174).

Whitehead's idea of the task of metaphysicians is not only to be contented with the analysis of descriptive terms, i.e., what he calls the critical school. He prescribes a much broader task: enlarging these descriptive terms by attempting to provide revised concepts. In other words, when predominant theories fail to elucidate experience holistically, the metaphysician is tasked with using the speculative method to provide more appropriate concepts grounded in experience. From a reading of Whitehead(1929), we can identify three main tasks of metaphysics.

1. The elaboration of the ultimate generalities. For which, he states that:

Philosophy will not regain its proper status until the gradual elaboration of categorical schemes, definitely stated at each stage of progress, is recognized as its proper objective. There may be rival schemes, inconsistent among themselves; each with its own merits and its own failures. It will then be the research purpose to conciliate the differences (Whitehead 1929,8).

2. The repudiation or revision of ontological foundations based on their representation of common experience. In PR, he reveals that "Metaphysics is nothing but the description of the generalities which apply to all the details of practice" (Whitehead 1985,13).
3. The philosophical and non-philosophical analysis of propositions, language, and conceptual descriptions.

A reading of Peter Frederick Strawson's work, *Individuals* published in 1959 after both CN and PR, reveals some ideological rivalry between what Whitehead believes should be the task of metaphysicians and what Strawson offers.⁹³ First, evaluating these two ideas is important to disengage any attempts to measure Whitehead by Strawsonian descriptive or revisionary metaphysics standards. Second, this is to reveal that because Strawson's theories are grounded in the classical metaphysical notions of substance and attribute, his methodology equally imitates this separation in the underlying ontology.

⁹³ Peter Frederick Strawson, *Individuals: An Essay in Descriptive Metaphysics* (Methuen, 1959).

Strawson(1959) sets out the important distinction between descriptive and revisionary metaphysics. For Strawson, descriptive metaphysics deals with explaining our commonsense thought about the world. This kind of metaphysical activity is characterized as the dominant position of the field of philosophy. It is employed to elaborate on the kinds of entities that are assumed by our ordinary understanding of reality. Accordingly, descriptive metaphysics does not seek to determine the nature of reality but rather to describe the basic concepts by which we normally think about the world. It typically constructs a conceptual framework grounded in some existing ontological theory. Strawson describes the aim of Analytic philosophy as this type of conceptual analysis. He adds that “the philosopher labors to produce a systematic account of the general conceptual structure of which our daily practice shows us to have a tacit and unconscious mastery” (ibid,9).

On the other hand, revisionary metaphysics is initiated on the premise that reality is independent of the mind perceiving it. The practice of revisionary metaphysics arrives out of a need to alter our commonsense-based conceptions of reality. Based on this ontological task, we can identify science as a form of revisionary ontology that breaks out of the confinement of ordinary language. According to Strawson, a revisionary metaphysician is not bound by the conceptual scheme of descriptive metaphysics. Consequently, scientific notions are afforded broader conceptual margins because of their revisionary function. The revisionary type of metaphysics can alter our conceptual structure of reality, although their theories remain approximations of the general truths due to the barrier of language.

I deduce five key claims based on Strawson’s (1959) distinction.

- (1) His work in *Individuals* is an example of descriptive metaphysics.
- (2) That revisionary metaphysics is “at the service of” descriptive metaphysics. Some examples of revisionist metaphysics are found in Aristotle, Leibniz, Kant, etc.
- (3) Strawson(1959) considers our current conceptual scheme constant over time and identical even among different languages.
- (4) The identifiability criterion should determine ontological priority. What is identifiable by our conceptual framework is more real than what is not.
- (5) In Strawson's ontology, material bodies (and persons) are given priority over perceptual objects, unobservable objects, and events or processes.

Compared to Whitehead's position, Strawson’s distinctions appear to be a reverse of speculative metaphysics. Whitehead’s PR would be described as undertaking revisionary style metaphysics because he proposes a new conceptual scheme adequate to the purposes of science. However, he is also descriptive because the basis of these concepts by which the ontological natures are postulated is

our ordinary experience. The categorial schemes represent generic descriptions of the common features of experience.

In an actual sense, Strawson's own practice is not purely descriptive. He offers explanations, propounds necessities, rejects criticisms, and describes common-sense conceptual frameworks. Several differences between the revisionary and the descriptive tasks are incoherent with Strawson's descriptions. In a paper by Keinänen Markku titled *Revisionary and Descriptive Metaphysics*, he establishes that the scope of study of the two types of metaphysics varies, causing a disparity in their conceptual frameworks.⁹⁴ This indicates that the conceptual frameworks of the one appear to be at odds with the other. If descriptive metaphysics deals with our experiential conceptual frameworks, and the revisionist's ontological schema is not referent to that conceptual framework, then there is an obvious epistemic gap between their theories. For example, a revisionary metaphysician builds categorial schemes based on the ontological structure (such as matter, quarks, electrons) generally applied to *all* entities in the universe.

In contrast, a descriptive metaphysician focuses on common-sense interpretations confined within the scope of high-level entities, i.e., conscious beings. This creates an imbalance in the interaction of the revisionist and the descriptivist ideas because while the former's conceptual frame of reference is all of nature, the latter's is restrained to particular worldviews. In the case where descriptive metaphysics must speak of entities outside the human scope, he must speak from the perspective of human thought. This is the argument of correlationism which is the idea that the world only appears within the framework of human thought. In chapter four of this thesis, I will discuss how speculative metaphysics attempts to save us from falling into the correlationist trap.

However, the argument I am attempting to put forth here is that the divisions that Strawson (1959) makes between revisionary and descriptive metaphysics fail not only in feasibility because there is often no clear-cut separation but also perpetuates a form of bifurcationism in methodology, such that the revisionist and the descriptivist do not operate within the same conceptual framework. I employ the analogy of Kriegel(2019) on the ontological status of flowers to buttress this point.⁹⁵ First, descriptive metaphysics offers a fairly simple answer in an ontological debate on the existence of flowers. To the descriptive metaphysician, flowers exist as presented in experience because the ontology implicit in our conceptual scheme posits the existence of "flowers" as complete entities. This is supported by Strawson's (1959) point (4) on ontological priority based on identifiability. Flowers

⁹⁴ Markku Keinänen, "Revisionary and Descriptive Metaphysics," in *Metaphysics: Historical Perspectives and Contemporary Developments*, edited by Jiri Benovsky (Routledge, 2019), 89–105.

⁹⁵ Uriah Kriegel, "The Epistemological Challenge of Revisionary Metaphysics," *Philosophical Studies* 176, no. 12 (2019): 3321-3341.

have the ontological identity they have because they are identifiable by our conceptual framework as such.

On the contrary, the matter goes beyond this simplicity for revisionary metaphysics. Kriegel (2019) cites three possible ontological explanations: either that there are no flowers, only sub-atomic particles arranged ‘flower-wise’⁹⁶, or that the idea of ‘flowers’ exist in addition to particles and other “arbitrary-looking objects”⁹⁷ or again, that flowers exist but no other “arbitrary concoctions” do.⁹⁸ These explanations prevent a revisionary metaphysician from incorporating common-sense experience into his theories, and the reverse is true for a descriptive metaphysician to show how the entities described by the revisionist tally with ordinary experience.

Strawson perpetuates the bifurcation of the substance-attribute metaphysics by strictly prescribing this division because he defines ontological priority by our capacity to pick out and talk about things. This makes him believe that ‘our conceptual scheme’ has persisted over time and between different languages, such that the framework that grounds the ontological status has remained the same. This idea stems from substantive metaphysics, which believes in the constancy of a substance. Whitehead shows that our conceptual framework is only a historical and local accident denying the conceptual invariance thesis. It served a certain purpose over time when our understanding of the world was limited.

The categoreal scheme, which I will elaborate on in chapter three, endeavors to bridge the gaps that the position of Strawson creates for epistemology and ontology. Whitehead shows that the only way to avoid these bifurcations is to reidentify the function of the metaphysician as expressing the relations between science and experience, which is the reverse of Strawson’s aim. Strawson seeks to maintain the division with no actual point of convergence. Therefore, his ontological hierarchy is rooted in a correlationist perspective of the world, which prioritizes only perceptual, three-dimensional objects, beyond which we ‘must not speak’. This is an instance of the old myth that whatever has no name does not exist.

Summary

The purposes of this chapter were accomplished in four ways. The first was to sketch out the motivations for the pursuit of metaphysics for Whitehead. The second was to evaluate the arguments that have been held against metaphysics by three infamous analytic thinkers: Russell, Wittgenstein,

⁹⁶ Sider denies existences of concrete particulars other than mereological simples, see further Sider, T. (2011). Again, Merricks (2001) accepts conscious composites in addition to composite particles explained in Kriegel (2019).

⁹⁷ Kriegel(2019) cites examples of arbitrary objects such as the fusion of the flower on my desk, the desk itself, and the moon.

⁹⁸ On this position, see further Markosian(1998) and Kriegel(2008).

and Carnap. The third aspect was to discuss what Whitehead shared in common with these analytics by reviewing his body of works as a complete continuous unit consistent with the early analytic school. This interpretation was intended to clarify the features of his metaphysics and its response to the problems of classical metaphysics. The fourth part systematically evaluates the nature and function of his speculative metaphysics. On this front, I evaluated the role of language and how Whitehead uses it as a tool in his speculative thought. I further considered the trifold nature of Whitehead's speculative method as adequate to overcome the bifurcationist position. I compared this method to that of Strawson. Finally, I concluded that Strawson cannot sustain his thesis because he generates conceptual and ontological gaps because of this separatist methodology he prescribes. When pioneering ideas such as Whitehead's appear, an obvious challenge is understanding them using the tools of our already established frameworks of knowledge. In this chapter, I proposed that we must understand Whitehead with the help of *Whitehead* by considering every aspect of his life as testifying to his philosophy. We study Whitehead by imitating his style. Therefore, any attempts to classify him under a particular school or to split his works based on externally defined criteria will inevitably lead to obscurities.

Chapter 3

THE WHITEHEADIAN CATEGOREAL SCHEME

Primitive men were not metaphysicians, nor were they interested in the expression of concrete experience. Their language merely expressed useful abstractions, such as 'greyness of the stone' (Whitehead 1929, 159).

The purpose of the previous chapter was to identify the motivations of Whitehead to pursue a metaphysical path, as well as to spell out the requirements of the speculative method as a solution to the problem of the bifurcation of nature. In this chapter, three important discussions will be initiated. Firstly, I will discuss the purpose of elaborating the categoreal scheme. Secondly, I will discuss crucial aspects of the scheme and show how each category internally reflects the three fundamental axioms of the ultimate category. Lastly, I present the critiques against Whitehead's metaphysics and possible responses that allow the clarification of some core principles of his speculative thought.

Whitehead's metaphysical enterprise must be acknowledged as a persistent effort to do justice to our commonsense propositions, which are always presupposed in practice. Some of these presuppositions are the reality of causal influence, the existence of an external world of diverse entities, the conviction that we make some decisions freely, or that we possess certain moral and aesthetic guidance in the structure of our everyday experience. Process philosophy, as Whitehead often describes, is a patchwork of mainly Platonic, Cartesian, Lockean, Humean to some extent, Newtonian, Einstein, Bergsonian, Jamesian, and even sometimes Aristotelian, Leibnizian, Spinozist, Kantian ideas, to name a few of philosophy's finest. Whitehead refuses to discard the positions of his antecedents. Instead, he reconstructs a theory of nature by reframing, where needed, replacing concepts to avoid unwanted implications, and stitching into a singular piece, an all-encompassing theory of experience. Whitehead's theory of organism, aligning deeply with the seventeenth-century science and philosophy of Descartes, Newton, and Locke, attempts to continue the earlier thinkers' elucidations without the erroneous implications derived from them by successors.⁹⁹

As I earlier alluded, speculative philosophy aims to provide an account of reality that overcomes the bifurcation problem. As a solution, it is intended to, in Stengers' words, "resist the power of theories that silence common sense" (Stengers 2002, 9). I employ the term 'solution' cautiously because a qualification of what Whitehead attempts in this way is liable to misinterpretation. This is because the idea of 'solutions,' especially in scientific and philosophical thought framework,

⁹⁹ In the preface of PR, Whitehead categorically states this affinity:

"These lectures are based upon a recurrence to that phase of philosophic thought which began with Descartes and ended with Hume. The philosophic scheme which they endeavor to explain is termed the 'Philosophy of Organism.' There is no doctrine put forward which cannot cite in its defense some explicit statement of one of this group of thinkers, or of one of the two founders of all Western thought, Plato and Aristotle." This, he specifies as the move to "just those elements in the writings of these masters which subsequent systematizers have put aside." (Whitehead 1985, preface).

subtly suggests a notion of systematic thought. However, Whitehead's extensive reference to other thinkers and the style of his elucidation begs the question: what is Whitehead's own metaphysical system? How true can we stay to the spirit of Whitehead's work if systematized? I will set these questions aside to be tackled later (Chapter Six), but the emphasis is to follow closely the path Whitehead pursues to connect seemingly conflicting philosophies to arrive at an adequate theory of experience.

3.1 Grounding the Metaphysical Categories

This section will consider the four metaphysical categories of Whitehead's metaphysical exegesis. First, the *categories of existence*, then the *categories of explanation*, after the *categories of the ultimate*, and finally, the *categoreal obligations*. Whitehead collectively calls these the *categoreal* scheme. The term 'categoreal' instead of 'categorical' appears strange, yet Whitehead does not explain his choice. In the editor's preface to PR written by Griffin and Sherburne, they explain that Lowe reports Whitehead, after discussions with C. I. Lewis, decided to change from "categorical" to "categoreal" throughout the work. The change might be due to the emphasis Whitehead seeks to place on the tentative nature of the categories. The term 'categorical' implies some definiteness that undermines the speculative purpose. This purpose is that "every entity should be a specific instance of one category of existence, every explanation should be a specific instance of categories of explanation, and every obligation should be a specific instance of categoreal obligation" (Whitehead 1929, 20). The inclusion of the clause 'every' as a key criterion in speculative thought excludes it from being definite. Instead, it is an open-ended description of experience as we know it and will come to know it in the future.

The categories in the work of Aristotle and Kant appear quite definite and complete, and are somewhat problematic. On the one hand, Aristotle's metaphysical categories attempt to delineate basic modes by which we can and must describe 'being'. On the other hand, Kant's epistemological categories outline the modes in which the structure of our faculties of knowing gives form to our experience. Their respective exclusivity imports a bifurcation between ontology and epistemology. Whitehead's approach is a blend of both schools. He adopts the metaphysical position of Aristotelian categories but rejects the substance-predicate logic, while he embraces the epistemological perspective of Kant in securing legitimacy for perception and scientific knowledge.

The epistemic foundation of Whitehead's schema is the category of explanation in which he relates the metaphysical to the epistemic. He connects the 'how' to the 'what' by the 'principle of process', which states that the 'being' of any entity is composed by its becoming (ibid, 34). This

reverses the Kantian method of describing how subjective data enters the objective world. In its place, Whitehead advocates for a “critique of pure feeling” (ibid,112) where the subject emerges from the objective world— a 'superject' rather than a 'subject' retaining its own subjective interconnections.

3.1.1 The Category of the Ultimate

The category of the ultimate is the first defined class. It is the most fundamental category of 'being' or 'entity', which is the ultimate generality of the character of experience. Whitehead says, “The Category of the Ultimate expresses the general principle presupposed in the three more special categories” (Whitehead 1929,21). In a basic description of experience, one can infer three essential qualities. For example, in my experience of an apple, first, I recognize the unity of the experiencing 'self', the unity of the percipient object, and the unity of the experiential event. These constitute the first axiomatic principle of experience—Experience is unified. Secondly, I observe the objects of my experience as also having a certain plurality that unites into the first principle. I can refer to the color of the apple as a distinct quality that can exist in other entities besides the apple, the same can be said of its shape, texture, etc. Therefore, experience is said to have the quality of informative diversity. Thirdly, I am aware of the continuity of events in my experience. This continuity is what makes Whitehead call his metaphysics one of process. The continuity between the immediate past and the present demonstrates that my experiences are not completely fragmented but coherent and continuous. Based on these characters, Whitehead postulates that in a general sense, every event, scientific or lived has three features: the 'many' representing the diversity in the elements, the 'one', representing the unity of their relations, and the continuous 'process' which he calls creativity or creative advance.

As such, Whitehead's category of the ultimate equates to the Aristotelian category of primary substance. Similar to Aristotle, the category of the ultimate is one above which there is no higher category. Out of this category, more particular categories can be postulated by abstracting further characteristics from the initial postulates. Therefore, the notions of *creativity*, *many*, and *one* are necessary suppositions in the other categories yet to be expounded. They embody the recurring patterns of the cosmos in varying scales of events.

The term 'one' is the definiteness of being, indicating singularity. This is not the 'one' of numerical significance but of the harmony attained when many entities converge. The 'one' is the reason for which the universe is complex yet interconnected. Its growth is in the form of incremental syntheses of diverse entities. Consequently, the quality of 'oneness' implies the plurality of the 'many'. Whitehead clarifies that the concept of being is at once implied as the definite being and the plural 'beings in disjunctive diversity' (ibid,21). It is expedient to note that the quality of 'many' is a

relational condition occasioned by the character of the actual entity. It highlights the character of potential for unity emerging from interacting actual entities. Disjunctive diversity offers an explanation against “extreme monism,”¹⁰⁰ in which the reality of the actual world is found in only one substance. In speculative metaphysics, the terms ‘universal’ and ‘particular’ receive new implications. They represent instead the principle of the many-as-one and the one-as-many in contrast to Aristotelian categories.

3.1.2 Categories of Existence

The category of existence is a further abstraction of the initial axioms of experience. It describes the exemplification of the axioms hypothesized in the category of the ultimate in the actual world. Whitehead explains that “the metaphysical first principles can never fail exemplification” (ibid,4), so the categories of existence are necessarily true based on the category of the ultimate. Every existent entity must be an example of such primordial principles because “we can never catch the actual world taking a holiday from their sway” (ibid). Consequently, the analysis of this category mirrors the pattern of every form of experience.

Whitehead enumerates eight categories of existence. Two categories stand “out with extreme finality” (ibid,22) because they represent the boundaries of determining ultimate principles. To characterize the boundaries of determination is to be those elements that are neither intermediary states nor merely relational conditions but exist as termini or elements of fact. These two important finalities are a) actual entities, also termed ‘actual occasions’, ‘final realities’, or ‘res verae’, and b) eternal objects, also known as ‘pure potentials necessary for specific determination of fact’, or ‘forms of definiteness’. The five other elements enumerated in the categories of existence are produced by working out the relationship between actual occasions and eternal objects and the relations of those relations. The results are prehensions, nexus, subjective forms, propositions, multiplicities, and contrasts. This category maintains the open-endedness of the category of the ultimate because of these intermediaries whose relations are infinite. I will explain this further in the subsequent section.

3.1.3 Categories of Explanation

At this point, the obvious question is how Whitehead arrives at these categories of existence and from where their precisions and terms come. Having established these three ultimate characters and their forms of actualization, Whitehead invites us to bring together these attributes and define the

¹⁰⁰ This is in reference to the Bradleyan and Hegelian theories that reject relations in favor of absolutes. See in Whitehead 1985, 142.

entities produced in their interrelations. This approach assumes that as long as these existents are in experience, they interact, we can speculatively define the nature of their syntheses. This category of explanation is, in a true sense, Whitehead's entire speculative metaphysical scheme because it involves the most abstract attempts to detail the ultimate cosmic processes. It is the truest attempt to achieve the task of the metaphysician, which in CN is explained as "There can be no explanation of the ' why ' of knowledge; we can only describe the ' what ' of knowledge. Namely, we can analyse the content and its *internal relations*, but we cannot explain why there is knowledge. though there is need of a metaphysics whose scope transcends the limitation to nature. The object of such a metaphysical science is not to explain knowledge but exhibit in its utmost completeness our concept of reality" (Whitehead 1920, 32).

The category of explanation is the analysis of the content and [its] internal relations that Whitehead prescribes above. The reference to the explanation of knowledge not only delimits the boundaries of what is achievable for metaphysics, but establishes the open-endedness of speculative thought. Here, I imply that Whitehead is not concerned with the ultimate reasons but is determined to offer the ultimate descriptions. His critique against classical ontology is its supposed attempt to reveal the hidden knowledge of the cosmos.

In Klaus Hartmann's Essay on *Types of Explanation in Hegel and Whitehead*, he explains this distinctive perspective.¹⁰¹ Hartmann(1988) remarks that the project of Whitehead's thought is to offer a quasi-descriptive metaphysics that is somehow compatible with hidden entities. In this descriptive generalization, he does not account for the origins of the world, such as the origin of the first cosmic event. Even in supposing God, Whitehead attempts to maintain a reasonable distance from asserting a primordial and existential cosmology.¹⁰² He places creativity as the ultimate principle, avoiding the supposition of a primordial substance. For Whitehead, the 'unmoved mover' is this ultimacy of creativity.

As elaborated at the beginning of this chapter, Whitehead seeks to bridge the gap between the metaphysical categories of Aristotle and the epistemological categories of Kant because they lend toward misplaced concreteness. On this front, Whitehead assumes the metaphysical and ontological principles as one and the same. This is because ontology is the explanation of metaphysical principles. If one considers the category of the ultimate as the metaphysical category, then the category of explanation is the epistemological category united with it by the category of existence. The 'how' of knowledge is then the clarification of the processes that unite the principles and experience. Experience

¹⁰¹ Karl Hartmann, "Types of Explanation in Hegel and Whitehead," in *Hegel and Whitehead: Contemporary Perspectives on Systematic Philosophy*, ed. George R. Lucas (New York: State University of New York Press, 1988).

¹⁰² *Ibid.*, 410-412.

is justified because every brute fact is interpretable by the scheme of principles. Whitehead enumerates twenty-seven Categories of Explanation, although the list is certainly not exhaustive. I will, however, reclassify them into the eight categories of existence because they are descriptions of their interactivity. The reclassification will offer much clarity and structure to the speculative method and enhance its form by eliminating repetitive notions.

I. Actual entities

Except in reference to a particular kind of entity (God) with spatiotemporal variance, all actual occasions operate on the same cosmic scale. Therefore, I will interchangeably use actual entities and actual occasions to refer to all actualities within the spatiotemporal dimension. One of the arguments made in the previous paragraph is that Whitehead is not in search of the ultimate reasons. However, for him, if we must necessarily speak of ultimate reasons, and if there be any, we must speak of actual entities as the only “reasons”¹⁰³.

The category of explanation, then, is the ontological principle. It is a descriptive account of the trajectory of the ultimate reasons. By embodying this principle, the actual entity constitutes the foundational pillar for Whitehead’s project and is crucial for establishing any philosophical and scientific undertaking. It is the essential category by which any productive exegesis can be provided of nature. According to John Cobb in *Whitehead Word Book: A Glossary with Alphabetical Index to Technical Terms in Process and Reality*, Whitehead intended the concept of the actual entity to be cross referential in several philosophical and scientific schools.¹⁰⁴

In actual occasions, the term “actual” should not be misconstrued in the realist sense. ‘Actuality’ refers to the adjectival form of ‘act’ in opposition to potentiality.¹⁰⁵ It is comparable with Descartes’ mental and material substance, or yet still, Platonic ideas. In Hume’s philosophy, actual entities correspond to the patches of color and sound observed in experience. From the perspective of Kant and Hegel, they are the *Geist*, the central notion by which the world is operational.

¹⁰³ As described by Whitehead: “That every condition to which the process of becoming conforms in any particular instance has its reason either in the character of some actual entity in the actual world of that concrescence, or in the character of the subject which is in process of concrescence”(Whitehead 1985, 24).

¹⁰⁴ John B. Cobb Jr., *Whitehead Word Book: A Glossary with Alphabetical Index to Technical Terms in Process and Reality* (Albany: State University of New York Press, 2008), 16-18.

¹⁰⁵ See further James Bradley, "Transcendentalism and Speculative Realism in Whitehead," *Process Studies* 23, no. 3-4 (1994): 155-191.

Furthermore, in Spinoza, to be an actual entity is to be the one substance, God, or nature, by which all other modes are produced. While for Leibniz, actual entities correspond to monads or entelechy.¹⁰⁶ In ordinary experience, actual entities are those momentary bits of experience that make up our world.

A prevalent apprehension about the theory of actual occasions is why Whitehead insists on coining a new name for ideas already described in the major philosophical schools. The reason for Whitehead is that ‘actual occasion’ as a term is less ‘tainted’ by the antecedent metaphysical principles established in the subject-predicate format. Although these ideologies share some affinity, they also carry certain implied properties that may be problematic for Whitehead’s schema. For scientific materialism, matter is a substratum, but for speculative thought, actual entities are abstractions of process that cannot be precisely measured on a spatio-temporal scale. Actual entities are at once so big because they are everywhere, yet so little because their reality is undetachable from the complex interaction of the world. James Bradley reports in *Transcendentalism and Speculative Realism in Whitehead* that when Whitehead was asked, by a student, how big an occasion is, he replied with a smile, placing his thumb and his forefinger about an inch apart and said, “Oh, about so big!” (Bradley 1994, 171).

Actual entities are functions of the vast relations that enter their constitution. Hence, an actual entity is analyzable in an infinite number of ways, and each analysis results in the discovery of some component part which is itself an actual entity. One of these ways of division is termed *prehension*. Within each prehensive division, the character of the actual entity or entities from which it is derived is demonstrated.

II. Prehensions, or Concrete Facts of Relatedness

Prehensions represent the quality of relatedness that is part of the relation. This idea stems from James’(1912) explanation of the nature of relations.¹⁰⁷ He states that the “relations that connect experiences must themselves be experienced relations and any kind of relation experienced must be accounted as ‘real’ as anything else in the system”(James 1912, 40). These elements of the categories, as well as their relations, thus require a categoreal explanation. The term is developed from the Latin word “prehendere,” meaning “to grasp” or “to seize.” So, to prehend is ‘to take in’, and ‘prehension’ qualifies the activity in which an entity seizes upon the information from its surroundings and incorporates that information into its being.

¹⁰⁶ For parallels drawn in the definition of actual occasions or occasions of experience with antecedent philosophical notions, see further, Cobb 1994, 17-21.

¹⁰⁷ William James, *Essays in Radical Empiricism* (New York: Longmans, Green and Co., 1912).

Whitehead calls 'prehensions' a generalization of Descartes' mental 'cogitations' and Locke's 'ideas. Though these ideas vaguely represent the depth of prehension, they carry aspects of the basic attributes Whitehead desires to highlight. From Locke, Whitehead borrows the account of the mental substance. He stipulates that "the philosophy of organism, in its scheme for one type of actual entities, adopts the view that Locke's account of mental substance embodies, in a very special form, a more penetrating philosophic description than does Descartes' account of corporeal substance" (Whitehead 1929, 19). He insists that Locke "gives the most dispassionate descriptions of those various elements in experience which common sense never lets slip" (ibid,51). So, for the category of experience, Locke's descriptions are of great utility because "they cannot be bettered in their character of presentations of facts which have to be accepted by any satisfactory system of philosophy" (ibid). Whitehead's only critique against Locke is that he failed to provide the drastic revision of the traditional categories needed for his ideas. His use of the same conventional metaphysical categories led to the vagueness enabling his theories to be exploited in Hume's skepticism against him. Whitehead alludes that a more authentic description of Locke's *Essay Concerning Human Understanding* should have been analyzing the types of experience an actual entity enjoys. In so doing, Locke would have provided a full account of the experience of an actual entity which "is nothing other than what the actual entity is in itself, for itself" (ibid).

Any prehension has three parts: *the subject*, *the objective datum*, and *the subjective form*. First, the 'subject' is what is doing the act of prehending. This refers to the actual entity in which that prehension is a concrete element. Second, the 'datum' is what information is prehended. Thirdly, the 'subjective form' is how this subject prehends that information. Whitehead understands that the term 'subject' creates the impression that the subject-object relation is passive. The action of a 'subject' implies that the "objective data" has no influence on what the subject is.

On the contrary, Whitehead defies this by insisting on a distinction between an absence of causal efficacy and the lack of significance. An actual entity in the past of a contemporary subject does not actively grasp the latter into its constitution because that actual entity has passed, but it still has causal efficacy. This efficacy is in the sense that it has become an immortalized datum giving the contemporary subject its direction.

A prehension is, therefore, both an internal and external relation. It is internal to the 'prehending' occasion and external to the 'prehended' occasion. The external relation between the prehending occasion and the data about to be prehended is sometimes referred to as objectification. So, to objectify another actual occasion is also toprehend it. The subject of that prehension develops into what it becomes through the activity of prehension. The activity does not change what it prehends(data), but the subject becomes a subject through the objective datum (a prehended occasion).

A subject is not defined before the prehending of the objective datum, therefore, is not detachable from its data. In this character, an actual entity is individuated ontology and a metaphysical principle. It is what it is because its compositional elements embody the many, one, and process.

It goes without saying from the above explanation that the relation between an actual occasion and its objective data is not symmetrical. An earlier objectified datum partly constitutes the subject of the occasion that it prehends and develops. Those previous occasions do not prehend so are not affected by the contemporary subject in the way that they have influenced it. Instead, the new occasion offers a regeneration of the objectified past in the actual world.

There is, accordingly, asymmetry between the prehending occasion and the prehended one. This ensures that the cause is always in the past of the effect. However, the effect contains the cause as part of its internal data. To avoid doubt, Whitehead adopts the term ‘superject’ (merging subject, object, and transcendent unity) to assert that being the subject of its own prehensions means that its objective data bring it to being. Usually, one occasion is in the past of the other, so the past occasion exercises causal efficacy in the present.

The above descriptions of prehensions have been one-sided. They have illustrated a unique kind of prehension in which the superject takes into its internal constitution what is given in the objective data. These kinds of prehensions are termed ‘positive prehensions’ or ‘feelings. However, there are also prehensions that ‘eliminate from feeling’. In those kinds of prehension, their datum is “inoperative in the progressive concrescence of prehensions constituting the unity of the subject” (ibid, Explanation vii). These species of prehensions are called *negative prehensions*. They are the exclusion of a datum from playing a role in the definition of an actual occasion. Nevertheless, when Whitehead uses prehension, he refers largely to positive prehensions. Every prehensive activity is efficacious, so something is passed on to the contemporary superject even in negative prehensions. It is the subjective form of the received objective datum.

III. Subjective Forms, or Private Matters of Fact

Subjective forms represent how objective data are prehended by an actual occasion. They are the choices a superject of a prehension makes about how information is integrated into its concrescence. A concrescence illustrates the process of becoming ‘concrete’. To be ‘concrete’ for Whitehead means to be a fully actual or completed actual occasion. Using the term “concrescence” shows that actual occasions are processes of becoming, and there is a final complete phase called “satisfaction”. As soon as an actual entity reaches its satisfaction, it perishes into immortality for other occasions. For Whitehead, the processes of prehending, becoming, and perishing do not occur on the temporal scale of clock time. They all occur conjointly in a unique temporality that is almost

instantaneous, so they are always found in unity as having occurred all at once. The concept of time is the result of the succession of occasions.

The predominant subjective form is emotion. In prehensions, positive prehensions or feelings occur when the objectified past is made present for an actual occasion, while negative prehension involves eliminating the data of that objectified past. However, emotion, which is the subjective form, is carried on to future occasions. In general, the subjective form of feeling in a moment repeats, to a considerable extent, the subjective form of the preceding moment, although change and intensity remain possibilities.¹⁰⁸ The character of a subjective form is not limited to conscious subjective experience. It is equally discernable in the observations of physical science. In ordinary experience, the feeling of precepts occurs in the mode of causal efficacy, which I will elaborate on in detail in chapter four of this research work. However, in science, Whitehead speculates that the emotional intensity transmissible from feeling to feeling is equivalent to the vector transmission of energy. He explains:

Generalizing from the language of physics, the experience of M is an intensity arising out of specific *sensa*, directed from A, B, C. There is in fact a directed influx from A, B, C of quantitative feeling, arising from specific forms of feeling. The experience has a vector character, a common measure of intensity, and specific forms of feelings conveying that intensity. If we substitute the term 'energy' for the concept of a quantitative emotional intensity, and the term 'form of energy' for the concept of 'specific form of feeling' and remember that in physics 'Vector' means definite transmission from elsewhere, we see that this metaphysical description of the simplest elements in the constitution of actual entities agrees absolutely with the general principles according to which the notions of modern physics are framed. The 'datum' in metaphysics is the basis of the vector-theory in physics; the quantitative satisfaction in metaphysics is the basis of the scalar localization of energy in physics; the '*sensa*' in metaphysics are the basis of the diversity of specific forms under which energy clothes itself. ...But the general principles of physics are exactly what we should expect as a specific exemplification of the metaphysics required by the philosophy of organism(Whitehead 1929,117).

The necessary connection to science is to cover the empirical aspects of the categories. To avoid any bifurcations, Whitehead must show how the atoms and molecules of physics are derivable from everyday experience, such that from the observer's everyday experience, they might deduce knowledge of the entities that cause their unique events. He affirms that "the general principles of physics are exactly what we should expect as the specific exemplification of the metaphysics required by philosophy of organism" (ibid,116).

¹⁰⁸ I will explain in chapters five and six how intensity and change occur through the complexities of subjective forms.

IV. Nexus or Public Matters of Fact

Nexus or nexūs(plural) represent the relationship between actual entities in their existence as one and actual entities in their plurality. There are nexūs without social ordering and others that have such an order. Therefore, it is an umbrella term for both socially and non-socially ordered nexūs. In comparison, society is more specific to those nexūs that have ordering. Most nexūs are societies; therefore, the terms are largely interchangeable. Actual entities, by evolving through their prehensions, create real facts of the togetherness among those entities. These facts are nexūs connected by virtue of the commonality of ‘intra-prehensions’¹⁰⁹. The nexus, as a fact, has the same real, individual, and particular qualities accorded to actual entities and their prehensions. Because nexūs evolve from the potentiality of the many to become a unit, they are called actualized propositions. Therefore, a proposition is, in this sense, a contrast between a nexus's actual and potential unity.

Nexūs are also called public matters of fact because they are the ‘external’ facts that are perceived in the actual world of the occasion as opposed to the ‘private matter of fact’ (subjective forms). Examples include a flower, planets, lakes, mountains, or a quantum of energy. They are usually called events. However, the denotation nexūs extends even more widely to the air within the room, the atmosphere of the entire planet, and the occasions that are together in “empty space.”¹¹⁰ There is a nexus of all the occasions that constitute the sum of the past of any occasion called its actual world. A nexus is not an arbitrary togetherness. The ingression of an eternal object connects its members. Therefore, another way to distinguish a nexus is by first eliminating anything that is an ‘independent entity’, that is, a ‘single occasion’. Although no occasion is truly independent, an occasion defined this way essentially means it does not share the ingression of the same eternal object. A nexus is a plurality of occasions bound together by their internal relations to a particular eternal object.

Additionally, a class or set of actual occasions does not constitute a nexus. For example, the class of all mammals is not a nexus because the internal relations among these members do not enter into their identity as a class. However, a pig or man is considered a nexus because of the internal relations of their bodies that define their identity. Whitehead speaks of the whole of nature as one of such nexūs because it possesses “a structure of events, and each event has its position in this structure and its own peculiar character or quality” (Whitehead 1920,166).

A nexus exists in two ways, either as “objective” or as “formal.” It functions objectively when it is a public matter of fact for the observer. In such objective function, it refers to concrete facts of nature of which ordinary language attempts to speak, including man, dog, Venus, etc. A nexus is

¹⁰⁹ Intra-prehension describes the prehensions that occur among actual occasions of a nexus as distinct from those that occur between nexūs.

¹¹⁰ The nexus in empty space has no social order.

recognized as consisting of individual actual entities in its formal function. The plurality of the nexus is not immediately offered for observers but is discernible through deeper abstractive methods.

The relationship of the objective to the formal can be likened to the connection between a forest and trees. Objective functions recognize the ‘forest’ as a unit, while the formal functions refer to the individual constituting trees. Similarly, the study of the rose flower reveals several individual occasions, such as molecules of carbon dioxide and chlorophyll as discernible through the relations of the discerned flower. These composites are themselves processes of appropriating the past world of many other actual entities, thereby are individual concrescences of those antecedent processes.

Cobb(2008) illustrates that Whitehead sometimes distinguishes the “initial data” of an occasion from the “objective datum.” On one end, the initial data constitute the prehended nexus formally, that is, with all the features of all the individual entities intact. While on the other, the objective datum is when the new occasion prehends the nexus as a whole. Based on this, some interpretations of Whitehead consider an actual entity to be a nexus because it prehends a unit, not a multiplicity. Others insist that an actual entity objectifies other entities individually, which is a nexus in its formal completeness. This means that the richness of the nexus understood formally would be lost in such objectifications.

V. Eternal objects

Eternal objects are called *pure potentialities*, *forms of definiteness*, or simply *objects*. They reveal the other extreme end of the cosmic scheme from actual entities. ‘eternal objects’ are often compared to classical categories such as universals, predicates, platonic forms, or ideas. However, for Whitehead, the ‘eternal’ in eternal objects is synonymous with nontemporal. They include mathematical forms and formulas, shades of colors, etc. The simplest definition of eternal objects is this: ‘Objects are the elements in nature that can be again’(Whitehead 1920, 144). They do not perish into immortality as actual occasions do.

Actual entities render eternal objects, which are otherwise pure potential, actual in the world. So, they tend to be considered as relating to each other as particulars and universals. However, Whitehead’s use is distinctive. According to Cobb, “every eternal object is a particular, in that it is just what it is and distinct from every other eternal object, but every eternal object is also a universal, in that it is a potential for characterizing any actual occasion” (Cobb 2008, 26). The same can be said of every actual occasion as both a particular and a universal because it is set apart from every other actual occasion and also has the potential for objective immortality in the constitution of any future actual occasion.

There are simple and complex eternal objects. As the name suggests, a simple eternal object cannot be further analyzed into composing parts. Therefore, any “particular sort of colour, say Cambridge blue, or a particular sort of sound, or a particular sort of smell, or a particular sort of feeling” (Whitehead 1920, 149) is a simple eternal object. On the other hand, a complex eternal object is identified by its simple components, like the eternal objects that characterize the perception of an apple are in complex relation to color, shape, texture, etc. A significant part of criticisms against Whiteheadian metaphysics stems from his treatment of eternal objects. I will discuss these under the problems of speculative process metaphysics (§3.3), where other specific qualities of eternal objects will be discussed.

VI. Propositions

Propositions are the result of the interaction between actual entities and eternal objects. They are described as ‘Matters of fact in potential determination’, ‘impure potentials for the specific determination of matters of fact’, or simply ‘theories’. A proposition is almost indistinguishable from an eternal object from the point of view of an actual occasion. The differences are that, firstly, an eternal object is a *pure* potential, and a proposition is described as an *impure* potential. Secondly, an eternal object is disconnected from actuality, while a proposition is necessarily tied to it. Thirdly, propositions come into being along with actualities, while eternal objects do not, as they are strictly timeless. Propositions combine the actual occasions or a nexus and eternal objects in experience. An example of a proposition employed in CN illustrates the point: “The college building in Regent’s Park is commodious” (Whitehead 1920, 11).

The above example is a proposition in which we can identify the college building in Regent Park as a nexus and the quality of being commodious as an eternal object. Such a proposition is how thought unifies an eternal object with that nexus. However, Whitehead thinks that this technique of thought can be easily made false because the logical subject of the proposition already contains descriptors¹¹¹. In other words, supposing the recipient of this information thought that Regent Park was Green Park rather, the proposition is immediately falsified because of the presence of the implicit descriptors, any one of whose denial makes the proposition false.

Whitehead’s propositions are characterized by what he calls a bare ‘it’ so that a more logically precise statement of the proposition is “it is, or that is park-like and commodious.” The pronoun “that” or “it” demonstratively indicates the entity about which we want to speak, which is the logical subject

¹¹¹ Whitehead specifies that he employs the term according to the analysis of Bertrand Russell on a proposition, therefore this is represented as “There is an entity which (i) is a college building in Regent's Park and (ii) is commodious and (iii) is such that any college building in Regent's Park is identical with it'(Whitehead 1920, 11).

of the proposition. From such a precise, logical subject, we can attach certain eternal objects to form what Whitehead calls the “predicative pattern”. This pattern ensures that the eternal object designates the right logical subject.

There are two main types of propositions: perceptive and imaginative propositions. In perceptive propositions, the predicative pattern is derived from actual occasions on the historic route of the physical prehensions from which the logical subject is derived. It simply means that if one perceived the building to be commodious, then for the proposition “it is commodious,” both the commodious quality and the building are associated with the same logical subject.

An imaginative proposition is one in which the percipient thinks, from the above example, that what is being perceived is not a ‘building’ but a ‘doghouse’, and it is not commodious but rather tiny. In this type of proposition, the predicative pattern is not obtained from any physical prehensions of the logical subject as it is in a perceptive proposition. An imaginative proposition could be true, but its difference is that nothing about how it develops gives any reason to believe authenticity. Scientific hypotheses are typically imaginative propositions, although some become well-established theories. However, they are established on complex experiments rather than immediate experience.

This idea does not suggest that perceptive propositions are never false. Due to the complexity of the routes of occasions that make up the objects of our perception, the event in the ‘now’ of our perception, and the changes from the content in causal efficacy to presentational immediacy, often lead to a deficiency in accuracy. Therefore, our perceptive propositions are sometimes false in perceiving external objects other than our past experiences (those that make up the nexus of our body). This is termed a *reversion*.

VII. Multiplicities, or Pure Disjunctions of Diverse Entities

The concept of multiplicities or pure disjunctions represents the relation of the ‘many’. It focuses on the disunity preceding the convergence into the ‘one’ determinate complex unit. It is the relational attribute of actual entities in their individuality yet operating with the possibility of expressing their dynamism for unity. Multiplicities are not nexus because there is no shared relation defining their identity. We can use the example of a class of mammals or a group of men as a multiplicity. They are mere diverse entities with no self-identifying trait.

Whitehead explains that “the *many* become *one* and are increased by one. In their natures, entities are disjunctively ‘many’ in the process of passage into conjunctive unity” (Whitehead 1920, 11, emphasis mine). Our individual experiences exist as multiplicities. These and all other cosmic events then conspire into the unit prehended as the actual world. Nature is a multiplicity before it

becomes a nexus, so when it is a multiplicity, it is a nexus in potentiality. This is called the actual world, or the extensive continuum, which is at once increased by each concrescence yet becomes one. The idea is demonstrated in the Jamesian position, which Whitehead cites: "... that an actual entity is an act of experience....Your acquaintance with reality grows literally by buds or drops of perception" (ibid, 68).

VIII. Contrasts, or Modes of synthesis of entities in one prehension, or patterned entities.

Contrasts are the results of multiplicity among actual entities. They are relations of difference. They are how Whitehead explains what happens when two different entities synthesize into one. A contrast represents the quality of variation that emerges from the multiplicities of the actual world synthesizing into one. Given that concrescences and prehensions are always ongoing, contrasts extend the category of existence infinitely. This is because every synthesis of entities into a contrast produces a new existential type. They embody the process or creativity of actual entities. For example, synthesizing an actual entity and an eternal object is a generic contrast. However, the most important type of contrast is the one between a proposition and a nexus. This contrast is called an affirmation-negation contrast. As I indicated, a proposition has logical subjects and a predicative pattern. This kind of contrast is created when the nexus members are the proposition's logical subjects.

A simple example is the 'cat is white,' which in the proper Whitehead proposition will be described as "that is catlike, or it is catlike and whitish". The logical subject here is a nexus to which the 'catlike' and 'whitish' predicative patterns refer. This kind of contrast is how everyday experiences are communicated. One can conclude that a perceptive proposition is a contrast. However, it is a contrast because its logical subject is a unity representing a multiplicity(nexus). It is the commonest and most recurrent of contrasts. The other forms of contrasts are not essential for the current chapter. However, they will be introduced as needed.

3.1.4 Categoreal Obligations

Categoreal obligations refer to the principles that govern the relationships enumerated above. They are how entities must act to maintain a certain order in nature. The principles are not externally defined and imposed. The relations of the entities themselves instead create them. In science, they are understood as the laws observed in nature, while in ordinary experience, they refer to the ordered pattern felt as governing both us and others. In some sense, they are responsible for the intuition of moral direction in our decisions.¹¹² There are nine categoreal obligations based on the understanding

¹¹² See chapter six §6.4.

of the earlier categories. I will, however, discuss three of them: the category of subjective unity, the category of transmutation, and the category of intensity. These categories are chosen for the questions tackled in subsequent chapters five and six. These obligations are essential to interpreting self-identity, consciousness, moral and aesthetic values in Whitehead's philosophy of organism.

I. The Category of Subjective Unity

This category is also termed the class of *pre-established harmony*. It enumerates the normative dynamic between actual entities, eternal objects, and creativity. The category states, "The many feelings which belong to an incomplete phase in the process of an actual entity, though unintegrated by reason of the incompleteness of the phase, are compatible for integration by reason of the unity of their subject"(Whitehead 1929, 26). Whitehead borrows the Leibnizian phrase because, in a considerable sense, this category offers the principle by which God functions in the actual world. The principle of subjective unity embodies the fact that one subject is the final end, the *telos*, conditioning every component feeling. So, there are component feelings that are not synthesized. However, their incomplete phases bear a unity with the subject because of the pre-established harmony by which each feeling culminates into some ultimate satisfaction somewhere. There is a determinate order of the cosmos, which comes from the relation of multiplicities. If we take the two finalities: actual occasions as self-causing and the eternal objects which have the potential to ingress into actual entities, then the ordering of the universe hinges on the following questions on principles.

a) What principle selects which eternal object to ingress in what event, b) By what obligation does the actual occasion make its rational choice? c) If the actual occasion proceeds from a lure towards a subjective aim, what determines the end it visualizes? Is it generated out of randomness? d) It has been established that the actual entity perishes after satisfaction. How does the subsequent logical subject of this datum acquire and seek a new subjective aim considering that it comes from a 'perished' past?

Questions **A** to **D** above establish the necessity of an added functional actual entity to perform the tasks that actual occasions are incapable of executing because of spatio-temporal restraints. Whitehead justifies his introduction of God in his categories. First, God, as an actual entity, gives the initial aim to the actual occasion. The specific eternal object is tailored to the occasion's particularity in this initial aim.¹¹³ Given that God assigns the initial aim, He is also responsible for defining the locus of the actual occasion within the spatiotemporal extensive continuum. Once the standpoint of the actual occasion is defined, its interaction with other actual occasions in its world is likewise

¹¹³ See argument in John B. Cobb Jr., *A Christian Natural Theology Based on the Thought of Alfred North Whitehead* (Philadelphia: Westminster Press, 1965).

determined. Thus, by setting subjective aims, God determines what the occasions will prehend respective to each other, which eternal objects will be ingressed in that occasion, and all the composite occasions respective to it. Actual occasions cannot visualize the entire continuum by being operative within space-time. Therefore, they cannot set aims for other occasions because of this limited perspective.

Second, the initial aim also influences the satisfaction the occasion will attain. Here, there is a delicate play of freedom and determination. According to Cobb(1965), the “ordering of possibilities is such that every possible state of the actual world is already envisioned as possible and every possible development from that actual state of the world is already envisioned and appraised. Thus, the “one primordial ordering of eternal objects is relevant to every actuality with perfect specificity” (Cobb 1965,122).

Third, the rational choice of the occasion comes from its prehension of the datum given, which is itself a product of all the individual aims of the component entities. The aims of those past entities were directed toward the present aim of the subject. Each subject of a contemporary occasion recognizes that the actual world it prehends now was made for it, and it chooses to fulfill the aim that the whole actual world colluded to accomplish up to that point. If there are any incomplete phases of unsynthesized feelings, they are conditioned and complemented by other feelings according to a perfect order of synchronicity. The process of each feeling is to render that feeling integrable with the other feelings.

Lastly, God's function also answers the question of how a new subjective aim emerges from a perished past. When the initial aim is set, it is configured to a pattern of recurrent aims for individuals and nature as a collective. This is comparable to some form of recurring fractal sequence, predetermined to have a certain harmony and synchronicity, except that for the complex occasions that can alter the data they receive, their alterations influence the sequence of the pattern. This is a dynamic actualization where whatever aspect changes, no matter how small on the cosmic scale, can provoke other changes, significant or not.

I shall set aside the discussion of God and how the actual occasions relate to predetermination within the actual world. Although these are relevant in theological, moral, and ethical issues that fall under the scope of the categorial obligations, the core aspects essential for this chapter have been highlighted. God is an entity in the cosmos as much as any other actual entity. Consequently, once the scheme adequately interprets his role, speculative philosophy has fulfilled the criteria of adequacy and coherence.

The principle of subjective unity also implies that the actual entity is *dipolar*. Subjective unity is a fusion of the actual occasion's physical and conceptual aspects. This is further supported by the

obligation of Conceptual Valuation, which states that “from each physical feeling there is the derivation of a purely conceptual feeling whose datum is the eternal object determinant of the definiteness of the actual entity, or of the nexus, physically felt” (Whitehead 1929, 26). The actual occasion has two poles: the physical and the conceptual. It has a physical pole made of physical prehensions or feelings. The physical feelings represent the impact of the given world in our experience and the relation we bear with events from the past. It represents the past influencing the present. The past signifies repetitiveness, sameness, and pattern as given in laws and anticipated sequences. For example, the physical pole constitutes aspects of the event where there are cause and effect relations. The causes carry in them their effects because the event brings the past into its present.

On the other hand, the mental pole is made of conceptual prehensions or feelings. Conceptual prehension is simply the feeling of an eternal object. For Whitehead, the definition of the mental is the ability to modify any given data in an entity’s own becoming. Therefore, the mental pole is described as the transcendent pole of the entity that takes the actual occasion out of the world (the past given to it as data).

This category of subjective unity exhibits the interconnectedness of the two poles of the actual occasion. There are antecedents, the eternal objects ingressed in previous concrescences, which are objectified and supplied as the physical feeling. In this way, there are no pure feelings of physicality or mentality, rather, impure feelings as a synthesis of both. As stated, this category is the principle that grounds the knowledge of causes and effects in the world. The cause is the subject or the feeler of the feeling, which is subsequently reproduced in the effect with the partial equivalence of subjective form.¹¹⁴ We can always determine the cause from the effect because they share the same prehension.

II. Category of Transmutation

The criterion of adequacy in Whitehead’s speculative thought compels an evaluation of the specific qualitative experience of humans as exhibiting distinct characters from other societies. These characteristics must be obligations since they are recurrent qualities among societies that enjoy a certain amount of complexity. The position of scientific materialism is that the material compositions of all entities are identical so that the nature and structure of the molecules in a rock are no different from that of a human. Materialism ‘explains away’ the feeling in human experience called qualia, phenomenality, or subjective consciousness. Contrarily, Whitehead avoids this by placing the possibility for an increase in gradations of intensity and transmutation within these entities. Although

¹¹⁴The elaboration of the vector character of experience is illustrated by the asymmetry of causality and the irreversibility of time. (cf. Whitehead 1985, 237)

both materialism and process organism promote monism, Whitehead shows the ability to achieve intensified phenomenality within the dynamism of actual entities.

He achieves this in two ways, via the category of transmutation and subjective intensity.

The Category of Transmutation. When (in accordance with category [iv], or with categories [iv] and [v]) one and the same conceptual feeling is derived impartially by a prehending subject from its analogous simple physical feelings of various actual entities in its actual world, then, in a *subsequent phase* of integration of these simple physical feelings together with the derivate conceptual feeling, the prehending subject may- transmute the datum of this conceptual feeling into a characteristic of some nexus containing those prehedded actual entities among its members, or of some part of that nexus. In this way, the nexus (or its part), thus characterized, is the objective datum of a feeling entertained by this prehending subject(Whitehead 1929,237).

There is generally a continuous prehension from actual entity to actual entity in the world. This may lead to an enormous repetition of elements with no true novelty. Physical prehensions are noted for the patterned repetitions. Therefore it is only through the conceptual pole that actualities exercise their freedom of choice. Consider the ordinary perception of a cat lying on a couch. What one experiences is not the prehension of its individual actual occasions or eternal objects, such as patches of color separate from shapes, individual furs perceived in succession, or the distinct occasions that make up the cat at that moment. How does experience obtain this unified perception of societies which are themselves composed of multiplicities? This is done by the transmutation principle. For Whitehead, there is a change from the many simple feelings of atomic entities to the experience of significant objects through the process of “transmutation.” It is by this that any meaningful perception can take place. Transmutation occurs as the recognition of a conceptual feeling from an antecedent phase as identical to the currently ingressed eternal object of the present phase. Because the eternal object in both the antecedent data and the current prehension are the same, this common eternal object to the individual events is then applied to the nexus. The society composed of many occasions is then felt as one entity with a definite character.

The category of transmutation remains one of the difficult obligations to explain. Here is how it can be represented in a logical statement.

$\forall x, y, z, w [(Cx \& Cy \& Cz \& Dw) \rightarrow Txz \& Tyz \& Tzw \& Txw \& Cn]$, where:

x, y, z, w are physical feelings of actual entities

Cx, Cy, and Cz represent conceptual feelings derived from these analogous physical feelings of actual entities in the prehending subject's actual world.

Dw is a derivate conceptual feeling derived from integrating simple physical feelings with the conceptual feelings.

Txz, Tyz, Tzw, and Txw are transmuted data of the conceptual feelings into characteristics of some nexus or part of that nexus containing the prehended actual entities.

Cn is the complete datum of the transmuted feeling.

Dw→ Cn is the derivative conceptual feeling that becomes the transmuted feeling.

It reads as follows: For all x, y, z, and w, if x, y, and z are conceptual feelings derived from analogous physical feelings of actual entities in the prehending subject's actual world, and w is a derivative conceptual feeling derived from integrating the simple physical feelings with the conceptual feelings, then Txz, Tyz, Tzw, and Txw are transmuted data of the conceptual feelings into characteristics of some nexus or part of that nexus containing the prehended actual entities. The complete datum of the transmuted feeling, Cn, is a contrast because it represents a singular transmuted characteristic of a diversity of actualities in a nexus.

The formula expresses the category of transmutation as describing how a prehending subject can transmute a conceptual feeling into a characteristic of some nexus containing the prehended actual entities or some part of it. The transmuted data are the objective datum of a feeling entertained by the prehending subject.

Whitehead does not give a specific example of transmutation but compares it to the Leibnizian problem of confused perception. Leibniz describes perceptions of things the subject is unaware of and are removed from the subject's body as 'confused.' In Ariew and Garber (1989), *G. W. Leibniz Philosophical Essays*, we see an example of Leibniz's argument.¹¹⁵ It goes like this: "When I go to the beach, I do not hear the sound of each individual wave distinctly; instead, I hear a roaring sound from which I am unable to discern the sounds of the individual waves" (Ariew and Garber 1989, section 13)

Whitehead, by the category of transmutation, indicates that this 'confusion' comes from the objectified data and the prehending occasion in the present possessing the same conceptual feeling because of their common eternal object. It must be noted that transmutation does not occur in the first moments of perception, that is before any information integration has occurred. When I perceive a cat for the first time, there are only simple physical feelings without any conceptualization or transmutation. The category of transmutation is applicable through the process of integration and the derivation of conceptual feelings.

Now to the application of transmutation. Suppose you have prehended multiple simple physical feelings of various "brown cats" in your environment. Through the integration process, you may derive a conceptual feeling that captures the eternal object of "brownness" that these cats share.

¹¹⁵ Roger Ariew and Daniel Garber, eds., *G. W. Leibniz Philosophical Essays* (Hackett, 1989).

This derivative conceptual feeling can then be transmuted into a characteristic of a larger nexus that contains these cats as members. In this way, the transmutation of a conceptual feeling derived from multiple physical feelings allows for the formation of more complex, integrated perceptions that capture the shared characteristics of prehended actual entities. By this, Whitehead solves the age-long debate on whether perceptive qualities exist outside a perceiving mind. The response is that they do because eternal objects do not require a mind to ingress into actual entities or societies. Our perception of that quality is because it precedes our mind as ‘nature is closed to mind’(Whitehead 1920, 4). In Leibniz’s example, the identification of the nexus, the waves with the rushing collective sound, is because of the transmutation of the conceptual feeling into the property of the nexus, the rushing sound of the sea. Even if no one could hear the sound of the waves, they were already present.

III. Category of Subjective Intensity

Whitehead proceeds to explain the difference in perceptual experiences among actual occasions. Whitehead speaks of the category of subjective intensity as:

The Category of Subjective Intensity. The subjective aim, whereby there is origination of conceptual feeling, is at intensity of feeling (a) in the immediate subject, and in the relevant future...For the determination of the relevant future, and the anticipatory feeling respecting provision for its grade of intensity, are elements affecting the immediate complex of feeling. The greater part of morality hinges on the determination of relevance in the future. The relevant future consists of those elements in the anticipated future which are felt with effective intensity by the present subject by reason of the real potentiality for them to be derived from itself(Whitehead1929,27).

According to Judith Jones, in *Intensity and Subjectivity* in the *Handbook of Whiteheadian Thought*, referring to the earliest mention of intensity in Whitehead’s thought is crucial.¹¹⁶As Jones (2013) explains, intensity first appears in Whitehead’s *Universal Algebra*.¹¹⁷ In this work, Whitehead(1898) specifies that an element in a manifold may exist in varying degrees of intensity and is absent at an intensity of zero. Jones remarks that the “tying of existence to a concept of “degrees” expressed by “intensities” although unusual for a work in *Universal Algebra*, serves as a foreshadowing of the uniquely experiential and aesthetic characterization of experience in Whitehead’s mature metaphysical works. Following this work, we observe that the concept of degrees of intensive variation becomes prominent in Whitehead’s description of actual entities. In actual entities, subjective aims push toward higher subjective intensity. The pursuit of intensity expresses the

¹¹⁶John Jones, "Intensity and subjectivity," in *Handbook of Whiteheadian Process thought*, edited by Mark Weber, 279-290 (Berlin, Boston: De Gruyter, 2013).

¹¹⁷ Alfred North Whitehead, *A Treatise on Universal Algebra* (Cambridge: Cambridge University Press, 1898).

creative dimension of actuality. Whitehead underscores that actual occasions reveal their measure of creativity as equivalent to the measure of their capacity for subjective intensity.

The absolute standard of such intensity is in the primordial nature of God. In this aspect of God's nature, there are neither great nor small intensities because it arises out of no actual world. God exhibits the greatest creative impetus in proportion to his intensity. In God, there are no components that are standards of comparison. Nevertheless, in the temporal world, for occasions that possess trivial experient intensity, their decisions of creative emphasis are individually negligible when the datum received is compared with what is transmitted. The differential value elaborates that lower-grade organisms with minimal intensive subjectivity do not obtain much creative prominence. It translates into their subjective forms as merely repeating what is prehended without any novel information.

The subjective form is the felt aesthetic of self-organization that occurs in the concrescence of any actual entity.¹¹⁸ Feelings are often emotional. Thus, emotional intensities are the recompense of orderliness or narrowing of the prehended objective data. Simply put, the intensity of feeling is proportional to the degree of ordering the subject can impose on the data through its subjective form. The more the society can order within its subjects, the greater its capacity to restrict the objective data and introduce a novelty. This increased capacity is evident in the qualities of humans as having a certain superiority in rational thought because the dominant occasion of our history of prehensions achieves a higher intensity by narrowing its prehended information. The feeling of consciousness is the comparison between what was initially given to the lower societies and the intensity attained by the highest phase of concrescence. I will explain, in much detail, this aspect in chapter five of this thesis on consciousness and the evolutionary explanation to support its emergence.

In physics, the principle is evident. It is in accordance with the theory of quanta. Prehensions have vector character, a common measure of intensity, and specific forms of feeling conveying that intensity. This is translatable into the energy of physics as the measure of quantitative emotional intensity and forms of energy, the "species" form of feeling. Given this vectorial quality of experience, the intensity of feeling in the immediate present is also relevant to the future. Whitehead concludes that:

The determination of the relevant future, and the anticipatory feeling respecting provision for its grade of intensity, are elements affecting the immediate complex of feeling. The greater part of morality hinges on the determination of relevance in the future. The relevant future consists of those elements in the anticipated future which are felt with effective intensity by the present subject by reason of the real potentiality for them to be derived from itself (Whitehead 1929, 27).

¹¹⁸ Whitehead 1985, 279.

The core of the cosmos is the balance of determination of the past and freedom of the present. The actual entity in all its relations to other actual occasions, eternal objects, feelings felt, its subjective form of intensity is a social project of harmonizing the push of its determination, the already determined world conspiring to birth novelty, and the pull of its freedom. The purpose of this category, as well as the subsequent ones, is to establish the ontological basis for free will and determination in the actual occasion. Moral obligation results from purely natural interactions, not supernatural mediation. It is essential to Whitehead's naturalism that nothing is actual outside the network of the interconnection of actual occasions. Moral judgments are realities of the cosmos. They emerge within the context of and are influenced by actualities.

From the onset, Whitehead takes a stance against philosophical interpretations of scientific laws that render experience the result of pure mechanism. In the SMW world, he expresses the absurdity of such theories as follows:

This line states starkly the whole philosophic problem implicit in the poem. Each molecule blindly runs. The human body is a collection of molecules. Therefore, the human body blindly runs, and therefore there can be no individual responsibility for the actions of the body. If you once accept that the molecule is definitely determined to be what it is, independently of any determination by reason of the total organism of the body, and if you further admit that the blind, run is settled by the general mechanical laws, there can be no escape from this conclusion (Whitehead 1925,79).

From the extensive amplification of nature from generic facts to increasingly specific notions, Whitehead demonstrates that nature possesses the full content of our moral and aesthetic values. The actual occasion is not fully determined, and it runs in a clear view of its past, itself, and its future. We are a society of actual occasions, so we do not 'blindly' run. Whitehead invites us to reconsider a project of "dispassionate consideration of the nature of things antecedently to any special investigation into their details. Such a standpoint is termed metaphysical" (ibid,157). This metaphysics has one objective—the relentless concern for the general nature of things before detailed analyses are made upon it. The invitation is to retreat to the primal self, a pondering of the experience of the primitive mind way before we uttered the words the 'sky is blue' because those basal instincts stand in the metaphysical.

In the words of Kant (Bennet 2004) conclude precisely in the *Prolegomena to Any Future Metaphysic*¹¹⁹:

Will the human mind ever give up metaphysical researches altogether? There's no more chance of that than there is of our choosing to give up breathing altogether so as to avoid inhaling impure air! So there will always be metaphysics in the world; what's more every person—

¹¹⁹ Jonathan Bennett, trans., *Prolegomena [= Preliminaries] to any Future Metaphysic that can Present itself as a Science* by Immanuel Kant (Cambridge University Press, 2004).

especially every thinking person—will have metaphysical views, and in the absence of a public standard he will tailor them to suit himself (Bennet 2004, 24).

Therefore, we must embark on, first of all, a descriptive journey, subsequently seek the justifications of the metaphysical descriptions in a) direct knowledge of entities that compose our immediate experience b) in their success in harmonizing our systematized accounts of types of experience c) their success as accounts of the various types of experience and d) their success in providing concepts in terms of which epistemology can be framed. The epistemological success hinges on the capacity to frame an “account of how knowledge is possible as an adjunct within things known” (Whitehead 1929,158).

3.2 Some Difficulties with Whitehead’s Categories

Whitehead’s metaphysics has solicited various interpretations and criticisms. Some of the major ones include questions on the character of eternal objects, the problem of creativity, the ontological principle, and the inclusion of God in his categories. I will begin with the subject of eternal objects. However, the critiques on ontological principle, God, and creativity will be addressed collectively because of their complementary responses.

Kennedy(1974), on *Whitehead’s Doctrine of Eternal Objects*, outlines three possible interpretations of Whiteheadian eternal objects.¹²⁰ These are the platonic interpretation, the functional version, and the ontological parity view. The platonic view expresses an obvious platonism in the doctrine of eternal objects. It claims that the eternal object appears metaphysically ultimate in Whitehead’s scheme, therefore, more essential than the actual entity.

First, the platonic view is derived from Whitehead’s open allegiance to Plato in his acknowledgment of the entirety of European thought as “footnotes to Plato.”¹²¹ If Whitehead saw his work as ultimately a footnote, then eternal objects must have the character of platonic forms. Secondly, Whitehead’s use of words eternal, potentialities of definiteness, and the description of the eternal realm as changeless all closely resemble the world of forms elaborated in Plato. Finally, Whitehead’s implication of a non-temporal primordial nature (God) as an ordering of eternal objects is reminiscent of the neo-Platonic doctrine of ideas in the mind of God. In his semblance with platonic ideas, Whitehead gives eternal objects a certain mathematical and logical structure, as did Plato in his

¹²⁰ Bart F. Kennedy, "Whitehead's Doctrine of Eternal Objects and Its Interpretations," *Tulane Studies in Philosophy* 23 (1974): 60-86.

¹²¹ Whitehead states that the “The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato. I do not mean the systematic scheme of thought which scholars have doubtfully extracted from his writings. I allude to the wealth of general ideas scattered through them” (Whitehead 1985, 63).

considerations of the good.¹²² However, the platonic interpretation is quickly discounted because eternal objects and actual entities play complementary roles. The eternal objects are essentially relational to themselves and actual entities. Their relation to the concrete world of actual entities and the world of pure potentialities is necessary. In contrast, Plato's world of ideas does not hold any such necessity.

Second, on the functional version, their roles define the nature of eternal objects. Accordingly, eternal objects are considered functional because of their dependence on concrescence. Eternal objects are a derivative order emergent from actual entities because they are "produced" when needed in the process of concrescence. They become a sort of "concrete universal" through concrescence. It can hence be said that in this emergentist position, eternal objects are secondary types of reality.¹²³ On this position of functionality, the same can be said of actual entities because Whitehead defines them as functional. Actual entities are also produced when needed in the actual world. I will explain why this functional view is the same for actual entities and does not constitute a sufficient basis to determine the ontological position of eternal objects.

Third, an eternal object has been interpreted as having ontological parity over actual entities. Kennedy explains that Ivor Leclerc's argument disputes the ontological parity thesis presented in Justus Buchler's arguments¹²⁴. I will attempt to summarize its main positions. On the ontological parity argument, Buchler(1969) accuses Whitehead of having no basis for the ontological significance of actual entities because their characteristics are no different from eternal objects. Buchler insists that passivity and activity, concrescence and ingression, temporality, and eternity are identical in Whitehead's categories. Hence, actual entities are no more concrete than eternal objects.¹²⁵ Leclerc debunks this argument by asserting that Buchler misunderstands the different senses of the words like act, efficacious, temporality, etc., in terms of both eternal objects and actual entities.

In defense of Whitehead's initial position on eternal objects, Leclerc argues for a different kind of ontological parity which results in the priority of the actual entity. Leclerc contends that Whitehead

¹²² As cited in Kennedy (1974), Whitehead in MT refers to Plato's discussion of the good in terms of mathematical doctrines as he states: "It is worth considering ... why Plato naturally thought of mathematics when he sat down to write a lecture on the Good. We are not concerned with the precise mathematical doctrines which were enunciated ... by Plato. My topic is the relation of Order to the Good, and the relation of mathematics to the notion of Order" (Whitehead 1938,104).

¹²³ Kennedy also discusses an additional functional view he calls the operationalist view. In this argument eternal objects are "recurrent types of process devoid of any status independent of the process; certain types of prehensions recur and are sustained throughout the cosmic process. These general uniformities are then "recognized" and given a general name." (Ibid., 72). I have omitted this point because of its semblance with the emergence argument, although Kennedy disagrees on their similarity. I believe both arguments point to the fundamental position that actual entities precede eternal objects. The emergentists believe they are realities while the operationalists hold a nominalist position which states that eternal objects are merely names of forms of definiteness exemplified in concrescence.

¹²⁴ See Iain Leclerc, "A Rejoinder to Justus Buchler," *Process Studies* 1 (1971): 55-59 and Justus Buchler, "On the Strain of Arbitrariness in Whitehead's System," *Journal of Philosophy* 66, no. 17 (1969): 589-601.

¹²⁵ Buchler's argument cited in Kennedy 1974,77-78.

has always held a mild dualistic position. Accepting a plurality of beings allows Whitehead to incorporate a variety of dualities known as contrasts into his categorial scheme. In the metaphysical scheme, it must be understood that actuality is the exemplification of potentiality, and potentiality is the characterization of actuality. Both notions require one another in the identification of form and actuality. The basic reality, according to Leclerc, is a “form-of-actuality,” as cited by Kennedy (1974):

... the concrete is precisely that enacting that character. . . . that character or form in enaction is the concrete real.... The two metaphysical ultimates, form, and act, become inseparable, yet not equated because form transcends act even in concreteness. Thus, form and act, while “identical” in concrescence, are not equivalent and so the metaphysical polarity is retained. “This doctrine (perspective theory of universe) ... brings the two metaphysical ultimates into the most intimate and essential relationship ...”(Leclerc 1971,181).

In summary, the arguments of Buchler and Leclerc imply different definitions of parity. Although Leclerc establishes the interaction of form and acts as the relation of eternal objects and actual occasions, he does not fail to insist that ontological priority is given to actual occasions. Leclerc’s (1971) interpretation of Whitehead's ontological primacy for the actual entity corresponds to the ontological principle of actuality. If we consider concrescence, the fulfillment of subjective aim, as an ultimate basis, then eternal objects will emerge from the synthetic, creative process whose principle of unity is given by actual occasions. With insistence on concrescence, actual entities regain the hold of their ontological primacy. This position is appealing to Kennedy(1974) because he aims at curtailing the seemingly ontological preeminence of God's primordial nature.

However, we cannot discard the ubiquity of eternal objects and their necessity for the system. They are accountable for propositions, nexus, and contrasts and are the reasons why actual entities can have the rational choice of subjective form. Even in prehensions, they are antecedent to the contemporary occasion because they are in the past that it prehends. This makes it difficult to establish a clear ontological priority of actual entities over eternal objects.

Based on this, I hold that eternal objects are externally prior while internally subservient to the actual occasion. It is in the same way that prehensions have internal and external relations. An eternal object, in its potentiality, is given in a certain order to ensure its integration into a particular matter of fact. However, after ingression into the internal constitution of the actual entity, that superject of the occasion claims its ontological supervenience by determining its own subjective form. The question of ontological authority is thus defined as dependent on the point of view. This justification maintains God’s primordial nature as the reason for the external order of priority of eternal objects while maintaining the self-creation of actual entities since God is an actual entity. I will revert to the functional view and why it should not be completely discarded but tailored to suit process thought.

Eternal objects truly play specific functions in the concrescence. However, ‘functioning’ holds a unique meaning in the categoreal scheme. The first principle in the categories is the principle of relativity which defines the role of the eternal object as the potential for actuality and the actual entity itself as a potential for concrescence. Both entities, depending on where in the process they stand, can be described as potentialities. Nevertheless, eternal objects are described as pure potentials for the specific determination of fact or forms of definiteness. While their conceptual recognition does not involve a “necessary reference to any definite actual entity of the temporal world” (ibid), their identification is tied up with other eternal objects.¹²⁶ It is worth noting that some philosophers have criticized this quality of sharing its essence with other eternal objects on the argument that when an eternal object is ingressed into an event, that event exemplifies all other eternal objects since each eternal object holds in it the essence of all others.

Johnson(1945) explains that this interpretation is erroneous. He expounds that such a claim is comparable to asserting that it is impossible to tell the truth without exemplifying the number three simultaneously¹²⁷. The number three is true in the way that one considers the general character of truth. However, telling one truth exemplifies the category of truth differently from others. Similarly, a singular eternal object exemplifies the class of eternal objects differently from others.

In addition, the category of explanation states that “an eternal object can be described only in terms of its *potentiality* for 'ingression' into the becoming of actual entities; and [that] its *analysis* only discloses other eternal objects” (Whitehead1929, 23, emphasis mine). Further emphasis is given in explanation VII, where Whitehead highlights the same characteristics of potentiality and the process of becoming (its relationship with other entities) as the two descriptions required for actual entities.¹²⁸ From the category of explanations, I argued that the eternal object functions as the definition of the nexus. It is a concrescence of actual occasions, as the nexus already presupposes the existence of a functioning eternal object. The eternal object is not dependent on concrescence as argued by the functionalist’s interpretation. It is rather the inverse. The provision of the eternal object is what makes a particular concrescence possible.

Another categoreal explanation lends credence to this position. This explanation clarifies every compositional element's uniqueness in a multiplicity: “That a multiplicity consists of many entities,

¹²⁶ I explained this as the hierarchical ascendancy between sense-objects, percipient objects, and scientific objects. Each superior phase containing lower modes of ingression.

¹²⁷ A. H. Johnson, "Whitehead's Theory of Actual Entities: Defence and Criticism," *Philosophy of Science* 12, no. 4 (1945): 237–295.

¹²⁸ The explanation vii states that: “That an eternal object can be described only in terms of its potentiality for 'ingression' into the becoming of actual entities; and that its analysis only discloses other eternal objects. It is a pure potential. The term 'ingression' refers to the particular mode in which the potentiality of an eternal object is realized in a particular actual entity, contributing to the definiteness of that actual entity” (Whitehead 1985,23).

and its unity is constituted by the fact that all its constituent entities severally satisfy at least one condition which no other entity satisfies” (ibid). Entities here comprise both eternal objects and actual occasions. The role of an eternal object is unique, as it is for every actual occasion. Therefore, its uniting function is one that no other entity can provide. The explanations on the functional view are given here to conclude that the functionality defined as actual entities creating eternal objects does not conform to the category of explanations. I explained that because of the non-replaceability clause in the explanations, eternal objects cannot depend entirely on other processes, such as concrescence, to exist. Moreover, the activity of concrescence by which they supposedly emerge already includes the precisions of an eternal object. Eternal objects cannot be produced nor emerge from the concrescences to which they have antecedently contributed definiteness.¹²⁹

There is another way we might employ a functionalist interpretation based on the contribution of definiteness. I shall now turn to what ‘function’ means to process philosophy. Principally, to function is to contribute determination to the actual entities in the nexus of some actual world.¹³⁰ Thus, the determinateness and self-identity of one entity cannot be abstracted from the community of the diverse functions of all entities because all entities are functionally defined in relationship to other functioning entities. ‘Determination’ is analyzable into ‘definiteness’ and ‘position,’ where ‘definiteness’ is the illustration of select eternal objects, and ‘position’ is relative status in a nexus of actual entities” (ibid). The determination of an actual event is the purview of eternal objects because functioning involves both qualities of determination and self-identity, without which no actuality is possible. In determination, the question of ‘definiteness’ is given by certain eternal objects, while ‘position’ is given by a nexus whose unity is also with respect to an eternal object. The eternal object plays a dual role in this context by directly determining the immediate actual world by contributing definiteness and attributing to it its position through the relation with a nexus.

This endorses Whitehead’s position on eternal objects in CN that “there are obviously very various kinds of objects and no one kind of object can have the same sort of relation to events as objects of another kind have” (Whitehead 1920, 145). If we define functionality based on what is offered in the categoreal obligations, then a functionalist view of eternal objects is identifying their diversity of function in actuality and thus cannot be second-class entities in the actual world.

However, on their ontological hierarchies, Whitehead says, “It is equally true to say that objects are what they are because events are what they are” (Whitehead 1920,144). On this assertion, eternal objects have external ontological priority over actual occasions but are internally subservient. This

¹²⁹ See argument of functionalism or emergentism explained by Kennedy (1974).

¹³⁰ Defined as the categoreal obligation of objective unity in Whitehead 1985, 26.

implies that a given order of potentialities precedes the external relations of an actual occasion in its world. In the historic route of events of that actual occasion, the eternal objects are antecedent parts of its data. However, the eternal object no longer exercises this prerogative when the datum is taken into the real internal constitution. After being ingressed, the eternal object must submit to the subjective form the subject chooses for satisfaction to occur.

In the general scheme of existence, between actual occasions and eternal objects, the latter have ontological priority in the given actual world only because of the primordial nature of God. As primordial and non-temporal, God's nature orders eternal objects for actual occasions. Therefore, by their very eternal nature, they do not await actual occasions. Another question about God as considered an actual entity resurfaces. If God is the primordial exemplification of creativity, thus the first among all actual entities (here denoting the absence of any spatiotemporal extensiveness), then his cosmic implication renders actual entities ontologically prior to eternal objects.

It is evident that Whitehead's ontological principle of nothingness behind the veil of actual occasions is difficult to eliminate. He arrives at creating a system of metaphysical generalizations that presuppose each other in a coherent and cohesive way. The arguments against eternal objects must be understood on the complex basis of perspectives. The accorded responses vary based on which abstractions are under study. Functioning for an actual entity is defined in terms of its internal self-formation without losing its self-identity. This property of self-creation "and in its process of creation transforms its diversity of roles into one coherent role" (Whitehead 1920,51). For eternal objects, their functioning is restricted to external ordering for actual entities since the latter is the only one of the two capable of self-determination and self-creation. To demarcate their ontological relations, referring to the ontological principle and creativity is expedient.

3.3 Justifying the Ontological Principle and Creativity

The need for Whitehead's categoreal schemes cannot be overstated. They emphasize the importance of more embracing descriptions of our abstractions about reality. Process organism's categories explanation plays the role of amplification, which explains how basic metaphysical entities find reasons for their natures according to the ultimate principles. Whitehead attempts to respond to the age-long question of why there is something instead of nothing. According to physics comprehension of the cosmos coupled with evolutionism, this question becomes increasingly difficult because of the seemingly opposing spheres. There is a cosmos on one end, stretching over trillions of years, and on the other, specific creatures inhabiting the present cosmos. There must be a principle that explains why nothingness does not stay as it is but brings forth novelty. For Whitehead, the ontological

principle is the explanatory basis for why actual entities perpetually come into being.¹³¹ The ontological principle establishes that in place of matter, whose qualities are postulated to have ‘come into’ being at some point in the cosmic evolution, actual entities have always existed, and there is “nothing which floats into the world from nowhere” (Whitehead 1929,267). Aside from actual entities, we will find no reasons in the world. This explanation has not been uniformly satisfying because it raises some interesting critiques, which I will espouse in three ways.

First, the categoreal explanations center on the causal power of harmonization or “coming together of” actual entities as underscoring the novelty in the emergence of a new occasion. Accordingly, a new individuated harmony emerges that did not preexist as the prior condition of entities was disjunctive. Any new occasion produced because of prehension is combined with the old and therefore was not previously actual. The objectified data of the old do not wholly account for the ‘new’ in every occasion. Thus it is *out of nowhere* in a strict sense. Every occasion in Whitehead’s cosmology is an instance of some new creativity *ex nihilo* because the uniqueness of new occasions is not solely derived from prehended data. This violates the ontological principle since a property has indeed ‘floated’ into the scheme from nowhere. This difficulty appears to reinstall the classical ideology of the transcendency of God as unilaterally bringing into being the actual entity.

The second critique concerns the first problem of emergence from nowhere which contradicts the ontological principle. If one accepts this premise, then the principle of reason is also contradicted. In Whitehead's own words, the violation of this principle of reason is admitting “into the actual world out of nonentity. Nonentity is nothingness” (Whitehead 1929, 71).

Finally, there is the problem of transition which is connected to the problem of the ontological status of actual occasions. The problem states that if actual entities transmit themselves as data into the internal constitution of future entities, then it must be that the past is causally efficacious, as Whitehead supposes. However, Whitehead equally insists that at satisfaction, the entity *perishes*, thus, it is no longer actual. How can an entity that is perished give ‘reason’ to the *being* in the immediacy of the present moment? In the same vein as the creation *ex nihilo*, the contemporary actual occasion could not have appeared “out of the blue.” It demands a “reason,” an actual entity that is its ultimate ground. The difference between argument one and this final one is a spatio-temporal scale, although it is also valid for individual nexus and concrescences. The first concerns the cosmic activity of the world

¹³¹ In the dissertation of Siebers, he equates the traditional metaphysical question according to Heidegger: why is there something rather than nothing to the question speculative philosophy must attempt to answer which is “why is there a next?” See Siebers, J. I. (1998). *The Method of Speculative Philosophy: An Essay on the Foundations of Whitehead’s Metaphysics*. Dissertation, University of Leiden.

being disjunctive and finding unity to produce every actual occasion. While this one is on how the datum of the particular occasion can be efficacious if it has already perished.

Dorothy Emmet, in *Whitehead's Philosophy of Organism*, first raised this transmission problem.¹³² She argued that the causality in speculative metaphysics is one of “picking up and not passing on,” and out of which no novelty can emerge (Emmet 1966,138). Whitehead, in a letter to Emmet, on her critique, offers a response by impressing on his doctrine of immanence.¹³³ For Whitehead, immanence is the grounding of objectification, without which the questions of causality appear as Emmet presents it. Actual entities cannot account for the transition from the past to the present. There appears to be an unbridgeable explanatory gap between the ontological principle governing actual entities as efficient and final causation and the generated structure of the cosmos. However, there is certainly the presence of novelty emerging from a cosmos that is made up of ‘perished’ actualities. Whitehead requires an additional grounding principle by which the metaphorical phoenix rises from the ashes. Interestingly, Whitehead is averse to the implication of a creator or a supernatural force exerting unilateral power. The prospects for closing the gap are thus limited. However, one of his cardinal principles is that every reason must be grounded in some actual entity. Therefore, actual occasions must play at least a participatory role in grounding nature's forward surging.

Whitehead's definition of transition among actualities, as noted in the argument of Emmet, is crucial to explain this “ongoingness”.¹³⁴ In *RIM*, Whitehead explains:

For the creativity is not separable from its creatures. Thus the creatures remain with the creativity. Accordingly, the creativity *for* a creature becomes the creativity *with* the creature, and thereby passes into another phase of itself. It is now the creativity for a new creature. Thus there is a transition of the creative action, and this transition exhibits itself, in the physical world, in the guise of routes of temporal succession(Whitehead 1926,92, emphasis mine).

He continues again on transition: “The creative process is thus to be discerned in that transition by which one occasion, already actual, enters into the birth of another instance of experienced value” (Whitehead 1926,112). In *PR*, Whitehead specifies that ‘transition’, is the creativity “in virtue of which any relative complete actual world is, by the nature of things, the datum for a new concrescence”(Whitehead 1929,210). The understanding is that, although the actual entity perishes after its satisfaction, the creativity within it by which it performed earlier prehensions is a transcendent

¹³²Dorothy Emmet (1966). *Whitehead's Philosophy of Organism*. 2nd ed. London: Macmillan. New York: St. Martin's.

¹³³ Work cited in Cloots (2000) as follows: “You seem to me at various points to forget my doctrine of ‘immanence’, which governs the whole treatment of objectification. Thus, at times you write as though the connection between past, and present is merely that of a transfer of character. Then there arises (sic) all the perplexities of ‘correspondence’ in epistemology, of causality, and of memory. The doctrine of immanence is fundamental (xxii-xxiii)” (Letter to Emmet from Whitehead)

¹³⁴ Cf. Cloots 2000.

property that does not perish with it. It is the spark that lives on to be transmitted to a new creation. When an actuality perishes, it is its will or bid to achieve its subjective aim that it sacrifices, but the creativity is merged with the creative disposition of the subsequent occasions where its data still 'lives on'. It is immortalized within each contemporary entity. However, perished occasions do not exist isolated from one another but in the unity of the extensive continuum.

Whitehead reaffirms in *Adventures of Ideas* that "the fact that each individual occasion is transcended by the creative urge, belongs to the essential constitution of each such occasion"(Whitehead 1933,193). He says, "It is not an accident which is irrelevant to the completed constitution of any such occasion"(ibid). Creativity, therefore, becomes the reason by which novel entities are made by the subordination of many entities into one. It is a reason *for* the actualities and *by* the actual entities. By this connection, creativity is defined transcendently as characterizing both the structure and the content of the cosmos. In effect, the explanatory gap between the novelty in the world and the ontological principle is bridged because creativity is the transcendent activity by which the world is described to be fluent.

Whitehead(1929) summarizes the concrescence of one entity and the transmission from many entities:

Locke is the philosopher to whom it is most useful to recur, when we desire to make explicit the discovery of the two kinds of fluency, required for the description of the fluent world. One kind is the fluency inherent in the constitution of the particular existent. This kind I have called 'concrescence.' The other kind is the fluency whereby the perishing of the process, on the completion of the particular existent, constitutes that existent as an original element in the constitutions of other particular existents elicited by repetitions of process. This kind I have called 'transition'. Concrescence moves towards its final cause, which is its subjective aim; transition is the vehicle of the efficient cause, which is the immortal past (Whitehead1929,210).

Creativity has two kinds of fluency stated above as transition and fluency explain why there are new concrescences, and the world surges into novelty. This is the reason for discovering the rules of succession science finds in nature because creativity is the answer to why there is always a 'next' concrescence. It seems that, as *causa sui*, creativity is present in the actual occasion as the "activity of transcendence, permeating the whole of reality, transcending what is and yet carried by it, leading to ever new becoming. In this way, an actual occasion is only *causa sui* as far as the "clothing of feeling is concerned" (Whitehead1929,85). The reason that an actual occasion is, is because "the whole antecedent world (transcendent creative impetus included) conspires to produce a new occasion" (Whitehead 1938,154). Creativity is "nothing more, but nothing less either, than "this factor of activity" (included in the initial situation) which is the reason for the origin of that occasion of experience" (Cloots,42).

Finally, the position of creativity as transcendence and Whitehead's ontological principle- "no actual entity, then no reason" must merge satisfactorily. If we hold on to the ontological principle, then

creativity cannot be considered a reason in the principle of efficient and final causation. The explanatory gap bridged by the concept of creativity shows that although creativity appears radically descriptive, it also has compelling explanatory power. William Garland, in *The Ultimacy of Creativity. Explorations in Whitehead's Philosophy*, describes the concept of creativity as the ultimate explanation.¹³⁵

Garland(2021) insists that there are two types of explanation: causal explanation (later modified to ordinary explanation) and the rationalistic explanation. A causal explanation in Whitehead's metaphysics is derived from ontological principles and actual entities. On the other hand, as I have shown, there are ultimate explanations derived from creativity and not specific to actual entities. Garland characterizes this as a rationalistic explanation. The rationalistic explanation provided by creativity is not intended to override the empirical ontological principle. If one considers the ontological principle in all its nuances, as presented by Locke and Hume, we can understand creativity as necessarily derived from the ontological principle. To do this, we must understand the ontological principle as specified by Cloots "as the principle that only elements discoverable in the composite natures of actual entities can enter into the philosophical scheme and as such be "explanatory" (Cloots, 40). Creativity is nothing in itself and actual occasions are "*instances of creativity and conditioning the transcendent creativity*" (Whitehead1929, 43, emphasis mine). Consequently, creativity in respect of this intrinsic connection "can reasonably function well as an "explanation" within the philosophic scheme: not as a rationalistic explanation besides the empiricist one, but as a truly empirical explanation." (Cloots 2000, 50).

The essence of insisting on the ontological principle for Whitehead is linked to his critique of the fallacy of misplaced concreteness. He characterizes scientific laws as defining the occurrence of an event in respect of some law. Contrarily, actual entities as reasons integrate the causality of actual entities into each event by ascribing reason to its constituents. On the other hand, scientific laws do not possess any power or efficacy and should not be credited for the activity of actual entities. The fallacy of misplaced concreteness happens when the concrete elements of nature are described as obeying abstracted laws completely alienated from the entities that exhibit them.¹³⁶ Whitehead's ontological principle, just like Locke's concept of 'power', is the recognition that the purpose of all things is to be grounded continuously in the composite nature of definite actual entities, either in God

¹³⁵ W. J. Garland, *The Ultimacy of Creativity: Explorations in Whitehead's Philosophy* (New York, USA: Fordham University Press, 2021), 212-238.

¹³⁶ I alluded to this dimension of the insistence on the primacy of scientific epistemic laws over ontological schemes in Chapter 1 on the separation of the ontological and the epistemic as an instance of weak bifurcationism.

for reasons of the highest absoluteness or in definite temporal actual entities for reasons which pertain to a particular environment.

Summary

The purpose of this chapter was to present Whitehead's metaphysical categorial scheme as fulfilling the criteria defined for speculative metaphysics. The chapter was divided into three parts. In the first part, **3.1**, I showed that the categories must be understood as playing complementary roles to the category of the ultimate, which provides the most generic characteristics of experience. The categories do not intend to be dogmatic but to offer possible elucidations of experience compatible with all spheres of knowledge. These categories are, just like the cosmos, a web of interrelated points, each expressing the other in further abstract terms. The category of ultimate exhibits the basic axioms of experience: its unity, diversity, and process. These axiomatic inferences are translated into corresponding postulates in the actual world. This is the purpose of the category of existence, which is to exhibit how these properties are exemplified in reality. The category of explanation reveals the explanatory details of how these actualities relate within the actual world and what supplementary relations are derived from these interactions. Lastly, the categorial obligations are the principles governing all these relations. The principles are not externally imposed on the entities but are derived from the actuality of their intermingling.

The second, **3.2**, explains some interpretations and critiques of Whitehead's positions. I explored the arguments against his theory of eternal objects. I proposed that eternal objects are not to be construed as platonic forms, purely functionally dependent on actual entities, or as ontologically superior. Eternal objects play an important role in the advance of the actual world. However, they can only claim external ontological preeminence since they are given to the actual occasion from past occasions. Their roles do not limit the rational choice of the entity they have ingressed. They still find their ultimate task in actual entities (i.e., God as the ultimate actuality).

Finally, some conflicting internal points have been raised against the categories. A discussion of these points of contention constituted part **3.3** of the chapter. I evaluated the ontological principle versus the principle of creativity. The conclusion was that creativity cannot be considered apart from actual entities. Creativity is nothing without actuality; hence the ontological principle remains the ultimate explanatory basis of Whitehead's categories.

Chapter 4

PROCESS THEORY OF PERCEPTION

Your acquaintance with reality grows literally by buds or drops of perception (Whitehead 1929,68).

The previous chapter presented the pillars of Whitehead's metaphysics in the form of his categorial scheme. The nature of reality is processual, that is, the elements of our experience are not immutable but continuous processes in themselves. The postulation of the actual entity as the fundamental reality of nature revives questions of the nature of what we perceive and the influence of the mind in this process. The problem of perception in philosophy presents a long history examined from numerous angles. From the perspective of sentient life, perception is synonymous with conscious life appearing to be predominantly of interest to psychology. However, perception can also regulate behavior, rendering it of equal interest to physiological, biological, and neurological studies. From a philosophical standpoint, the study of perception is epistemological yet grounded in metaphysical premises. Philosophy, as a discipline, attempts to offer common bases for all these areas of knowledge. Even so, speculative philosophy strives to spell out the foundations for generic characterizations of experience in addition to identifying the relations between the particular instances studied in the other disciplines. This implies that speculative thought has its ontological and epistemological dimensions in equal standing.

The focus of this chapter is to outline the task of evaluating process philosophy's ontological and epistemological approach to the problem of perception. First, I begin with an overview of the historical difficulties of the question of perceptive knowledge. I refer to the theories of some thinkers such as Descartes, Leibniz, Hume, and Kant as a means to properly delineate Whitehead's stance on the nature of how we perceive our external world. Second, based on the difficulties encountered in the explanations of the afore-named philosophers, I present the key elements of Whitehead's theory of perception, its uniqueness, and its applicability to varied forms of perceptual experience. The aim is to show how Whitehead's theory of our modes of perception can account for causal relatedness. The fusion of the ontology and epistemology of the dynamic nature of the world as grounding our perception and understanding of the world is what is called organic realism. Thirdly, I discuss this Whiteheadian organic realism and two other forms of realism viz, speculative realism and agential realism, which share similar approaches. I argue that although these forms of realism advocate an onto-epistemic interpretation, they can only carry it so far because of their inability to account for both aspects equally. On the other hand, Whitehead's realism can bridge the explanatory and ontological gap because of his theory of prehension.

4.1 The Problem of Perception

The principal difficulty of the epistemology of perception is explaining how perception could give actual knowledge of an external world. This problem is especially significant because of the argument from skepticism. Skepticism about the external world highlights the epistemic difficulties regarding the nature of experience and whether this experience can bring us into contact with a mind-independent reality. Skeptics argue from the standpoint of illusion and hallucination that if experiences from such states can be as vivid and believable as any other experience, then there is no basis to believe that reality is not a dream, an illusion, or a hallucination. Descartes raises identical forms of this argument in the meditations on the potency of the evil genius laying traps for his innocence.¹³⁷

The skeptical argument also termed the problem of perception a problem of epistemology because it raises questions about the limits of our knowledge and the certainty of knowledge of the external world. The perspectives on this problem have taken the form of rationalism, empiricism, representationalism, and direct or indirect realism. As discussed, Whitehead's philosophy merges rationalism and empiricism by prehension linking ideas to empirical entities. He generates a realist position from the metaphysical structure he constructs from the categories known as organic realism. In this context, 'organic' refers to the universe's interconnectedness exhibiting structure and organicity. This view contrasts the other forms of realism, which often emphasize the objective, external reality of things, and reductionist views, which reduce complex phenomena to their simplest parts. His organic realism does not leave any entity out of the interaction of the cosmos therefore, it is neither representationalist nor does it support correlationism. Representationalist philosophers hold that we do not have direct perceptions of the world, but our perceptions are mediated by mental representations or "sense data" that stand in for the external objects perceived. Additionally, correlationism is the doctrine that our access to reality is limited to our subjective experiences and the correlations between those experiences. It follows that we can only know reality as it appears to us, and we cannot have direct access to any reality that exists independently of our perceptions.

In this §4.2, I discuss how Whitehead achieves his realism with the theory of perception he offers. I explore how his defense of organic realism goes against the representationalism of the likes of Locke and Hume. In Whitehead's *Onto-epistemology of Perception and its Significance for Consciousness Studies*, Michel Weber explains that, for Whitehead, 'inner' states can be explained with respect to external phenomena in two ways: a *macro-analysis* and *micro-analysis*.¹³⁸ Weber(2006) infers that a micro-analysis defines the characteristics of everyday perception and

¹³⁷ See arguments in Cartesian Meditations I and II.

¹³⁸ Michel Weber, "Whitehead's onto-epistemology of perception and its significance for consciousness studies," *New Ideas in Psychology* 24, no. 2 (2006): 117-132.

conceptualizes its conditions of possibility. It is given by Whitehead's elaboration of modes of perception. While alternatively, a macro-analysis addresses the correlationist argument and how the organic aspect of Whitehead's realism overcomes the problem of other anti-correlationist views. Its purpose is to ground the epistemological characteristics of perception in the ontological structure of the cosmos allowing direct perception among entities.¹³⁹The macro-analysis will address the problem of correlationism by specifying the sufficient qualities of Whitehead's organic realism to overcome this problem.

Whitehead tackles the question of perception primarily in his work called *Symbolism*.¹⁴⁰ In this book, he introduces two key terms: symbolism and direct knowledge. He considers direct experience as certain because he holds that "What you have experienced, you have experienced" (Whitehead 1928,7). This is supported by the fact that symbolism from sense-presentation to physical bodies is the most natural and widespread of all modes, although it is quite fallible.¹⁴¹ Here, symbolism denotes how perception involves selecting and transforming sensory data into a meaningful experience, while sense presentation is simply what is given in perception without further cognition. Given the fact that symbolism requires selective and transformative action, it can be erroneous. The error in symbolism is not from what is initially given but from the fact that they can "induce actions, feelings, emotions, and beliefs about things which are mere notions without that exemplification in the world which the symbolism leads us to presuppose" (ibid).

Hence to explain the nature of perception, Whitehead offers three requirements. The elucidation of experience must describe (i) how we can know truly, (ii) how we can err, and (iii) how we can critically distinguish truth from error. Interestingly Whitehead is comparatively less concerned with the aspects of error in perception. Historically, western philosophies have been fixated on the question of error as a demonstration of the fallibility of immediate experience – or the data given by the body and the senses. From Plato's allegory of the cave to Descartes' evil genius and in current thought experiments such as the 'brain in a vat experiment',¹⁴² philosophy strives to offer certainty to our beliefs about the world.

¹³⁹ Weber 2006 ,119.

¹⁴⁰ Alfred North Whitehead, *Symbolism: Its Meaning and Effect* (Cambridge University Press, 1928).

¹⁴¹ Whitehead 1925,7.

¹⁴² This is a thought experiment of the skeptical argument that Descartes' presented. The fundamental idea is that our mental experiences could have the same texture that they do yet not be caused by the usual corresponding causal events in the external world. On the brain-in-a-vat hypothesis, it is supposed that a person is a disembodied brain living in a vat of nutrients. The necessary nerve endings responsible for certain types of activities of the brain are connected to a supercomputer, whose program sends electrical impulses that stimulate the brain in the same way that actual brains are stimulated when perceiving external objects. If you are a brain in a vat, suppose, your conscious experiences are and have been qualitatively indistinguishable from the experiences you have had over the entire course of your mental life. But if as the result of your computer-caused experiences you believe, say, that you have a body, then you are mistaken.

For Whitehead, although these errors occur in our interpretation of experience, they do not offer enough basis to discard perception as the primary source of information we have about reality. Accordingly, for Whitehead, it is more valuable to consider such errors as tools of imaginative freedom than restraints on the production of knowledge. He defines this in *Symbolism* as the idea that “Error is not an evil to be exterminated, but a frequently useful ‘lure for feeling.’ It is a productive detour in the pathways of mental life: We must not, however, judge too severely of error. In the initial stages of mental progress, error in symbolic reference is the discipline which promotes imaginative freedom”(Whitehead1928, 19). The position Whitehead takes vis-a-vis error is not an eliminative one. Rather he assumes the classical educationalist stance that error can teach more if we allow it. If we are unafraid of the errors that our thoughts, scientific inquiries, and philosophical positions could make, we will flourish in imaginative liberty essential to producing interesting ideas.

Whitehead’s organic realism holds that our epistemological scheme is steeped in ontological biases one way or the other. For him, this barrier between epistemology and ontology is unnatural to our experiences because what we know is by means of how we know. Therefore, we cannot create this separation in methodology without a corresponding split in reality. Because we know that our experiences exhibit an intricate interconnectedness, our elucidations must follow the same patterns, no matter how complex such explanations appear.

Whitehead puts this notion into practice on the utility of error by reconsidering the theories of perception that have culminated in the difficulties of experience. Whitehead is convinced that philosophy and science advance on the back of prior error as productive entries for illuminative knowledge. He describes this collective effort in *SMW* as those influencing conditions that propelled science and philosophy in their modernist directions. As such, he uses the positions of Descartes, Locke, Kant, and Hume as starting points for his theory of perception.

Firstly, Whitehead considers the Humean position. He refers to Hume first because his notions represent the most explicit positions on the problems of perception. Hume considers the reality of perception as made of entirely loose and separate events. We notice one event as following another but never observe any connection between them. The perceived events seem conjoined but are never truly connected. This epistemic skepticism, the claim that there is no valid justification that causes produce effects, renders any basis for causal relationships in experience impossible. Hume’s defense is that the mind is in the necessary habit of connecting events into some illusory continuous sequence. This quality of the mind is much like the Leibnizian idea that equally denies the existence of causal relationships by attributing them to sheer regularity. The difference lies in the fact that Leibniz grounds the order of nature in God’s pre-established harmony, while Hume’s rigid empiricism attributes this to the habit of the subject of the experience.

Secondly, Whitehead considers the Kantian response to the skeptical argument. Kant offers an alternative explanation through his transcendentalism. For Kant, no subjective experience would ever be possible if there remained truly no explanation for causal relations but an illusion. Kant assumes that causality must be an a priori category by which our understanding organizes our experiences. He accepts the premises of Hume that sense impressions give no causal relationship. However, he opposes the conclusion that causality is merely a habit of the mind. For Kant, instead of being an illusion, a causal relation is a necessary action of our understanding in organizing events according to laws of cause and effect.

Consequently, it appears that both Hume and Kant answer the query in a like manner. The response is that the human mind is responsible for justifying causal relationships. So that no causality exists outside of the mind, and the necessity of the knowledge of causal relations equally lies with the mind whose structure demands it.

From Whitehead's perspective, this is the result of Kant's overarching aim, which is to construct an objective world out of subjective experiences. On Kant's position, he says, "The philosophy of organism is the inversion of Kant's philosophy... For Kant, the world emerges from the subject; for the philosophy of organism, the subject emerges from the world" (Whitehead 1928, 88). He also adds, "The philosophy of organism inverts this analysis and explains the process as proceeding from objectivity to subjectivity, namely, from the objectivity, whereby the external world is a datum, to the subjectivity, whereby there is one individual experience (ibid, 156).

On the contrary, Whitehead's metaphysics of the actual occasion suggests that the subjective experience of the occasion emerges from the objective world that is given to it. He attempts to show that this is corroborated by the nature of experience. The data that the subject receives are objective data given by perished actualities. They represent, by virtue of the peculiarly ordered extensive continuum, the pervasive order of nature is in the information received by the subject and not created by it. The subject takes this into its constitution and adapts to order. At each instance of prehension, the objective world is presented to an individual actual entity as a datum from which it creates itself as a subject. I will revert to this discussion in §4.2 on the forms of perception.

Thirdly, another key philosophical position Whitehead considers is that of Descartes. However, he does not evaluate Descartes' view like he does Hume and Kant. In PR, Whitehead quotes Descartes' position:

Also, in the quotation from the first Meditation he begins by appealing to an act of experience—"I am here, seated by the fire..." He then associates this act of experience with his body—"these hands and body are mine." He then finally appeals for some final notion of actual entities in the remarkable sentence: "And for the same reason, although these general things, to wit, [a body], eyes, a head, hands, and such like, may be imaginary, we are bound at the same time to

confess that there are at least some other objects yet more simple and more universal, which are real and true; and of these ... all these images of things which dwell in our thoughts, whether true and real. or false and fantastic, are formed.”(Whitehead 1929,75)

Whitehead asserts that Descartes makes two ‘useful’ errors in his meditations. The first involves failing to articulate the nature of experience by which some elements are rendered more familiar. This is how we can distinguish in experience that certain entities are ‘closer’ to us than others. The second error comprises ignoring this familiarity as a possible basis for knowledge in experience. Descartes’ realization of the intimate familiarity of his ‘hands’ and ‘body’ indicates a justification for how entities are objectively in our experience. The sense of objective here is not to be confused with a kind of ‘neutral’ world. Instead, it denotes how things are delivered as objects into our experience.

From the above, Whitehead argues that Descartes does not need to draw a strict distinction between his hands and body as exhibiting proximate familiarity and other objects that exist in the actual world. There is indeed no difference between how he knows himself and how he knows the world. Descartes speaks of those “objects yet more simple and more universal, which are “real and true” and are ‘images of things which dwell in our thoughts” (ibid). From this, Whitehead infers that Descartes presupposes that the basis of his belief in some elements is not enough justification for others. Why are some objects real and true while others are dubitable?

Whitehead argues that no form of representationalism supplies this answer. Conversely, we must look to direct recognition as a form of perception. By its very nature, this perceptive form is so familiar that it is often overlooked. To explain why our perceptive experiences appear to vary in intensity and vivacity, Whitehead says that “Such an explanation requires that we distinguish that type of mental functioning which by its nature yields *immediate acquaintance with fact*, from that type of functioning which is only trustworthy by reason of its *satisfaction of certain criteria provided* by the first type of functioning” (Whitehead 1928,7, emphasis mine). The first kind of functioning is direct recognition. By this function, we are immediately acquainted with facts. This characterizes what Whitehead calls the mode of causal efficacy. The second kind, which is symbolic functioning, is the fulfillment of specific initial criteria provided by that mode of causal efficacy.

Returning to the Cartesian objectification, Whitehead considers his errors quite useful because they embody parts of his systematization that are crucial to his theory of perception. He pushes these fuzzy epistemological boundaries in Descartes much further. He calls this “the principle of objectification,” which holds that there are objectifications of other actual occasions in the given data

from which an actual occasion is derived.¹⁴³ Whitehead references the work of Newton as contributing to this idea in a sense. Although Newton's and Descartes' theories left room for the possibility of the external world as objectified for the subject, their lack of clarity led to the representationalist doctrine of perception.¹⁴⁴ For Descartes, it was in the form of an attempt to show the relation between the mental symbols and actuality. He held that ideas of things must exist in the mind objectively representing what Whitehead later develops as the objective datum given to the subject which emerges. According to Whitehead, Descartes does not push this epistemological thesis, which most likely would result in an anterior non-perceptive mode of experience and not a metaphysical dualistic position.

Descartes passes on this idea of separation of mind from body to Locke, who takes a more definitive stance. Locke attempts to explore some of the epistemological implications of cartesian objectification, but his constraint comes primarily from using the term "ideas". Ideas suggest an involvement of consciousness, separating entities described as conscious from those not. Therefore, reinforcing the notion of duality. This is why Whitehead suggests *feeling* as the expression of more primitive interactions without the implication of consciousness or mind. So, the Lockean explanation that complex ideas are made from simple ones translates into Whitehead's explanation of complex feelings in actual occasions as formed by simpler feelings.

The genius of Locke, according to Whitehead, is in his probably unconscious discovery, "that the mind is a unity arising out of the active prehension of ideas into one concrete thing" (Whitehead 1929,54). Unfortunately, Locke, highly influenced by both the Cartesian dualism and mechanistic Newtonian dynamics of the century, characterized minds as one kind of particulars producing secondary qualities of natural entities with 'real' primary qualities. Locke is often too constrained by the metaphysical categories he inherits from his predecessors that he does not push these radical ideas far enough. Whitehead concludes that he [Locke] is thus, in company with Descartes, driven to a theory

¹⁴³ The principle of objectification in philosophy of the organism constitutes one of the two aspects of any prehension. Objectification refers to the particular mode in which the potentiality of one actual entity is realized in another actual entity (Whitehead 1985,25).

¹⁴⁴ Whitehead explains that Newtonian physics expresses the truth of the philosophy of organism in a restricted sense. It is merely the error of attributing concrete actuality to the extensive continuum which is merely potentiality. He further explains as follows: "The alternative doctrine, which is the Newtonian cosmology, emphasized the 'receptacle' theory of space-time, and minimized the factor of potentiality. Thus, bits of space and time were conceived as being as actual as anything else, and as being 'occupied' by other actualities which were the bits of matter. This is the Newtonian 'absolute' theory of space-time, which philosophers have never accepted, though at times some have acquiesced." Whitehead's recourse to Newton is to highlight two clear biases in science and then philosophy. He argues that the simplicity of Newtonian ideas in its resolution of scientific problems led to its unquestionable acceptance for about two hundred years. On the philosophical front, Newton's ideas were susceptible to skeptical attacks because of his failure to clarify his considerations; Although they were "clearly expressed" the relations among his entities were complex and arbitrary "between spaces inter se; between durations inter se; and between minds, bodies, times and places, for the conjunction of them all into the solidarity of the one universe" (Ibid.,72). In a preliminary way, Whitehead prepares his readers for the nature of philosophy of organism as a schema that chooses complexity over simplicity yet maintains adequacy and coherence.

of representative perception. So, Locke writes almost conclusively on representationalism that “and, like pictures of them there, *represent* only those individuals” (ibid,54). Additionally, the consequent failure to recognize a primal nature of direct recognition also influenced the Humean and Kantian considerations on causality.

This begins a cycle in philosophers such as Spinoza, who do to Descartes what Hume does to Locke, highlighting the sharp bifurcations and leaving out the nuanced ideas beneath their positions. Whitehead’s philosophy is a retreat to these nuanced relations in Lockean and Cartesian philosophies. The philosophy of organism is defined hence as “pluralistic in contrast with Spinoza's monism; and [is] a doctrine of experience prehending actualities, in contrast with Hume's sensationalist phenomenalism” (Whitehead 1985,74).

4.2 Modes of Perception

In §4.1, I discussed the positions of Descartes, Hume, and Kant. Although the misinterpretation of the source of causation was rendered overt by Hume, and Kant, its origins were implicit in the works of Newton, Locke, and Descartes as well as in the metaphysical categories of their predecessors. For Whitehead, there is little difference in the positions Hume and Kant hold on causation because ‘both schools find “causal efficacy” to be the importation, into the data, of a way of thinking or judging about those data’ (Whitehead 1928, 39).

In this §4.2, I shall present the three modes of perception Whitehead describes. The term ‘modes’ refers to the different phases of perception. This is from Whitehead’s metaphysics, where he postulates the actual entity as an experiencing entity advancing into diverse degrees of complexity along the same historic route of prehension. The modes of perception emphasize how that actual entity or society progresses from stage to stage and the related changes in perception accompanying these advancements.

For Whitehead, the inherent problem of philosophy is that it stipulates that presentational immediacy is the sole means of perception. Whitehead explains presentational immediacy as the awareness of our environment in the present moment. The nature of this mode of perception is that it is vivid and discrete, with no indications of causal relations among its exhibited components. Based on the entities of this mode, no causality can be established. On the contrary, our experience is abundant in causal efficaciousness. Whitehead insists, “The notion of causality itself arose because mankind lives amid experiences in the mode of causal efficacy”(ibid,175). Therefore, presentational immediacy cannot be the only way we know the world. Philosophers must investigate what other ways

we are acquainted with the world besides the sensation of the present. Let us begin with Whitehead's analysis on causal efficacy in its commonsense, physiological, and physical dimensions.

4.2.1 Causal Efficacy: The Experience of the Past

Causal efficacy is the mode of perception involving the awareness of the effects of objects which are not immediately present in the experience. It represents the way an entity becomes aware of the influence of the past on contemporary events. Whitehead elaborates with the example of a man blinking after a flash of light. The man does not experience the habit of blinking as the cause of his reaction when the light is turned on, as Hume insists, nor does he define, a priori, that the light is on the side of causes, while his blinking is on the side of effects, according to Kant. He emphasizes that:

The man himself will have no doubt of it. In fact, it is the feeling of causality which enables the man to distinguish the priority of the flash; and the inversion of the argument, whereby the temporal sequence 'flash to blink' is made the premise for the 'causality' belief, has its origin in pure theory. The man will explain his experience by saying, "The flash made me blink"; and if his statement be doubted, he will reply, 'I know it, because I felt it' (Whitehead 1928, 175).

Whitehead argues that the common-sense feeling of concrete events affecting our bodies is not derivable from interpreting sensations in the moment. Those sensations are already 'late' because they come on the back of a feeling of the past as implied in the data of contemporary events. According to Whitehead, causal efficacy is the feeling of the whole past world weighing on the present action. It also implies the efficaciousness of the parts of our bodies by which the received datum bears a certain peculiar familiarity than those more removed from the body. He elaborates with the example: "We see the picture, and we see it with our eyes; we touch the wood, and we touch it with our hands; we smell the rose, and we smell it with our nose; we hear the bell, and we hear it with our ears; we taste the sugar, and we taste it with our palate" (ibid, 50). Our bodies experience this feeling before it is processed into the sense data in real-time. Hume's explanation reveals this about sense-data when he employs terminologies such as "'given' because of 'eyes,' 'ears,' and 'palates'" (ibid, 51). This explains that the body of the organism at least mediates the sense-data of color, taste, and smell.

We see this idea corroborated by Spinoza's feeling of a certain body [the body/ our body] as affected in many ways by the intensity of emotions¹⁴⁵. This intensity of emotion sums up Whitehead's notion of the efficaciousness of the past on the actions of the 'now'. He explains that "Hume and

¹⁴⁵ Spinoza in his metaphysics describes the human emotions as comprised of the *affectus* and the *affection*. The affects(affectus) describe the "affections of the body whereby the body's power of acting is increased or diminished ... together with the ideas of these affections." Spinoza parallelism hold that the brain is aware of the affects of the body and is constituted by it. This idea is quite identical to the concept of causal efficacy as the objectification of the parts of the body involved in perception. However, Spinoza fails to show how this is a causal interaction other than merely a parallel one. See further, Amy M. Schmitter, "17th and 18th Century Theories of Emotions," in *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta (2021).

Descartes in their theory of direct perceptive knowledge erroneously dropped out this “withness of the body; and thus, confined perception to presentational immediacy” (Whitehead 1928,81). Nevertheless, causal efficacy does not fail to declare itself as the necessary presupposition of presentational immediacy. Whitehead compares the feeling of causal efficacy to the doctrine of ‘animal faith’, of Santayana provoked by ‘shock’. In Descartes, it is what he addressed as the ‘understanding’ that his hands and body are his. The belief, to which I referred as Descartes' failure, is an antecedent form of perception that not only pertains to his body but is implied in all other world experiences. For Whitehead, Hume’s idea of ‘practice’ is this feeling of the efficacious past.

From the above precisions, causal efficacy is the preliminary non-sensual experience of a datum before it is given as a present sensation. If this is true, then causal relations are the initiating conditions for any experience, just as the past world conspires to produce the present. Causal experience is the awareness of this conspiracy by the actual world. Whitehead describes it as “emotional— blind emotion—received as felt elsewhere on another occasion and conformally appropriated as a subjective passion” (ibid,163). Causal efficacy designates the mode in which our feeling of the present reveals itself as imitating the feeling of previous events. Our basal awareness in experience is a “sympathetic” acquiescence, that is, “feeling the feeling in another and feeling conformally with another” (ibid).

Conversely, if presentational immediacy were indeed the only way we know the world in experience, then we would know nothing of the world because the sense data is ‘cut off’ from any information about prior conditions. In the example of the blinking man, Hume would insist, by the dictates of his skepticism, that what the man really felt was his habit of blinking and not the actual causal efficaciousness of the light. Whitehead refutes this by explaining that Hume imagines a 'habit' can be felt while a ‘cause’ cannot. The real question Hume must answer, per his own rules, is this: Is there any sense-datum in the present which corresponds to the feeling of a 'habit'?¹⁴⁶

Whitehead describes Hume’s denial of causality as an obvious “sleight of hand” which confuses a *habit* of feeling blinks after flashes with a *feeling* of that habit of feeling blinks after flashes.¹⁴⁷ There is neither an element in a perceptual experience that corresponds to a habit nor the notion of association. Hume must either accept that the man truly felt the causal influence or postulate that a habit is also an experiential element. Whitehead accuses Hume of “the practice of applying the test of presentational immediacy to procure the critical rejection [of] some doctrines, and of allowing other doctrines to slip out by a back door, so as to evade the test” (ibid).

¹⁴⁶ See Whitehead 1928,175.

¹⁴⁷Ibid.

Similarly, he disputes the position of Kant's transcendental aesthetic on causal relation as a category of thought in the understanding of higher-order organisms. Whitehead contends that if apriori categorizations are evidence of human cognition, it should imply that only higher-order organisms would portray the highest form of conformation to order. Here, conformation refers to compliance with a certain order of reality. Conformation is not arbitrary because it is how one aspect of nature gives the pattern and the other aligns with that pattern of relation. If causality is an apriori category, it must necessarily be the case that lower organisms do not exhibit any form of order. Lower-functioning organisms do not perceive causal relations and thus can and should not act according to the ordering of causality.

However, this is contrary to what is observed in our experience. Conformation to the sequence of the past is not restricted to the sphere of higher-order organisms. Whitehead employs the example of a flower as observed to turn to the light with much greater certainty than does a human being. Likewise, a stone conforms to the conditions set by its external environment with much greater certainty than does a flower. The apparent fact is that conformation is a permeating quality whose representation is more pronounced in lower organisms than in higher ones.¹⁴⁸

Conformation has two interrelated parts: the *selection* of the features of reality and the *translation* of those features into symbols. Therefore, presentational immediacy, defined as the mode of an "overwhelming confirmation of fact, in present action, to antecedent settled fact," (Whitehead 1928,41) follows from the initial selection of those settled facts. Presentational immediacy is the phase of symbolism, while causal efficacy is the stage of selective reception of facts. Therefore, in the mode of causal efficacy, we identify which end of the temporal sequence causality falls. We recognize causes directly in our experience, and Whitehead reverberates that "Our bodily experience is primarily an experience of the dependence of presentational immediacy upon causal efficacy" (ibid, 176).

The natural question that follows the exegesis on causal efficacy is this: if causality is in our experience because it is directly perceived, then what kind of physical dimension supports this? Chapter three of this work discussed the response to this question (See §3.1.3). The claim of a physical explanation backing causality as experienced lies in Whitehead's association of feeling with energy in science. Causal efficacy is how the vector quality of prehension is felt in experience. We feel the directionality of actual entities that enter into our constitution the same way scientists can measure the impact of energy on an object. The problem is that scientific materialism assumes that what is felt on the individual subjective level implies a different kind of causality.

¹⁴⁸ See further the example in Ibid. ,42.

In his radical empiricist model, Northrop critiques whether Whitehead is or would be unable to avoid bifurcations. For Northrop, "... the concept of causality in the science of physics is not given empirically in sense-awareness" (See in Schilpp 1991, 187). However, Whitehead would disagree with Northrop's assumption because causality is what it is at all times and does not differentiate between common-sense experience and scientific investigation. If that were true, we would exist in two parallel worlds, one in which scientific laws operate and the other in which mental images are the only reality. This fundamental association between feeling and vector quality of energy in physics shows the transmission of primitive feeling as secured by pulses of emotion, which in the coordinate division of occasions appear as wavelengths and vibrations.¹⁴⁹ Unlike Northrop, who supports scientific realism, Whitehead highlights a crucial union of science and experiences. Scientific observation concerns relatedness in the same causal efficacious world from which experience realizes itself as "an element in what is everlasting" (ibid, 163).

Whitehead describes "the 'datum' in metaphysics as the basis of the vector theory in physics; the quantitative satisfaction in metaphysics is the basis of the scalar localization of energy in physics; the 'sensa' in metaphysics are the basis of the diversity of specific forms under which energy clothes itself" (ibid,117). By this gesture, Whitehead reaffirms the indispensability of metaphysical elucidations to both scientific and experiential knowledge. His theory of perception is firmly rooted in the metaphysical components of existence, without which no epistemological thesis can stand.

I have presented arguments from experience and physics in favor of postulating a primitive mode of perception. I will now discuss its distinguishing contents. I described earlier that causal efficacy is a mode of conformation to past events. It exhibits a pattern of extendedness of the past to the contemporary actual entities. This is one of the component data of causal efficacy — temporality. It responds to James' idea of the knowledge of the time stream leaving echoes of the past in the present. Causal efficacy is the reason why we are internally aware of temporal extension.

Nevertheless, spatial values of the data are not as distinctly known in causal efficacy as in other more complex modes. The ontological basis of this differentiation is found in Whitehead's theory of the extensive continuum by which all entities of the world are temporally and spatially extended. Causal efficacy as our primary mode of contact is the awareness of this extended continuum. If there is indeed a continuity in the universe, then this initial perception of interconnectedness will certainly be characterized by an acquaintance with infinite complexity yet non-discriminated. This will highlight the temporal significance of the datum of the actual world prehended as one unit without the awareness of the individually separated entities that constitute it.

¹⁴⁹ Ibid.

Therefore, the mode of causal efficacy is vague, complex, and undifferentiated. Here, we can clarify Whitehead's critique of Descartes' objectification by explaining that there is no awareness of relata's distinctness in the mode of causal efficacy. My body is 'given' to me as a relatum in the interconnectedness of the world. Therefore, Descartes' "this body" or 'visceral feelings' is the recognition of "our primitive perception" as "'conformation' vaguely, and of the yet vaguer relata 'oneself' and 'another' in the undiscriminated background" (Whitehead 1928, 43). In this sense, Whitehead argues that when Descartes says this 'body is mine,' he could equally say, 'this actual world is mine.' The awareness of our acquaintance with the extensive continuum allows us to speak of a similar possessive relationship with the entire world as we do with our bodies. The body only represents a peculiarly intimate aspect of the continuum identified as "relevant by reason of its direct objectification in the immediate subject, [it] is practically negligible, so far as concerns prehensions of a strictly physical type" (ibid). External nature, which is entities that are not directly relevant to a particular subject, obtain their indirect significance by the transmission of parallel prehensions. In this way, there are various historical paths of intermediate objectifications.¹⁵⁰

Whitehead (1928) holds that the feeling of causal efficacy equates to feelings of anger, hatred, fear, terror, attraction, love, and the like. He explains that when we hate, we do not hate sense-data, but an individual; when we are afraid, actual things or persons are the objects of this. Our feelings are directed towards a person or felt as coming from a person. In consequence, causal efficacy is the operation of the external world evoking our responses and reactions, which must adapt in appropriate measure if we are to survive. The present can only come into being subject to the limitation imposed upon it by the nature of the immediate past. In these emotion-laden moments, we revert to some primitive state where there is an unusual heightening of our primitive functions or an enfeeblement of sense perception.¹⁵¹

The association of causal efficacy with emotions is an interesting angle Whitehead introduces to clarify that the feelings of emotion are not evidence of sophisticated, conscious activity but a primal instinctive reaction. For Whitehead, causal efficacy is not the emotions themselves, but they constitute the reason these emotional responses are produced. The feeling of anger or terror is a "retreat from and an expansion towards" in relation to causal efficacy. A retreat from the immediate bodily conformation towards an external occasion at the center of our emotion. Whitehead describes causal efficacy as "The more *primitive types of experience*(which) are concerned with *sense-reception*, and not with *sense-perception*" (Whitehead 1928, 113-114, emphasis mine).

¹⁵⁰ Ibid., 61&82.

¹⁵¹ Ibid., 93.

In this way, causal efficacy is a non-sensuous perception not intended to predict future events but to describe past ones. Its vectorial arrow points to the past events from which it emerges and by which it is conditioned. The mode of causal efficacy does not introduce any form of bifurcation. It offers explanatory details on how the relatedness of the extensive continuum evidenced in science is characterized in our everyday perception.¹⁵² Consequently, Whitehead finds sufficient evidence for causal connections and temporal continuity in direct sense perception.

4.2.2 The Mode of Presentational Immediacy

Causality, as I have emphasized, is the expression of the underlying importance of continuity without which our elucidations fall into the fallacy of describing perceptual data as disjointed from the whole of reality. The assertion of causal efficacy makes a purely empirical cosmology viable because it offers an experiential connection to the extensive continuum. Perception in causal efficacy escapes the solipsism of the present moment as it points to the fact that sense perception comprises more than one perceives in presentational immediacy, and what is perceived in presentational immediacy depends on the data from causal efficacy. The mode of presentational immediacy, also termed ‘sense perception or James’ ‘sensible present,’ represents how we perceive our immediate environment directly. “Presentational immediacy ... expresses how contemporary events are relevant to each other, and yet preserve a mutual independence” (Whitehead 1928, 16).

Presentational immediacy has a duration called the ‘immediacy’ similar to James’ notion of ‘specious.’ The immediacy of the present has a temporal extension short enough to provide static representations of reality. Whitehead describes this in *Aims of Education*:

The shorter the stretch of time, the simpler are the aspects of the sense-presentation contained within it. The perplexing effects of change are diminished and, in many cases, can be neglected. Nature has restricted the acts of thought which endeavour to realise the content of the present, to stretches of time sufficiently short to secure this static simplicity over the greater part of the sense-stream (Whitehead 1959, 128).

One can compare the deliverance of sense perceptions in presentational immediacy to mental snapshots from a camera (sense organs of the body) and the flow of the events. These snapshots deliver sharp representations of limited aspects of the events and hence do not deliver any information about the future or past, only about the sense data and their spatial positions.¹⁵³ This contrasts with causal efficacy, which is vague, undifferentiated, offering temporal information. Additionally, while causal efficacy offers the temporal width of the extensive continuum in its entirety, presentational immediacy

¹⁵² This principle lies on the surface of the fundamental Einsteinian formula for the physical continuum.

¹⁵³ Cf. Whitehead 1985, 61.

narrows its scope to highlight only the temporal region of the relation between the observer and the particular object.

I shall employ an example to illustrate these differences. Consider the perception of a red apple. The visual information from this perception is confined to a certain geometric boundary. The spatial region that the apple occupies is mediated by its color. Additionally, its texture appears uniformly smooth to the touch. When you take a bite, it is either sweet and juicy or bitter and dry. Although we know the apple is more than just a patch of color, and its redness is more than just the presented quality, our immediate perception offers these precise sense-data of color, taste, and texture, thereby paling into insignificance, all other nuanced relations. These nuanced relations are not immediately present but are discernible by way of relating to the immediate facts of size, shape, color, taste, etc.

Whitehead (1920) describes these features in presentational immediacy as ‘discerned’ while those of causal efficacy are ‘discernible’ relata that extend far beyond the presented locus.¹⁵⁴ Furthermore, presentational immediacy is characterized in PR as the “perception which merely by means of a sensum rescues from vagueness a contemporary spatial region, in respect of its specific shape and its spatial perspective for the percipient” (Whitehead 1929,122). Unlike causal efficacy, this mode depends on the present state of the bodily organization of the percipient. Presentational immediacy as a discriminatory mode ‘zooms in’ on the immediate body implicated in contemporary perception. This body’s background of preconceptions is emphasized, although the percipient may not be particularly aware of them. These preconceived notions amplify the sense data, making perceptual information in this mode vivid, concise, and barren.

Two common elements of the modes of causal efficacy and presentational immediacy exist. They are sense-datum and the locality. Whitehead argues that sense-datum plays a dual role in perception. In the mode of presentational immediacy, the sense-data exhibit the contemporary world in its spatial relations, while in the mode of causal efficacy, they exhibit “almost instantaneously precedent bodily organs as imposing their characters on the experience in question” (Whitehead 1928,49).

¹⁵⁴ I quote Whitehead here: “This peculiarity of knowledge is what I call its unexhaustive character. This character may be metaphorically described by the statement that nature as perceived always has a ragged edge. For example, there is a world beyond the room to which our sight is confined known to us as completing the space-relations of the entities discerned within the room. The junction of the interior world of the room with the exterior world beyond is never sharp. Sounds and subtler factors disclosed in sense-awareness float in from the outside. Every type of sense has its own set of discriminated entities which are known to be relata in relation with entities not discriminated by that sense” (Whitehead 1920, 52).

In causal efficacy, there is the most unrelenting perception of an efficacious world of beings. However, the exact discrimination of thing from thing and position from position is extremely ambiguous, almost negligible. Consequently, all that pertains to observation in science or commonsense, consisting in the determination of the spatial relation of the bodily organs of the observer, are made from presentational immediacy to the location of ‘projected’ sense-data causally connected to the body. While spatial values are emphasized in presentational immediacy, bodily impositions are dimmed in this mode.

Perception in presentational immediacy contributes to the experience of only a few advanced organisms. Due to its dependence on causal efficacy, it is difficult to imagine presentational immediacy in its pure form. However, we may look to the illustration of delusive perceptions for this exemplification. Whitehead uses the example of phantom limb pain in which the percipient refers to a spatial region beyond the actual body as the cause of their discomfort. In this type of experience, the limb is described as a “phantom” because the pain emanates from a limb that is no longer a part of the body. For Whitehead, this experience gives pure datum from the presentational immediacy of pain, not the pain-giving region.¹⁵⁵ The sense-datum that mediates this perception is not to be attributed to the perceived region because, in this case, that pain sensation is truly absent in the suggested region. Unlike in everyday experience, which is a mixed mode of presentational immediacy and causal efficacy, here, no antecedent information is given as grounds for interpreting the sense-datum. In our normal perception, we can correctly identify the spatial region corresponding to sensation because the bodily organization offers prior objectification in the originative phases of the experience.¹⁵⁶ The preliminary phase says there is a body or a limb with which the subsequent sense-datum can identify.

The example of phantom limb pain is the closest illustration of the possibility of erroneous interpretation of the data of presentational immediacy when it is not backed by causal efficacy. It is evident then that presentational immediacy is infused with a certain force of freedom because of the emphasis it places on the specific preconceptions of the subject. A subject with phantom limb pain is accustomed to the presence of a limb where there currently is not, and the pain he feels immediately picks up that disposition and passes it on as information. Whitehead describes the mode to be “to a large extent controllable at will” (Whitehead 1928, 22).

This aspect of presentational immediacy may appear as a separation between willed actions and those which are not. On this, it is expedient to remind ourselves of the fundamental nature of all actual entities as capable of making rational choices. This is no exception. The question of will here

¹⁵⁵ Whitehead 1985,122.

¹⁵⁶ See other examples of delusive perception in *Ibid.*

refers to the society of actual entities capable of adjusting to environmental conditions. Here, the environment is the immediate body of the organism. Societies with more advanced structures may act with a pronounced rationalistic response than those without organized complex structures. The will described is nothing but the complexity of society allowing the modification of information received according to its environment.

One such way of modifying data is *attention* also explained as subjective intensity (See §3.1.4). Attention in presentational immediacy functions as the participation of the organism in its own perception. Attention can only happen in this mode, not in causal efficacy, because the latter is a mode of sense reception only. In his book, *The Function of Reason*, Whitehead (1929) pushes this position.¹⁵⁷ He states that “In our own lives, and at any one moment, there is a focus of attention, a few items in clarity of awareness, but interconnected vaguely and yet insistently with other items in dim apprehension, and this dimness shading off imperceptibly into undiscriminated feeling” (Whitehead 1929, 62).

Attention provides the means by which the percipient’s body becomes integral to sense perception. It directs the perceiver’s perception and determines the sense data selection. It is comparable to the focus of the metaphorical camera to take a shot of a particular moment. Whitehead emphasizes that “the penetration of intuition follows upon the expectation of thought. This is the secret of attention” (ibid, 63). This perceptive intuition is the inclination towards the future as discussed in subjective intensity as “the anticipatory feeling respecting provision for its grade of intensity are elements affecting the immediate complex of feeling (see categoreal obligations (§3.1). The direction of perception depends on the interest of the perceiver because “Nobody directs attention when there is nothing that he expects to see. The novel observation which comes by chance is a rare accident and is usually wasted. For if there be no scheme to fit it into, its significance is lost” (Whitehead 1929, 57).

I will discuss this aspect of attention and intensity in greater detail in chapter five (§5.2.1) of this thesis. However, we acknowledge a complementary character between causal efficacy and presentational immediacy. Causal efficacy provides the data, while presentational immediacy distinguishes its members by providing focus on individual aspects. This echoes James’ distinction between fringes and the nucleus of experience. For James, the “nucleus” of experience refers to the central, focused aspect of conscious experience, while the “fringe” refers to the more peripheral, diffused aspects of experience which are not directly in the focus of attention. The nucleus, which is comparable to presentational immediacy, offers clarity that is the primary focus of attention. While the fringes of experience, identical to Whitehead’s causal efficacy, are the less prominent and less

¹⁵⁷ Alfred North Whitehead, *The Function of Reason* (Boston: Beacon Press, 1929).

distinct aspects of experience not directly in focus. However, instead of an insistence on conscious experience, Whitehead extends this distinction to all forms of experience, not necessarily conscious.¹⁵⁸ According to James, the unification and integration of the nucleus and the fringe aspects make up our conscious experience. Similarly, Whitehead adopts this interpretation by postulating a third mode of integration of causal efficacy and presentational immediacy.

4.2.3 Symbolic reference: The Integrative Mode

Sense perception in organic high-order entities does not occur in pure causal efficacy or presentational immediacy. Causal efficacy alone will teach us no precise thing, while presentational immediacy in its pure form will contain no information either about the past or the future. Perception occurs when these two distinct modes are integrated into the mixed mode of symbolic reference. The integration of both modes creates a novel relational mode called symbolic reference. For perception to serve the purposes of living, symbolic reference is the actual knowledge of the world in which earlier elements of causal efficacy are paired with those of the latter phase of presentational immediacy. For self-preservation, high-grade organisms require information about the past and insight into the future to make proper evolutive adjustments.

This is how Whitehead summarizes the interplay between the modes:

It is the thesis of this work that human symbolism has its origin in the symbolic interplay between two distinct modes of direct perception of the external world. There are, in this way, two sources of information about the external world, closely connected but distinct. These modes do not repeat each other; there is a real diversity of information. Where one is vague, the other is precise: where one is important, the other is trivial. But the two schemes of presentation have structural elements in common, which identify them as schemes of presentation of the same world. There are, however, gaps in the determination of the correspondence between the two morphologies. The schemes only partially intersect, and their true fusion is left indeterminate. The symbolic reference leads to a transference of emotion, purpose, and belief, which cannot be justified by an intellectual comparison of the direct information derived from the two schemes and their elements of the intersection(Whitehead 1928, 30–31).

This mode of symbolic reference is a mix of symbols and meanings. A symbol in the Whiteheadian sense refers to those elements of sense perception which produce emotions, beliefs, and convictions. At this point, Whitehead discusses the problem of the fallibility of the senses. In his account of perception, he indicates that the error of the senses is, in reality, an error of symbolic reference because, in this mode, any form of indistinctness or ambiguity leads to error. The erroneous conception is not in the composing modes (causal efficacy and presentational immediacy) but in

¹⁵⁸ See further James, William. (1890). *The principles of psychology*. New York: Henry Holt and Company.

associating the symbol with the meaning. The ‘meaning’ of perceptive information here signifies the elements of reality which offer the data, while the symbols are those given in presentational immediacy. In the categorial scheme, Whitehead refers to symbols as theory and meanings as fact. Symbolic reference does not actively add any composite element to supplement the earlier modes. Its task is to describe the transition from much simpler elements to simple elements. In degree of complexity and integration, the meanings are significantly more naïve than the symbols that interpret them.

I spelled out §4.3.2 that the structural elements of causal efficacy and presentational immediacy are locality or locus and sense data. The locus is not clearly apprehended in causal efficacy but features subordinately in it because of the property of extendedness, out of which both temporal and spatial values are derived. When a percipient occasion receives the awareness of locality, although there are multiple causal pasts of the contemporary world wholly identical to its own causal past, it receives those identical to the relevant events in the presented locus. This is by virtue of the categorial obligation of subjective unity (See§3.1.4). Subjective unity ensures that the percipient prehends, under the limitation of its own perspective, the causal influences operating in the presented locus by virtue of the unity of the subject. In the mode of presentational immediacy, there is clear discrimination of locality but only indirect apprehension of causality, while in causal efficacy, there is a direct perception of causality yet a vague and indirect apprehension of locality.

The mode of symbolic reference is revealed in the conceptual analysis of the nature of these primary constituents. In symbolic reference, we identify the entity as ‘a red, round patch’ of the apple by connecting its locus to the sense-datum of redness. In CN, Whitehead declares that “no characteristic of nature posited in sense awareness can be explained” (Whitehead 1920, 13). It is in light of this that symbolic reference is indispensable. Our experience has true purpose, belief, and emotion because symbolic reference connects the continuity of the past with the atomicity of the present, opening a future of endless possibilities of interactivity.

The mode of symbolic reference is the final stage for the transference of these values. Whitehead’s initial separation in CN of this character from sense perception is made clearer by the assumption of symbolic reference. Although he had not written PR or SYM at the time, he intuitively supposed that sense perception in its pure form cannot involve mentality unless its elements are interpreted in a more complex mode. Consequently, the sense data from the preceding phases of experience do not involve cognition because the information in those modes does not designate which is the symbol or the meaning. This connection comes only in symbolic reference being the only mode involving the cognition of individuality, which is abstracted from the entity's position as a factor

capable of inducing emotion and purposeful action.¹⁵⁹ It is likely that the symbols in presentational immediacy are erroneously associated with meanings that were initially not transmuted. The meanings may be derived from memory and translated as data given from the presented regions, as in the example of phantom limb pain. The body adapts the datum of presentational immediacy to its current state to produce feelings of minor reference to the real state of the presented duration.¹⁶⁰ The characterization of the three modes of perception offers an analysis of the immense explanatory value that elegantly marries simplicity and acute applicability. In such an exegesis, we understand the nature of phenomenality.

4.3 The Problem of Correlationism

In the chapter's introduction, I highlighted two ways Whitehead can achieve an onto-epistemic organic realism. I discussed the problem of perception of the external world in which skeptical arguments are grounded. I showed in ensuing explanations that this difficulty is overcome by Whitehead's introduction of the mode of causal efficacy by which causality is accounted for as *a posteriori*. This answers the microanalysis of perception. These explanations illustrate the Whiteheadian direct realism. However, Whitehead's realism is incomplete without its parallel connection to the 'organic' aspect, which is the ontological specifications of the interrelatedness of the cosmos. It designates the macro-analysis of perception in cosmology. It is in this vein that the critique of correlationism is important. Correlationism, much like the representationalist doctrine, posits that we do not have direct contact with the external world. However, while representationalists believe sense data mediate our perceptions, correlationists hold that reality is limited to our subjective experiences and the correlations between such experiences. We cannot know what exists independent of our perception. I have shown how Whitehead overcomes the representation problem of perception. However, in this §4.4, I will evaluate the contemporary positions against the correlationist argument. My method follows what was done in the previous section: to identify the inconsistencies of these positions and offer Whitehead's organic realism as a more befitting response.

4.3.1 The Structure of the Solution

Many contemporary philosophers are committed to one form of correlationism or another, and for those who do not ascribe to it, they fail to offer a sufficiently coherent ontological basis for their realism. In his rejection of solipsism, Whitehead merges his epistemology with ontology to offer the

¹⁵⁹ Whitehead 1920, 14.

¹⁶⁰ Whitehead 1985, 254.

appropriate grounding for the former. This fusion is what is termed organic realism. The terminologies ‘organic realism’, ‘process metaphysics’, ‘process cosmology’, ‘philosophy of organism’, and ‘speculative thought’ are employed synonymously to represent Whitehead’s philosophy. However, these terms carry slight variations that are pertinent to the understanding of Whitehead’s philosophical mission in its entirety. I would elaborate briefly on these nuances.

First, speculative thought or philosophy is a method of philosophical inquiry that uses abstract and theoretical reasoning to answer fundamental questions about reality. The emphasis here is on its methodological aspect as a prescriptive approach to philosophy. In Whitehead’s speculative thought, he employs rational, empirical, and imaginative criteria to develop a cosmological or metaphysical system.

Second, this method is primarily applied to experience as the first point of contact we have with the world. The application to the interpretation of experience is called the philosophy of organism or organic realism. It is centered on human experience from which we can extrapolate based on the characters disclosed and the nature of other entities outside our experiential sphere. The philosophy of organism starts with the concept of holism and interdependence in speculative thought and attempts to identify what parts of experience correspond to this notion. Organic realism is the bridge between the speculative method and speculative cosmology, which is a description of the entirety of reality for all entities. One end of the bridge corresponds to the epistemological aspect highlighting elements in our perception. This aspect characterizes perceptual information as internally interconnected parts of a whole. The other end is towards the ontological basis of the entities experienced. Based on this premise of the organic whole, the ontological requirements are that the entities in our experience are real and connected, thus, this must be the nature of all things. It opens up the possibility of understanding the nature of entities outside the scope of our perception because of its realist dimensions.

Lastly, the extension from ordinary experience to the nature of cosmic reality is called process metaphysics, also known as speculative metaphysics or cosmology. This application of the method to the descriptions of the ultimate nature of the cosmos by the bias of human experience is perpetually open-ended because of the infinite creative process of the cosmos.

In Whitehead’s work, the terms and their traits are used interchangeably because of the pervasive interconnectedness of the system. The parts of his philosophical system cannot be fully understood in isolation from one another. The method of speculation is as much a process just as our intuition tells of the passage of the cosmos. Whitehead’s system is so closely knit that any separation

makes it utterly incomprehensible. This is one of the major reasons why systematizing his thought is complex and more likely to collapse into bifurcations.

However, some interpreters of Whitehead disagree with this association. Ford(1985), in *The Emergence of Whitehead's Metaphysics*, claims that although the original treatise of the theory of perception appears in aspects of PR.¹⁶¹ The work symbolism was most likely written and published before or about the same time Whitehead delivered the Gifford lectures that became the PR manuscript. Ford holds, then, that Whitehead conceived his theory of perception before his completed metaphysical treatise. This is especially plausible because Whitehead made changes to his PR before finally concluding it. Accordingly, Ford(1985) concludes that Whitehead may have intended his theory of perception to be independent as it seems logically independent of his system.

Similarly, Robert Kimball attests in his article *Error in Causal Efficacy* that if one considers Whitehead's epistemology as dependent on his whole metaphysical structure, it will imply that his theory of perception is only justified if the complete system is justified. Kimball, however, argues that the complexities of Whitehead's metaphysics and its open-endedness make such a task challenging. Hence, it is probable that the epistemological and metaphysical theories were constructed as independent.

Contrariwise, I maintain that a separation of Whitehead's theory of perception from his entire system tears down the structure of his thought. As argued earlier in chapter two on earlier works, no Whiteheadian thought is given in complete isolation of the envisaged end he had in sight. Any consideration of the theory of perception apart from speculative metaphysics constitutes a bifurcation between its ontological underpinnings and its epistemological system. This would inadvertently undermine the embryonic development of Whitehead's speculative cosmology. His provision of a holistic understanding of inner experiential states with reference to external phenomena is indistinguishable from the character of the feeling of actual occasions. They are incomprehensible when considered in isolation from one to the other.

The quality of 'open-endedness' of his metaphysical scheme does not imply that his epistemological account cannot be justified in the system. This would be the case if Whitehead's theory of perception were purely an epistemological discourse. On the contrary, this theory of perception has a necessary foundation in his ontology, qualifying it as an onto-epistemological theory of perceptual experience. This theory is justified in its demonstration of coherence, applicability, and adequacy. When an onto-epistemological account such as Whitehead's is applied to any form of experience, it

¹⁶¹ L. S. Ford, "The Emergence of Whitehead's Metaphysics," *International Journal for Philosophy of Religion* 18 (3) (1985): 169-172.

must provide adequate explanation and plausibility of its claims. An onto-epistemology as an open-ended schema is justified as long as every metaphysical truth is justified in experience. The theory of perception adjusts according to what new elements are added to the metaphysical system. It is equally unrestricted as an epistemic elaboration must equally account for every supplementary metaphysical truth. Whitehead includes a footnote in PR where he interconnects aspects of his theory of perception into the metaphysical system.¹⁶² He briefly explains how the mode of causal efficacy and subsequent presentational immediacy correspond to the integration of actual occasions' conceptual and physical feelings. It is of utmost importance to show that this integrative aspect highlights the ultimate purpose of Whitehead's thought as incorporating his theory of perception into process metaphysics.

In Organic Realism, Whitehead is a realist with a unique twist. In its broadest sense, realism offers two claims, one on existence and the other on independence. The claim on existence is that the objects of our perception are real constituents of nature. While the premise of independence is that reality exists independently of the perceiving mind. On these two criteria, Whitehead's stances overtly establish primarily an ontological parity among all entities and the consideration of the mind as part of the interdependence pattern of the world not outside it. Reality does not depend on the mind; reality includes the mind.

Therefore, the idea of mind-independent nature, which inadvertently claims a disparity between certain sets of actual occasions, is equally discarded. It does not imply that there is no reality outside the mind. Instead, Whitehead seeks to explain that there are always forms of relations among actual entities. The mind-nature relation is just one such relation, offering a particular perspective of the world. All entities display a certain awareness of their environment and have the rational capacity to conform to it. Whitehead's plurality accepts this multiplicity of dualities, except those abstracted dualities do not express the nature of the entire cosmos. In his ontological structure, all processes involve the emergence of something of a *mind-like* nature out of the physical, creating some measure of both novelty and continuity through assimilation and accommodation between what *is* and what is *just now becoming*. Epistemically, there is a transference of information from one mode relevant to the information in the other mode. This constitutes the most fundamental semiotic relation in the actual world. Up to this point, the chapter has been an attempt to highlight the epistemological end of organic realism. I shall now evaluate the ontological peculiarities in contrast to other contemporary realist positions.

¹⁶² The work *Symbolism* had previously been presented in its entirety in a preceding lecture as cited in PR as follows: "Cf. my three Barbour-Page lectures, *Symbolism*, at the University of Virginia (New York: Macmillan, 1927, and Cambridge University Press, 1928)" (Whitehead 1925,317). Although it can be argued that Whitehead had not completed the series of lectures that led to the compendium of PR, he had developed his metaphysics well enough to integrate his theory of perception with the ontological structure of the actual occasion.

4.3.2 Speculative Realism

Speculative realism unites two particularly important terms of Whiteheadian thought: *speculation* and *realism*. Speculation in this sense, which I discern as closely following the ideas of Whitehead, is not a return to pre-critical philosophy but a recognition of the limitations of the post-Kantian critical analysis of contemporary thought. The foundations of speculative realism began with Quentin Meillassoux's *Après la finitude*, in which he takes a stance against the doctrine of correlationism.¹⁶³ From this work of Meillassoux came the first speculative realism event with contributors such as Ray Brassier, Iain Hamilton, Grant Harman, and Meillassoux himself in April of 2007 at Goldsmiths College, London.

Speculative realists hold, though in vastly different ways and degrees, a strong metaphysical realism. Their position seeks to withdraw from post-Kantian thought's purely epistemological and human-centered agenda. The key Kantian claim of phenomena as dependent upon the mind to exist led to an unjustified priority afforded to human access to the world. Unfortunately, these correlationist contemporary theories do not tell us what else happens outside the human sphere.

In Meillassoux's words, correlationist philosophers hold that 'we never grasp an object 'in itself', in isolation from its relation to the subject', and correspondingly that 'we can never grasp a subject that would not be always-already related to an object'(Meillassoux 2008,5). Likewise, in a work by one of the original speculative realists, Graham Harman, titled *Prince of Networks: Bruno Latour and Metaphysics*, he describes this unfettered 'human access' as utterly incapable of any further information about the impact of inanimate objects upon one another, apart from any human awareness of this fact.¹⁶⁴

Meillassoux considers these correlations as a necessary contingency because it is probable that there is no absolute being outside our correlation to it. Instead, he argues for a principle of "un-reason" (*irraison*), rejecting any principle of reason as the basis of nature. For Meillassoux, his *irraison* is "an absolute ontological property, and not the mark of the finitude of our knowledge" (ibid, 53). He is convinced that this irrationality is and can only be the essential property of the entity. Meillassoux contends that "we must convert facticity into the real property whereby everything and every world is without reason and is thereby capable of actually becoming otherwise without reason" (ibid). Meillassoux's proposed world is a "hyper-Chaos" (ibid, 64), pure virtuality that allows the eruption *ex*

¹⁶³ Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency*, trans. Ray Brassier, New York, Continuum, 2008.

¹⁶⁴ See further: Graham Harman, *Prince of Networks: Bruno Latour and Metaphysics* (Melbourne: repress, 2009), 102-103. See also, Graham Harman, *Guerrilla Metaphysics: Phenomenology and the Carpentry of Things* (Chicago: Open Court, 2005), 42.

nihilo of something formerly inconceivable. His stripping away of the ontological differences between entities on the basis of reason, although it resembles Whitehead's refusal to make consciousness a fundamental principle, pushes the idea in a completely different direction. Whitehead believes laws are immanent and exhibit a certain rational push of actual entities towards conformation. He writes: "The laws of nature are the outcome of the characters of the entities which we find in nature ... and conversely the entities follow from the laws" (Whitehead 1920, 142). Reality does not consist of two separate domains; the realm of being and that of laws or relations, as Meillassoux's chaotic world suggests. Rather, entities and laws share this "mutual immanence." For Whitehead, in *Adventures of Ideas*, laws of nature refer to this pervasiveness because "Some partial identity of pattern in the various characters of natural things issues in some partial identity of pattern in the mutual relations of those things... A Law is explanatory of some community in character pervading the things which constitute nature" (Whitehead 1933,112).

Meillassoux's chaotic world is nothing like the extensive continuum that actual entities exemplify. The chaos he proposes does not provide enough explanation for the emergence of ordered entities *ex nihilo*. In fact, Meillassoux plunges us back into the abyss of ontological dichotomies between the world as irrational and chaotic, on the one hand, and the actual entity or a society of actual entities emerging as structured and rational on the other. He supposes that the novelty that emerges from the chaos is a completely detached ontology. For Whitehead, this violates a fundamental ontological principle of introducing a relation that is unaccounted for by existing relata.

Among the listed speculative realists, Harman's(2005) position leans more closely to Whitehead's organic realism. Even though he raises some notable critiques against Whitehead, his object-oriented ontology¹⁶⁵ is one of the few attempts to explore the uncharted waters of the nature of a thing outside human and non-human contact. I will proceed to put forth Harman's idea of speculative realism in the areas that share an affinity with organic realism. This comparative approach is important because Harman's discussion of the problem of correlationism offers a comprehensive echoing of Whitehead's critiques of philosophy in perspectives that are intuitive and intensely complementary and can aid further understanding.

In *Guerrilla Metaphysics*, he attributes an important place to Whitehead in the genealogy of speculative realism.¹⁶⁶ Harman describes Whitehead as one of the few philosophers whose ideas attempt 'to venture beyond the human sphere' (Harman 2005,42). He supports Whitehead's realism as

¹⁶⁵ Object-oriented ontology is an intellectual movement in the arts and humanities sharing certain affinities with Heideggerian phenomenology. It is a philosophically realist position often at odds with existing currents in postmodernism and critical theory. See Harman,2019.

¹⁶⁶ Graham Harman, *Guerrilla Metaphysics: Phenomenology and the Carpentry of Things* (Chicago: Open Court, 2005).

a radicalistic view that refuses to favor either human access or divine ontological preeminence. Instead, Whitehead's organic realism offers a "world in which the things really do perceive each other"(ibid,52).

It becomes evident from Harman's treatise that he sides with Whitehead that there is a non-ontological hierarchy of existents. The ascendancy and mediation, brought on by the consideration of Kantian transcendentalism, are broken down and replaced with interactionism. All actual occasions of all sizes and scales, from "the most trivial puff of existence in far-off empty space [...] in the principles which actuality exemplifies all are on the same level" (Whitehead 1985,18).

Consequently, Harman offers a non-correlationist, non-human-centered metaphysics, where 'humans have no privilege at all,' so that 'we can speak in the same way of the relation between humans and what they see and that between hailstones and tar' (Harman 2005,124). It is in this articulation of the foundational contentions of Whitehead's realism that Harman(2005) is applauded by Shaviro(2014) in *The Actual Volcano: Whitehead, Harman, and the Problem of Relations*, as championing a realization of crucial aspects of Whitehead more clearly than ever before.¹⁶⁷

If there is anything that finds preeminence in the ideas of these two thinkers, even including Meillassoux, it is the consideration of ontology as vital for the knowledge of the world in contrast with epistemological superiority. Nevertheless, their differences lie in the fact that Whitehead is concerned with prehension as an onto-epistemic notion offering both ontological and epistemological explanations. Instead, Harman(2005) speculates a certain "hidden reserve" of the substance central to its identity. This association of ontological identity with the particular reserves of an entity strongly suggests a form of substance ontology. This is because each entity's identity is peculiar to the reserve, resulting in a difference in nature. Harman's insistence on this quality installs a new bifurcation between "things in their intimate reality and things as confronted by other things" (Harman 2005,74). Neither humans nor other entities can ever know those intimate realities nor speak of them as we do of their relational natures.

Shaviro (2014) identifies and discusses the essential differences between Harman and Whitehead's approach to correlationism. He observes that Harman holds all objects as ontological in the same way Whitehead describes actual occasions as 'incurably atomistic'(Whitehead 1985,61). The objects of Harman appear to respect the quality of the occasions of Whitehead as demonstrating the ultimate metaphysical truth of atomism.¹⁶⁸ Nonetheless, Harman posits that some aspects of these objects do not enter into their external relations. He describes the 'inner self' of objects as having a

¹⁶⁷Steven Shaviro, "The actual volcano: Whitehead, Harman, and the problem of relations," in *The Deleuze and Guattari Dictionary*, edited by Ian Buchanan and Gregg Hallward, 369-371 (Edinburgh: Edinburgh University Press, 2014), 281.

¹⁶⁸Whitehead 1985, 35.

relationless autonomy, a concealed world outside the perceiving mind, and any other object. For Harman, this inner aspect of ‘receding from all relations, always having an existence that perception or sheer causation can never adequately measure ...is a universe packed full of elusive substances stuffed into mutually exclusive vacuums’ (Harman 2005, 75-76).

Harman's way of removing the privilege of the human mind from nature reinstalls a fundamental gap between objects as they exist in and for themselves and the external relations into which these objects enter. For Harman, correlationist bifurcations in the form of spirit-nature, mind-body, and phenomena-noumena are the only bifurcations against which we should stand. However, those “between things in their intimate reality and things as confronted by other things” (ibid, 74) are necessary bifurcations that support the account for novelty. He clarifies that the hidden aspect of being, which is never exhausted by, nor ever fully expressed in its interactions with other objects, is the basis for the coming into being of new entities. For him, the necessary internal closure of objects offers the only viable way out of the stale, changeless world of continual interaction of entities. Harman’s point is that his objects are in some way deeper than their relations and cannot be dissolved into them. If we identify an object completely with its existing relations, then there is no reason to assume any form of change can occur. Every object would be completely depleted by its current dealings with all other things; therefore ‘actuality would contain no surplus, and thus would be perfectly determinate in its relations.’¹⁶⁹ For Harman’s objects, because ‘none of them can be identified with any (or even all) of their relations with other entities’ they are said to be ‘withdrawn absolutely from all relation’ and are not human restricted— ‘they are everywhere’ (ibid,74&85).

Besides his claim on change being an impossibility with Whitehead’s theory, Harman(2005) equally contests the primacy of relations. He describes the theory of prehension as ‘reminiscent of a house of mirrors’ because actual occasions are prehensions, which themselves are made up of other prehensions. Postulated in terms of nothing more than their perception of other entities, such entities resemble how the proverbial ‘hot potato’ is passed down the line of infinite regress.¹⁷⁰ For him, Whitehead is never able to anchor the various perceptions of the entity because all we are left with are prehensions of prehensions.¹⁷¹ This perspective is partially explained by the theory of external relations discussed in §2.1.2. According to Harman’s reading of Whitehead, novelty or change and grounding are the two constraints on Whitehead’s actual occasions.

It is at this stage that Whitehead’s doctrine of prehension is particularly useful. Harman fails to see how relations operate in an interactive processual world. Just as I explained that Meillassoux

¹⁶⁹ Graham Harman, *Speculative Turn: Continental Realism and Materialism* (repress, 2011), 295-296.

¹⁷⁰ Harman 2005, 22.

¹⁷¹ Ibid., 82. Harman makes a claim similar to that of Bradley on the reality of relations.

confounds the reality of physical laws with an apparent ontological separation, Harman's argument for the impossibility of change in Whitehead's theory is the effect of misreading the relational theory of prehensions. I shall here address his two critiques sequentially.

First, on the matter of change, the same critique can be made of Harman's account of objects. If we consider Harman's objects in their finite natures, they would eventually exhaust their 'hidden essence' as they expend them in producing new things. Harman cannot claim immortality for his objects either, as Whitehead does if they are only partially related to other objects. This is because they never arrive at transcendence after complete exhaustion. Immortality is a transcendent property, and as long as parts of their inner selves remain actively in the actual world, they are finite expressions. His realism, therefore, cannot account for infinitude because their relations, change, and novelty are products of completely finite objects. As such, no novelty is sustainable if it depends on objects in spatiotemporal confines. Whitehead's perishing actuality at satisfaction is the reason why he can account for the infinite production of novel activities in the actual world. It is by the process of prehension, where occasions enter fully into relations, that the perished past world can give data to the present subject for change to occur. The change happens through the perishing of occasions and their absorption into the extensive continuum on the one hand and subjects receiving the data of the extensive continuum and emerging out of that prehension on the other. Every emergent subject and every actual world becomes a novelty because of the perishing of entities.

Second, I must defer to the ontological principle on the question of infinite regress. The principle states that "no actual entity, no reason." It anchors the reason for each actual entity in another entity. It is true that this regressive analysis, or what Whitehead calls 'division', reveals that there are further prehensive occasions that precede and constitute the current actual entity in question. However, Harman fails to see that this does not continue *ad infinitum* for Whitehead. This is how Whitehead explains the anchoring of actual entities: "... that the reasons for things are always to be found in the composite nature of definite actual entities— in the nature of God for *reasons of the highest absoluteness*, and in the nature of definite temporal actual entities for reasons which refer to a particular environment" (Whitehead 1985, 19).

The 'reasons' Whitehead describes as "highest absoluteness" are grounded in the nature of God as the primordial actual entity of the world. The introduction of God does not violate the ontological principle because God, as discussed, is an actual entity. He represents the metaphysical explanation by which creativity is actualized. Creativity is the 'ultimate behind all forms' described again as the "universal behind all universals" (Whitehead 1985,21), pushing the universe of disjunctive many into one. Creativity itself is not actual, therefore, it requires actualization by entities. For this function, God

is the primordial exemplification of that principle. All other actual occasions actualize creativity by applying the creative principle emulated by the primordial actual entity.

In effect, the regression does not continue infinitely because of God and the transcendence of all actual entities. For God, Whitehead argues that apart from “God, there is no relevant novelty” (Whitehead 1985,164). The novelty that God gives is not through occasionalism like Harman insists as the only possible solution, but God’s role in novelty is toprehend the world, as the world prehends God. This principle is evidenced in the awareness we obtain in the perception of the relatedness of things in the contemporary world. Whitehead says:

This extensive continuum is one relational complex in which all potential objectifications find their niche. It underlies the whole world, past, present, and future.....An extensive continuum is a complex of entities united by the various allied relationships of whole to part, and of overlapping so as to possess common parts, and of contact, and of other relationships derived from these primary relationships. The notion of a 'continuum' involves both the property of indefinite divisibility and the property of unbounded extension. There are always entities beyond entities because nonentity is no boundary. This extensive continuum expresses the solidarity of all possible standpoints throughout the whole process of the world. It is not a fact prior to the world; it is the first determination of order— that is, of real potentiality— arising out of the general character of the world(Whitehead 1985,66).

The continuum is a real potential for division. The actual entity creates this division by atomizing the extensive continuum. The concept of atomization refers to the ontologically atomistic nature of actualities. To atomize the extensive continuum, then, is to exemplify it in individuated occasions. The extensive continuum is, as described earlier, supplied with occasions that have perished into immortality. The ‘past’ world with which new actualities are presented is not the same ‘past’ that the just perished occasions prehended. The immediately passed entities have been included in the extensive continuum for new atomization. At this point, new relations have been created among the actual entities because of their prehensions of the ‘new’ past.

The extensive continuum requires a system of ordering by which entities exist in relation to each other, without which prehensions will be clearly arbitrary and lack any true value. Whitehead describes God’s subjective aim as consisting of the order and novelty by which the organization of the extensive continuum is determined. This subjective aim means that by prehending the world, God takes in all the relations of actual entities and becomes aware of the perished additions to the continuum, thereby successfully effecting the ordering of their relations in the continuum. Through this order, God installs how the continuum will be divided, creating a novel continuum each time for objectification.

Because the entities actualize the continuum, each actual occasion is a new actualization of a new continuum that was antecedently structured by God’s prehension of it. Every new actual occasion

is given the actual world as a ‘stubborn fact’, newly ordered and distinct from the given ‘stubborn facts’ of the antecedent entities that it has prehended. Therefore, the two avenues for novelty and change are ingrained in the prehensive activity of all actual entities, God included. Whitehead can ground his argument of change and novelty on complete, not partial, relatedness despite the apprehensions of Harman. Prehensions fully account for change and novelty in perpetuity. The prehension of prehensions is why the universe changes. Actual entities change the world by giving up themselves entirely. This validates the ontological principle that ‘besides actual entities, there is nothing’.

To conclude, prehensions combine internal and external relations, a difficulty speculative realists cannot overcome. In Meillassoux’s ontologically chaotic world, there are only external relations because, in the irrational world, chaos confers passivity on actual entities by depriving them of any internal power of choice. For Meillassoux, the contingency of laws is the only desirable alternative to a deterministic world. On the other hand, Harman constructs only internal relations for his objects. He confers a certain active participation of the object in the progress of the world due to an internalization of its essence. Harman’s attempt at an external relation is one-sided because his objects only provide novelty and change to the world without a reciprocating effect of the world on them.

Whitehead’s account offers both internal and external relations for the price of one. The actual entity is given “appetition,” described as a “principle of unrest, involving the realization of what is not and may be” (Whitehead 1985, 32). It is the potentiality of becoming¹⁷². In addition, the entity is given the capacity of “decision”. The physical pole of an entity is given by other entities of the actual world; however, temporal atomicity offers the chance to the entity to decide by its differential choice, which, out of the multiplicity of sheer possibilities, will animate the physical data through “conceptual” prehension. Whitehead adds that “An actual entity arises from decision for it, and by its very existence provides decisions for other actual entities which supersede it” (Whitehead 1985, 43).

One must pursue the possibility of change within the world itself, not outside it. In place of Meillassoux’s chaos as law, Whitehead’s “ontological principle” accounts for determinism and rational choice emanating from the world of actualities. Christian Frigerio, in *Power, Possibility, and*

¹⁷² Whitehead references Alexander Samuels ‘a principle of unrest’ from Alexandre’s work, *Artistic Creation and Cosmic Creation*. London. In this book, Alexandre explains claim on the becoming of events. He says we should think the passage of nature in terms of a stripping away of the qualities of motion that refer to change and employ it as: “Mr. Whitehead speaks, and to insist that the stuff of things is events and groups of events, not something fixed and resting but something which contains in itself a principle of unrest” (Alexander, 1927). The principle of unrest here is simply the internal surge towards the future in actual entities, their becoming as their *raison d’être*.

Agency: Speculative Realism and Whitehead's Theory of Relations, highlights this principle.¹⁷³ Frigerio(2020) asserts that Whitehead's ontological principle is a *via media* between Meillassoux's *irraison* and the principle of sufficient reason.

Entities are reasons, but unlike Leibniz's monads, they are not sufficient reasons. They are completed by ideals to be realized. Whitehead's usual *modus operandi* is obvious here once again as he weighs the extreme positions while striving to preserve the indispensable gems of each. As he clearly states in the opening chapters of PR, his position rejects the Humean aspect of sheer successiveness or pure exteriority of relations while revitalizing Lockean ideas of power for the entity. He restates the Leibnizian determinist principle of pre-established harmony in terms of the ontological principle grounded in actual entities alone.

The indisputable core value of Whitehead's cosmology is that it is a cosmology of *gaps*, yet these gaps are not ontological fractures. They represent actual entities and their internal possibilities to take up space in the way that they choose, unlike the objects of Harman, whose internal ontologies withhold from the world. Stengers describes this as a culture of interstices¹⁷⁴, which is not an intentional, conscious choice of the organism but simply the awareness of its possibility and that of all others. This is indeed a theory of the necessity of possibility.¹⁷⁵

Prehensions are Whitehead's ontological wager to describe a radically empiricist approach for a more coherent account of lived experience. The ontological principle of creativity is expressed in perception as the relatedness of percepts, whose application is obvious to thought. For Whitehead, the transcendence of the actual entities is in the way we are 'carried out' of our bodies which are given as an immediate stubborn fact, as well as our immediate past of personal experience, into the immediateness of thought, then pushed back into it to surge forward into the future. Epistemically, this awareness is representative of our conceptualization and language. This is because:

We finish a sentence because we have begun it. The sentence may embody a new thought, never phrased before or an old one rephrased with verbal novelty. There need be no well-worn association between the sounds of the earlier and the later words. But it remains remorselessly true that we finish a sentence because we have begun it. We are governed by stubborn fact (ibid,129).

4.3.3 Agential realism

From the previous discussion, I argued that speculative realism focuses on only the ontological explanation of what kinds of entities exist outside the human mind without adequately demonstrating

¹⁷³ Christian Frigerio, "Power, Possibility, and Agency: Speculative Realism and Whitehead's Theory of Relations," *A Journal for Philosophy of Culture* (2020).

¹⁷⁴ Cf. Stengers 2002 ,328.

¹⁷⁵ See Frigerio 2020, 14.

how these entities can truly know each other. I concluded that attention to the ontological aspects creates a separation between the objects and their relations with other entities. I implied that the bifurcations are only overcome by elaborating a corresponding epistemological realism. In this sense, epistemological realism will attest to the possibility of knowledge outside the human mind. It defends the existence of an objective reality that is knowable and not dependent on subjective perceptions. This position is related to scientific realism on the accuracy of scientific theories about the world. It discredits correlationism by stating that knowledge about the world exists outside the human-world relation.

Agential realism takes up this onto-epistemic stance. Its proponents seek to unify the epistemological truths of scientific observations with the ontological configurations that underlay the natures of the constituents. Agential realism agrees with Whitehead's conception that Nature is real; for "scientific laws are statements about entities in nature; molecules and electrons are factors in nature"(Whitehead 1920, 45-46). The theory was propounded by Karen Barad, a physicist and philosopher. Barad's agential realism offers a clear example of how an onto-epistemic theory like Whitehead's can contribute to the philosophy of science. The original term Barad uses is ethico-onto-epistemology, explained in her work *Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter*¹⁷⁶ as:

We do not obtain knowledge by standing outside of the world; we know because "we" are part of the world. [...] The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter, and discourse (Barad 2003, 185).

Barad(2003) endorses that separating ontology from epistemology is a form of bifurcation. She attempts to dismantle the exclusive human access to install the fact that there are no hierarchical perceptions, just as there are no hierarchies in ontology, only complexities of perceptual knowledge corresponding to the complexities in entities. Barad highlights the active participation of all forms of entities in scientific observation and experimentation. Each entity has a complex participation defined by the intensity of its inclusive action. Agential realism shares an obvious affinity with Whitehead's concept of intensities, where the influence of an occasion on the world and the extent of its prehension of that world is proportional to its subjective intensity.¹⁷⁷

Barad's relational ontology defines onto-epistemology as a fluid, non-binary state that completely implodes the dualities of the natural and the artificial, nature and culture, subject and

¹⁷⁶ Karen Barad, "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 801-831.

¹⁷⁷ Emphasis on God as the highest subjective intensity having more effect because of his infinite self which imbibes infinite information. See Whitehead 1985, 47.

object, machine and organic body, narrative, and reality, etc.¹⁷⁸The state of the world as combining ontology and epistemology, for Barad, is akin to a disorganized mix with no peculiar order. Barad uses 'phenomena' to describe this *mélange* which restrains ontological and epistemological priorities from any agent acting within its [phenomenon] confines. The ontological inseparability of phenomena is described as follows:

I take the primary ontological unit to be phenomena, rather than independent objects with inherent boundaries and properties. In my agential realist elaboration, phenomena do not merely mark the epistemological inseparability of 'observer' and 'observed;' rather, phenomena are the ontological inseparability of intra-acting 'agencies.' That is, phenomena are ontological entanglements... Phenomena are the basis for a new ontology. Phenomena are what are observed in laboratories, but they are more than that: they are the basic units of existence (Barad 2003, 333).

Although both Whitehead and Barad share the notion of the dynamism and interconnectedness of nature, Barad's posthumanist framework emphasizes the entanglement of matter and meaning. For Barad, matter and meaning are co-constitutive and inseparable, and knowledge is produced through the ongoing material-discursive practices of phenomena. Barad's framework is largely influenced by quantum physics, and she uses concepts such as entanglement and diffraction to describe how phenomena are produced through these intra-actions between matter and meaning.

However, their differences lie in the emphasis on human agency and the fundamental principles underlying reality. Barad holds reality as a contingent and context-dependent process of entanglement dissolving all forms of binaries into nothingness. There are two key problems associated with the dissolutive viewpoint Barad employs. There is, initially, the epistemic gap between the macro phenomenon created and the contributing micro intra-acting agents which compose it. Barad suggests that the relations that compose the phenomenon remain undifferentiated even when ontological intensities vary. This is why Barad arrives at the same conclusions as Meillassoux's chaos ontology.

Nonetheless, since Barad applies her agential realism in a scientific sense, disorder cannot remain the final stage for the discipline of science. In advancing scientific laws, the clear existence of ordered observances and procedures renders a completely chaotic world an impossible perspective. Science is a discipline because it requires observing patterns and conformation to predicted sequences in the world. Barad's aim to completely detach humanism from objectivity fails on this front. If order is not assumed as an ontological feature of the world, then Barad has no basis to assume its function in conceptuality. However, it must be accounted for somehow because it is an indispensable feature of scientific knowledge that order remains present in the experimentation.

¹⁷⁸Barad, 333.

The agential realist resorts to the unjustified reintroduction of the human agent as an interpreter of 'phenomena' to accord with scientific reality. The introduction of the mind destabilizes Barad's objective of operating both ontology and epistemology on equal levels. It makes epistemology superior to ontology bringing back the Kantian correlationist position.

In addition, Barad's posthumanism claims ontological objectivity that lacks appropriate physical demarcation. Barad defines objectivity as only given by matter yet, there are no clear boundaries of inclusion or exclusion determining which matter or classes of matter specify the intra-acting agencies. One could probably include all of the matter in the universe. This leads to 'everywhere' and 'nowhere' simultaneously. Barad, as well as Latour and Woolgar(1979), in an attempt to rectify the impassable bridge of social epistemologists, may also have fashioned another bifurcation by advocating for epistemic saliency of matter¹⁷⁹. The problem of confines of distinction is brought on by a failure to postulate what Whitehead calls the ultimate metaphysical truth of atomism. This error is comparable to the ontological objects of Harman(2005) because Barad's phenomena only highlight internal relations(intra-actions) of the composite agents. The phenomena themselves are not the real final things that make up the cosmos, as actual entities are for organic realism.

It is not clear how a particular phenomenon chooses its composite parts from the external world or how the agents are delineated to exhibit one unit of the phenomenon. Does Barad's phenomenon not have external relations with other phenomena or agents? It follows that they are indistinguishable from each other because external relations would justify distinguishing features. To achieve this separation, any categorization of phenomena will be by introducing an entity (either as a phenomenon or agent) with apriori knowledge. There is a change in epistemological primacy without a corresponding ontological shift.

There must be a proper balance between atomicity and continuity to recognize individuality in a fundamentally relational world. Barad's difficulty is similar to the critique Whitehead levels against Newton's treatment of the extensive continuum. According to Whitehead, the mechanistic ideas of Newton stem from his erroneous supposition that the extensive continuum is actual in the full sense of being an actual entity. A problem that clearly results in his consideration of space and time as absolutes. Barad's phenomena mimic the absolutism of Newton's physics because they are expressed in pure actuality and have no form of potentiality. Barad assumes that the continuity observed among physical things is as actual as the entities themselves. The error is the same that runs from Newton through to Descartes and Kant because their aspect of the potentiality of the world is fully actualized, leaving the world deterministic yet the mind as free.

¹⁷⁹ See further this argument in Calvert-Minor 2013,125.

The doctrine of objectification, according to Whitehead, makes it possible to see how the potentiality of the “continuum at once becomes the primary factor in objectification”(Whitehead 1985, 67). This doctrine is the “general scheme of extensive perspective which is exhibited in all the mutual objectifications by which actual entities prehend each other” (ibid). The extensive continuum is a scheme of real potentiality that must find exemplification in the mutual prehension of all actual entities. Once Barad postulates the extensive qualities of the world in which her phenomena operate, its specific objectification of that extensiveness by an agent will serve as a definite delineating quality of that agent. In this way, Barad’s agential realism is able to fit the internal relations of the entity with its external execution. Like Whitehead, Barad’s phenomena must actualize their objectification of the continuum by exteriorizing their internal choice in this execution.

Summary

This chapter aimed at achieving three tasks. The first was to introduce the problems of perception. The second offered an analysis of Whitehead’s modes of perception in response to these problems, and finally, the chapter aimed to compare speculative realism and agential realism as contemporary attempts to resolve the problem of correlationism. The analysis of Whitehead’s theory of perception initially explained a necessary rudimentary responsive phase called causal efficacy. According to Whitehead, awareness of data in this initial phase is *aposteriori*. Causal efficacy explains the present’s accommodation of the past, showing the extensive connection of the actual world. Whitehead’s empirical justification for causal efficacy is from experience itself recognized as a process. Subsequently, presentational immediacy is built on this primary awareness of the extended nature. This stage is followed by an integrative stage where the meanings provided by causal efficacy are connected to the symbols of presentational immediacy. By reversing the order in which classical theories of perception interpreted experience, Whitehead returns causality to experience and not as a habit or an *apriori* category.

I also outlined the problem of correlationism issued from Kantian transcendentalism. I presented two contemporary theories, i.e., speculative realism and agential realism, as attempts to overcome the bifurcation of ontology and epistemology. On speculative realism, I discussed the positions of Meillassoux on ‘irrational chaos’ as the ontological character of the world and Harman’s object-oriented ontology. My conclusion was that both theorists face irreconcilable bifurcations and ontological gaps. I conclude that pure ontological realism cannot account for how we conceptually know the world.

Another realist response I raised was agential realism which attempts to bridge the gap from the epistemic side. Barad develops her ethico-onto-epistemology from the quantum theories of physics. Thus, the ontological, epistemological, and ethical framework is intended for conceptualizing knowledge and reality. I argue that Barad's denial of the uniqueness of the human agent is not successful because of an unjustified introduction of the human to make sense out of the structure of the intra-acting agents of the world. Barad's phenomena suddenly become imbued with an order from 'nowhere'.

My position à la whiteheadienne is to argue the saliency of prehensions. Prehensions elaborate on the ontological and epistemological aspects of societies of actual entities. They, ontologically, are responsible for the relations of actual entities because they respect the ontological principle that allows them to be fully objectified by other entities. They reveal the structure of the world because they carry and emulate this structure. Epistemologically, prehensions are why we know about the structure of these entities because the conceptual relations between entities are themselves entities. Our conceptions of the world are reliable because we 'take in' objectified data and make rational decisions about it in our relationship with the world. For organisms such as humans, this interaction results in consciousness as it intensifies. Although Whitehead argues that language plays a huge restrictive role in the symbols, he accepts that there are correlations between concepts and the states of entities they illustrate.

Chapter 5

PANEXPERIENTIALISM, FUNCTIONALISM, AND LIFE

Each element in the genetic process of an actual entity has one self-consistent function, however complex, in the final satisfaction (Whitehead 1985,26).

The previous chapter highlighted the various aspects of Whitehead's philosophy. The purpose was to underscore how these parts combine to holistically define the nature of our experience and its place in the cosmos. A visual representation I have found useful in illustrating the intricate interrelations between the parts of Whitehead's system is the lithograph by M.C. Escher depicting two hands drawing each other. This representation combines the speculative method, the onto-epistemological bridge of organic realism, and process cosmology in one place. I have found it to reflect the symbiotic relationship of these three aspects and highlight their unison.

Escher's *Drawing Hands* was first created in 1948, depicting two hands, each drawing the other. The work shows an intricate loop, creating a paradoxical image as the hands appear both in front of and behind one another. This style makes it impossible to determine which hand is drawing which. This artwork highlights Escher's fascination with mathematical and geometric concepts in his art.

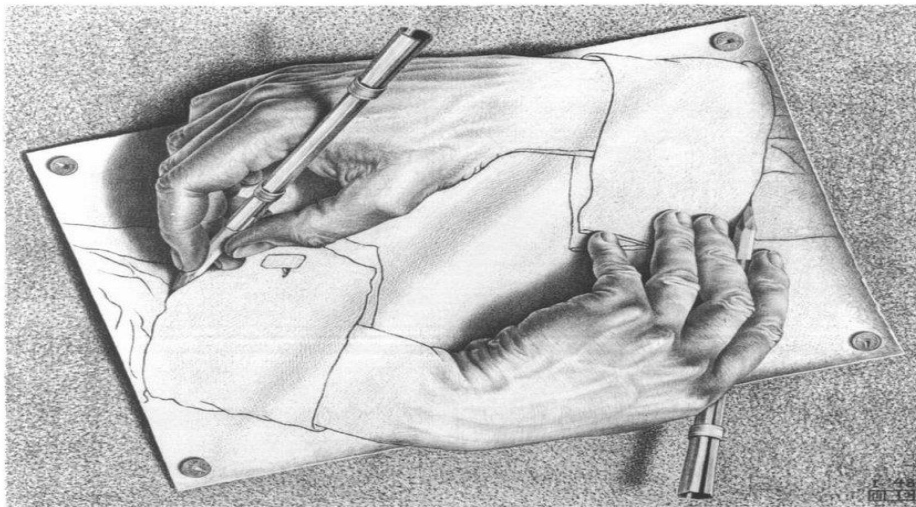


Fig.1

M. C. Escher, *Drawing hands* (reproduced on the front cover of Edgar Morin, *La méthode*, tome 1: *La nature de la nature*, Paris: Editions du Seuil, 1977).

From Figure 1 above, three characteristics are observed. They are a) circularity, b) self-delimitation and c) self-production. Firstly, the circularity of the two hands drawing each other represents the speculative method employed in the Whiteheadian sense. The method transcends the work itself but is exemplified in the application of "two hands" and could have been depicted differently. The technique can be applied to any number of ideas, such as ontology-epistemology(onto-epistemology), subject-object(superject), substance-attribute(process), etc. The application of these

concepts renders this transcendent potential principle actual. The speculative method expresses dynamism and fluidity of ideas such that parts of its system merge seamlessly into others, forming an infinite loop.

Secondly, the work depicts the hands drawing within the confines of a rectangular frame providing the limit within which their activity unfolds. This points toward the common boundary shared by the elements of the interacting system. The boundary is self-imposed because it rises out of the interactive process itself. It is an abstraction of the relations between the components. This drawing of the boundary is the task of process cosmology to ensure that all the entities that participate in the interaction are within the confines of experiential life. No entity out of the boundary can have relations within it.

Lastly, as I indicated, the move from a method to a systematic rendering of the experiences of the cosmos is mediated by experience. It is the mark of self-production depicting how the system interacts internally. The image depicts a process of creation as the hands draw each other into existence. This is the key evidence of experience as both self-creating and self-regulating. This creation process reflects the philosophical emphasis on the importance of changing events of experience unfolding in time. Because of the interconnectedness, we can extend this intimate knowledge to understanding the cosmos. This self-creating attribute is the open-ended nature of the interrelation. The quality of our experiences as creative is the attribute of the cosmos. The interactive process goes all the way down to initiating composite details, such that we may be unable to determine which one came first or which would be last. There is again a growth in the complexity of interaction all the way up as the individual details emerge. If one steps back far enough to see the larger picture from the outside, he is immediately implicated in the loop. The farther the abstraction, the more complex the relation becomes. Although none of us can step out of nature, as “there is no holding nature still and looking at it” (Whitehead 1920, 15). We are confined to the framework; we cannot ask the ‘why’ but can describe the ‘how’ of the reality of interrelation.

Metaphysical principles are pervasive. Whatever capacities the cosmos possesses are seen in both the method and the individual experiences of the actual entities. Based on this necessary connection, as depicted by the hands, there is an equal distribution of causal power as well. Within the framework of the cosmos, all forms of actualities, physical or conceptual/ mental, exhibit causal influence. This influence is grounded in their interaction such that no relational entity acts in a vacuum, nor is any entity conceived of as created *ex nihilo*.

Whitehead’s organic realism hypothesizes about the ultimate nature of the universe as a whole, i.e., the frame of delineation of the drawing hands. However, the attempt to outline a coherent and

logical system from initial speculations cannot be separated from the conditions of knowledge. If our epistemology gives us no ground for any belief in the unity of the cosmos or in any rationality in the process, attempting to explain it as a whole is condemned at the outset.

The attempt to construct speculative metaphysics, however tentative and hypothetical, is only defensible if we feel some justification for believing that there is a cosmos to be explained and that it must be, to some extent, intelligible to us. That is to say, in our epistemology, we are already on metaphysical grounds. This work of art by Escher has profound explanatory value for phenomenological questions. This is why it serves as a bridge between the previous discussions of this thesis and subsequent aspects. In a work titled *Gödel, Escher, Bach. An Eternal Golden Braid*, Douglas R. Hofstadter, likens the explanatory power of Escher's *drawing hands* to the relations between subjectivity and objectivity.¹⁸⁰ He says: "The subjective feeling of redness comes from the vortex of self-perception in the brain; the objective wavelength is how you see things when you step back, outside of the system. We should remember that physical law is what makes it all happen-way, way down in neural nooks and crannies which are too remote for us to reach with our high-level introspective probes"(Hofstadter 1979,705).

The focus of this chapter is summed up in Hofstadter's highlight on the problem of consciousness. Whitehead's cosmology speculates about those remote places which are too hard to reach by explaining their connection with our subjective experience. This fifth chapter is dedicated to addressing three crucial questions. First, to examine the position called panexperientialism. The section will distinguish between panexperientialism based on its purposes and implications on one end and panpsychism, often closely associated with it, on the other. Second, the chapter explores the characterization of the problems of consciousness in contemporary philosophy of mind. Although panexperientialism is often considered a monist position, considering its functionalist undertones might also be beneficial. This functionalist perspective is taken from Whitehead's definition of actual entities as always functioning in some capacity. Panexperientialism can offer classical functionalist theories a way to bridge the gap between the subjective experience of consciousness and the objective reality of the brain. By suggesting that even the smallest particles of matter have some form of experience, panexperientialism offers a way to ground the functional roles of mental states in a more fundamental character of reality. Lastly, I argue that by taking on the character of a functionalist account, it is expedient to determine what criteria Whitehead's theory of consciousness must fulfill to assume the character of a functionalist response. I enumerate three distinctive traits common to

¹⁸⁰ Douglas R. Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid: A metaphorical fugue on minds and machines, in the spirit of Lewis Carroll* (New York: Basic Books, 1979).

functionalism and explain how panexperientialism adequately meets these standards. The Whiteheadian theory of consciousness offers a more integrated response to the place of our conscious experience in nature.

5.1 Panexperientialism

Panexperientialism is coined from the words: ‘pan’ meaning ‘all’ or ‘everything’ and ‘experiential’ meaning what is derived or related to ‘experience’. Since experience for Whitehead is ‘prehension’ or ‘feeling’, the term can be made synonymous with “pan-feeling” or “pan-prehensionism,” defining the cosmos as animated by feelings all around. As a term, it was introduced by American theologian-philosopher David Griffin. Griffin first used it in his work *Unsnarling the World-Knot: Consciousness, Freedom, and the Mind-Body Problem* to explain the ideas of Whitehead on conscious experience.¹⁸¹ Similarly, Charles Hartshorne, also a proponent of Whitehead’s theories, describes the concept as an extremely viable alternative to dualism and materialism on consciousness.¹⁸² Although Whitehead himself did not coin the term, his philosophical ideas are the basis of the theory, so it is sometimes referred to as the Griffin-Whitehead-Hartshorne version of panpsychism. In the three-sided Whiteheadian system, this falls under applying the speculative method to the difficulty of consciousness. It is a form of philosophy of organism with particular emphasis on consciousness.

Interpretations of panexperientialism have, over the years, begun to stir up research interests. However, as mentioned earlier, it is mostly considered a form of panpsychism. This association of panexperientialism (everything is experience) with panpsychism (everything is psyche) has to be cautiously undertaken. Three key elements characterize panpsychism. Primarily, panpsychism is the view that all matter has some form of consciousness or mind, even at the level of subatomic particles. Let us keep in mind this emphasis on “matter”, a distinctive feature of the theory that will be useful for further discussions. Secondly, according to panpsychism, consciousness is a basic and ubiquitous feature of the physical world, and it is not limited to living organisms or complex brains. On this point, consciousness is described as the distinctive feature describing all matter within the cosmos. Finally, on the conceptual level, the term “psyche” or “mind” suggests that the basic units of the cosmos endure through long stretches of time. In contrast, they may be momentary experiences in Whitehead’s

¹⁸¹ David Ray Griffin, *Unsnarling the World Knot: Consciousness, Freedom, and the Mind-Body Problem* (University of California Press, 1998).

¹⁸² See in Charles Hartshorne, *Creative Experiencing: A Philosophy of Freedom* (Albany: State University of New York Press, 1984).

view. Additionally, Griffin(1998) explains that the term “psyche” unavoidably suggests some higher form of experience that would be inappropriate for most elementary units of nature.

Let us consider the initial property of panpsychism rooted in the basic entities of nature being bits of matter. Panpsychism violates one of the key principles of Whitehead’s method, which is anti-bifurcationism. Conversely, panexperientialism is not a random response to the problem of consciousness but a system founded on specific language, concepts, and categorial schemes that favor an interconnected narrative. Based on the dictates of the speculative method, the very assumption of the concept of ‘matter’ distinguishes panpsychism from panexperientialism.

Panpsychists emphasize that consciousness emerges from the intrinsic nature of material entities themselves. For example, the panpsychist believes that the neurons that comprise the mechanisms for conscious thought are imbued with proto-consciousness (a less complex form of consciousness). Nevertheless, it is unclear what the panpsychist position is on the nature of internal thoughts, beliefs, tastes, etc. The dilemma is deciding where to draw the line in response to the question: Are thoughts made of these proto-conscious entities even though they are non-material, or do they attain the complexity of consciousness in the very moment they are conceived in the ‘mind’? An answer to any of the preceding alternatives opens a plethora of difficulties, such as how a non-material entity can obtain the qualities of the material and whether the quality of consciousness thus exists independent of matter.

In contrast, panexperientialism proposes that all entities, not just material entities, have some level of experience or subjectivity. The panexperientialist view includes that both material entities and mental events, typically not considered material, such as emotions and thoughts, share the common trait of experience. This position is possible because panexperientialism holds that no entity in experience is formed in complete isolation. Therefore, the “mental” entity is not detached from the physical and is a hybrid of both. So, while panpsychism might have difficulty defending how mental states have causal power, for panexperientialism, every experience, by virtue of its interaction, is causally active in the cosmos.

Lastly, panpsychism is problematic because it attempts to offer all entities human qualities. Consciousness or proto-consciousness is too complex to be associated with all forms of material entities. Human consciousness varies in temporality from a few seconds to days, months, etc., yet the span of some material entities is so short that consciousness cannot be said to be present. Additionally, consciousness for panpsychism is described as a property that material entities have in addition to others. For example, the panpsychist says molecules *have* consciousness. This suggests a kind of separation between what a molecule *is* and what consciousness *is*. There is a gap between the

universally attributed property of consciousness and the peculiar structure of that molecule. Consciousness becomes an element just like any other, yet its inclusion in all of nature has not been justified. Panpsychism passes on the bifurcation problem to even lower composite levels. Using the expression of Harman, panpsychism passes down “the hot potato” until there are no lower levels to receive it.

The conclusion on panpsychism and its unsuitability for our current purpose is that it carries the historical, conceptual implications that distort the consistency required to build a structured response to the problem of consciousness. Panexperientialism offers an inbuilt conceptual support by which the generalizations of its metaphysics are constantly measured. It expresses a certain “theoretical homogeneity” necessary for a unified account of reality.¹⁸³ This may be the prescribed revolution both Nagel (1986) and McGinn (1991) describe as the *radical speculation* or *radical conceptual innovation* required for resolving the impasse of the mind-body problem.¹⁸⁴

5.2 The Problem of Consciousness

There are important aspects of the problem of consciousness that need to be clearly spelled out for the purpose of our discussions. The problem of consciousness, also known as the mind-body problem, constitutes one of the most perplexing and challenging issues in philosophy. The difficulty concerns the nature of subjective experience and how it relates to the physical world. A typical example is how physical processes in the brain give rise to subjective experiences, such as pain or the perception of colors.

In contemporary discourse, this problem is termed the “hard problem” of consciousness based on the work of philosopher David Chalmers.¹⁸⁵ According to Chalmers, the hard problem arises from the failure to understand how and why neural mechanisms essential to consciousness can give rise to subjective experience. A vast amount of literature exists on the subject from different angles. They range from denying the reality of subjective feeling as distinct from the function of the brain's neural mechanisms. This idea's proponents are materialists, eliminativists, representationalists, or functionalists.¹⁸⁶ Conversely, some accept that current explanations of the material organization of the body do not account for the phenomenological feel of experience and that there are additional

¹⁸³ See further the explanation of the inadequacies of conceptual theories in Galen Strawson, *Mental Reality* (Cambridge, Mass.: MIT Press, 1994), see also John Searle, *The Rediscovery of the Mind* (Cambridge, Mass.: MIT Press, 1992). where they argue that there is something wrong with the terms of the debate on consciousness.

¹⁸⁴ Thomas Nagel, *The View from Nowhere* (New York: Oxford University Press, 1986), 10. See also, Colin McGinn, *The Problem of Consciousness: Essays Towards a Resolution* (Oxford: Basil Blackwell, 1991), 104.

¹⁸⁵ David Chalmers, "Facing up to the problem of consciousness," *Journal of Consciousness Studies* 2, no. 3 (1995): 200-219.

¹⁸⁶ See further *Ibid.*, 9.

substances or features that remain unexplained. On this latter position are the dualists, the idealists and panpsychists.

The hard problem of consciousness is grounded in an initial epistemological query called the 'explanatory gap problem'. This gap exists between the subjective character of consciousness and the objective physical properties of matter. Philosopher Joseph Levine introduced the problem of the explanatory gap in his paper *Materialism and Qualia: The Explanatory Gap*.¹⁸⁷ Levine(1983) illustrates that, on the one hand, subjective experience is a 'first-person' phenomenon that is inaccessible to objective analysis. On the other hand, physical matter is instead a 'third-person' phenomenon capable of objective analysis. Therefore, there is a fundamental mismatch between the subjective character of consciousness and the explanation of the objective properties of physical matter, which cannot be overcome by any scientific theory. Levine's argument hinges on the materialist position on identity relations. The materialist conceives that the relationship between the brain and the mind (consciousness or phenomenal experience) is akin to other a posteriori identities.¹⁸⁸ Suppose the structure and functioning of the brain reveal that the feeling of pain or the perception of a certain color activates the function of some particular neural mechanism, i.e., *c-fibers* or the *V4* area of the visual cortex.¹⁸⁹ In that case, it is said that the experience associated with that function is identical to such-and-such activity. For example, the perception of pain activates the firing of *c-fibers* in the brain. Therefore, pain is identical to the firing of *c-fibers*.

This relation of identity suggests that experiential quality is indistinguishable from the physical functioning of the brain. For materialists, there is good scientific evidence to support such consciousness-brain identities. Even without direct evidence of this co-occurrence, materialists can claim to rely on the more general evidence of the 'causal closure' of the physical realm as the basis of this identity relation. Causal closure is the notion that all physical effects must have a physical cause. Accordingly, every event in the physical world must be caused by other physical events or processes, and there can be no non-physical causes of physical events.¹⁹⁰ The causal sphere of the physical is inaccessible to non-physical causes.

Contrariwise, Levine asserts that the consciousness-brain identity differs from other established a posteriori identities. This peculiarity is described as the quality of what *it feels like* by Thomas Nagel

¹⁸⁷ Joseph Levine, "Materialism and Qualia: The Explanatory Gap," *Pacific Philosophical Quarterly* 64, no. 4 (1983): 354-361.

¹⁸⁸ Water = H₂O

¹⁸⁹ Visual area V4 is a midtier cortical area in the ventral visual pathway. It is important for visual object recognition.

¹⁹⁰ Cf. Papineau 2002.

in an earlier work titled *What it's like to be a bat?*¹⁹¹In experience, these neural mechanisms are often activated by this distinctive feeling of what it feels like to have the unpleasant feeling of pain.

At this point, the core question Chalmers raises is why these brain activities responsible for pain, visual representation, etc., do not happen 'in the dark' without the corresponding qualitative feeling, and why do these qualities accompany them?¹⁹²The thesis of the explanatory gap argument is that those objective physical facts are not sufficient to describe experience entirely. The explanatory gap is epistemic because it is a gap in our knowledge of how physical facts bring about subjective experience. It questions the limits of our physical knowledge and suggests that current methods of scientific investigation require newer forms of explanation if the gap can be closed.

Furthermore, some philosophers presume that the presence of the epistemic gap inescapably results in an ontological gap. The ontological gap describes our understanding of the nature of reality. It is the problem of explaining how subjective experiences fit into the world's natural order if they are non-physical. There are two ways that this inference has been put forth. First, some philosophers deduce the presence of this ontological gap *directly* from the explanatory gap. This direct assumption is the claim that if we cannot explain consciousness solely in terms of physical and functional processes, then consciousness cannot be termed a physical process. It means that consciousness has some fundamental character separate from other physical facts of the world. Consciousness is non-physical. Second, a corresponding ontological argument may be deduced *indirectly* by stating that there is the metaphysical possibility of physical facts occurring without the corresponding experiential quality. This quality, *quale* (plural *qualia*), demonstrates fundamentally different traits from any physical entity. Therefore, it can exist independently of our particular physical world.

The hypothetical situation is often explained through the use of thought experiments. The underlying principle is that if it is possible to have a world devoid of qualia, we can conclude that materialism or physicalism is false. In this context, physicalism, considered identical to materialism, is the metaphysical thesis that states that everything that exists is physical or supervenes on the physical. If a possible world, physically identical to ours in all aspects, devoid of consciousness, can function just like ours, then the existence of consciousness is an ontologically further fact about our world.¹⁹³

¹⁹¹ Thomas Nagel, "What it's like to be a bat?" *Philosophical Review* 83, no. 4 (1974): 435-450.

¹⁹² Chalmers says: "Why doesn't all this information-processing go on "in the dark", free of any inner feel? Why is it that when electromagnetic waveforms impinge on a retina and are discriminated and categorized by a visual system, this discrimination and categorization is experienced as a sensation of vivid red?"(Chalmers 1995,6).

¹⁹³ See further David Chalmers, "Phenomenal Concepts and the Explanatory Gap," in *The Blackwell Companion to Consciousness*, edited by Max Velmans and Susan Schneider (Oxford: Blackwell Publishing, 2007), 271-283.

The two major responses to the hard problem of consciousness are monism and dualism. On the side of monism, there are several versions of its responses. The principal response among these is materialism. Materialists argue that there is only one substance, which is physical. Therefore, there is no epistemic gap between physical descriptions and experience. However, some materialist positions are more accepting of the epistemic gap, yet they hold that sufficient scientific advancement would make up for the knowledge gap without implying an ontological one. Other monists' positions include idealism, panpsychism, panexperientialism, and neutral monism. In this research thesis, I will be primarily concerned with panexperientialism in the current chapter and neutral monism in the subsequent chapter six.

Alternatively, dualism asserts that there are two distinct yet interacting substances, so an epistemic gap is perfectly normal as physical facts describe physical phenomena while nonphysical facts have nonphysical explanations. This epistemic gap results from attempting to use physical facts to explain non-physical phenomena. The ontological gap is closed by the identical principle which implies that these different entities close the gap due to their interactions. The classic problem associated with dualism is the good-old Cartesian problem of the possibility of interaction between substances of different natures. The dualist theory supposes that mental states can cause physical events and vice versa. However, if mental states are not reducible to physical states, then it is uncertain how they can affect physical events in the world. Furthermore, dualism also faces the problem of explaining how mental states and physical states are united in specific individuals. For example, if mind and matter are made of radically distinct entities, how do they come together in one event or personality and not any random 'conscious-less' cluster of entities?

Whitehead concludes in PR that it is "obvious that there are only two ways out of Descartes' difficulties; one way is to have recourse to some form of monism; the other way is to reconstruct Descartes' metaphysical machinery" (Whitehead 1985,145). Whitehead takes up the reconstruction of the metaphysical machinery to rid Descartes of the subject-predicate form of proposition which dictated his subsequent metaphysical development.¹⁹⁴ Consequently, Whitehead argues that the actual entity gives evidence of a multiplicity of entities aside from itself. A solution then falls squarely into a form of necessary interaction among multiplicities but of the same nature. Whitehead says then that his theory is pluralistic, in contrast with Spinoza's monism, and is a doctrine of experience prehending actualities, in contrast with Hume's sensationalist phenomenalism. The similarity of all entities in

¹⁹⁴ Whitehead 1985, 145.

nature supports monism, but this type of monism needs to be carefully detailed by examining how it qualifies as such.

An important distinction between token and type monism will serve as a comparative basis for this monist response. A “type” is a general or abstract concept that relates to a group or class of things, while a “token” is an individual or particular instance of that type. According to Anderson Weekes in *The Mind–Body Problem and Whitehead’s Non-reductive Monism*, the Whiteheadian position in PR is a monism of type.¹⁹⁵ Whitehead postulates “the existence of only one type of thing actually and concretely existing in the world. But there is a plurality of tokens instantiating the type” (Weekes 2012,8). Weekes insists that it is “paramount for his ontology to allow ontic diversity and be able to explain how diverse individuals are really and truly related. The one type of thing postulated in Whitehead’s monism must therefore be of a sort that mandates a plurality of instances and real relations among them” (ibid).

Panexperientialism is incomplete when considered a monist position without the equivalent emphasis on pluralism because extreme monism cannot adequately respond to the hard problem. The principle that rescues the philosophy of organism from extreme monism is found in what Whitehead terms the relativity principle, by which the many elements of the cosmos are exemplified in the one actual entity if that entity is considered part of that actual world. Whitehead, thus, defends a genuine plurality among relata to make this position tenable. This principle also affords Whitehead the ability to rethink the real distinction between mind and body, constituting the contemporary debate's basis. According to Strawson in Weekes' paper, the mind-body distinction is an unproductive constraint on discussing the hard problem because it leaves us only with an “unpromising array of well-worn alternatives” (ibid,3). Hence, a promising solution must instead offer an elaboration of a system by which we can understand both mind and matter as not really distinct.

This type of targeted response is the very foundation of the position known as functionalism. Although there are subtle variations of functionalist approaches, its shared idea is that the relation of ‘realizer-realized’, modeled on the hardware-software distinction in computing, seeks a way to understand the difference between body and mind as ‘conceptual’ rather than ‘real’. For this mutual purpose, functionalism and panexperientialism could be equally beneficial to each other. The nature of the functionalist thesis is not necessarily concerned with what stuff the cosmos is made of but with the fact that they serve particular purposes. In this way, functionalism neither agrees nor disagrees with either dualism or physicalism on what ‘stuff’ there is in the world. Functionalism implies that the

¹⁹⁵ Anderson Weekes, "The Mind-Body Problem and Whitehead’s Nonreductive Monism," *Journal of Consciousness Studies* 19, no. 9-10 (2012): 40-66.

relation between mental and physical states is their common functional role. For example, a sensation of pain could still have that functional role whether or not they involve nonphysical substances or properties as long as the nonphysical substances or properties are causally efficacious in the right way. The neutrality on the nature of actual entities makes panexperientialism and functionalism complementary as they both highlight the indispensable unity of the mental and physical states.

Nonetheless, a potential tension between functionalism and panexperientialism is how this unification of matter and mind might occur. While Whitehead embraces the idea that neither mind nor matter can be understood apart from the other term, the computational model of functionalism does not highlight this necessary relation. For classical computational functionalism, it means that the unity of the mental and the physical implies a form of one-sided dependency where physical states can exist independently of mental ones. Whitehead's panexperientialism emphasizes a holistic interconnectedness that ensures that no form of matter is deprived of experience, nor is there any mind without experience. Because functionalism rejects the real separability of the mind from matter and yet accepts the separability of matter from the mind, it is generally considered compatible with materialism. This compatibility over the years has raised controversial questions formulated in thought experiments that often undermine the legitimacy of functionalism's union with materialism.

In the subsequent §5.3, I will attempt to determine the similarities between panexperientialism and functionalism. Panexperientialism must fulfill some key criteria of functionalism to be considered as advocating a functionalist dimension. The principle is that if all matter has some form of subjective experience, then the functional roles of mental states can be seen as emerging from the interactions between these experiences. This idea can help explain how the subjective experience of consciousness arises from the objective reality of the brain, as in every other structured organization in the universe.

5.3 From Function to Experience: Bridging the Gap between Panexperientialism and Functionalism

In the context of philosophy of mind and cognitive science, "functionalization" or to "functionalize" refers to defining mental states and processes in terms of their functional role instead of underlying physical or neural properties. For functionalism, mental states are defined by their causal relations to other mental states and environmental stimuli rather than by their intrinsic properties. Suppose we transpose this idea to a much lower level where we define mental states as *functions of functions*, what kind of theory will this entail? The description will refer to higher-order functions whose input and/ or outputs are also themselves functions, building upon simpler functions to create more complex ones. Therefore, to 'functionalize' any theory will be to show that the composing

elements of the system are defined by the purposes they serve for the even more complex functions to which they contribute.

The main idea I must establish beforehand is whether the panexperientialist view is functionalizable. In what ways does Whitehead's theory of actual entities exhibit the features of a functionalist position? I have outlined three major criteria that panexperientialism must satisfy to be functionalizable. They are the key criteria typically associated with functionalism in the philosophy of mind.

- a. *Emphasis on the functional role of consciousness*: A functionalist theory of consciousness must strongly emphasize the functional role of conscious states and processes. Based on this criterion, panexperientialism must explain what purpose or purposes consciousness serves in an organism's overall cognitive architecture and how those functions are implemented in the organism's body.
- b. *Multiple realizability*: One of the key tenets of functionalism is the idea of multiple realizability, which holds that the same functional role could be realized by different physical systems as long as that particular role is filled. In the context of consciousness, a functionalist theory would need to explain how conscious different kinds of neural and non-neural processes could realize states and processes.
- c. *Explanatory power*: As a functionalist theory, Panexperientialism must provide a satisfying explanation for a range of consciousness-related phenomena. These include subjective experience, attention, perception, and introspection. This explanatory criterion hinges on the capacity of a functionalist theory to account for how different conscious states and processes are related to one another and how they are integrated into a coherent whole.

A caveat of panexperientialism as a functionalist theory is predictive power. Ideally, a functionalist theory of consciousness would need to be able to make testable predictions about the relationship between consciousness and other aspects of cognitive processing. For example, a functionalist theory can predict that changes in neural activities associated with conscious perception would be accompanied by changes in behavioral performance on certain tasks. These predictions are testable and can be evaluated based on empirical accuracy. However, because panexperientialism extends beyond the brain into nature, pinpointing the exact causal states required for prediction might prove difficult. It is, hence, prudent to exclude predictive power from the main criteria to fulfill. If panexperientialism succeeds based on these three criteria, it can largely be considered a functional theory because predictive power, although important, is not a necessary condition for functionalism.

5.3.1 Emphasis on the Function of Actual Entities

According to Whitehead's philosophy of organism 'to function' is to contribute "determination to the actual entities in the nexus of some actual world" (Whitehead 1985, 25). Whitehead insists that the "determinateness and self-identity of one entity cannot be abstracted from the community of the diverse functionings of all entities" (ibid). Although a certain determinacy is given by the data the actual entity prehends, the individual functions contributed by the perished actual entities of the data cannot be separated from the unity of the given actual world. He insists on a relational function between each actual entity as the subject and the multitude of actual entities given as one objective datum. Neither the subject nor the object is definable apart from this relation of function. The subject cannot function as a subject until it is given that data from which it defines its own function, while the unity of the objective datum is achieved only by reason of the unity of the subject according to the categoreal obligation of subjective unity.¹⁹⁶

Accordingly, Whitehead, in the fourth category of explanation, reiterates that the "general metaphysical character of all entities of all sorts is that they function as objects" (ibid, 220). Actual entities function for other actual entities which are more complex than themselves. They share a common ontological structure differing in "gradations of importance and diversities of functions"(ibid, 25). Their natures are defined according to the roles they play within the interconnected cosmos. For example, in a simple prehension, a superject becomes what it is from the functions of the objects, yet at its satisfaction, the superject becomes an immortal object for other prehensions. Actual entities take up diverse roles in relation to the complex functions to which they contribute.

There are, appropriately, three key diversities of functions. They are roles as objects, superjects, and *eternal objects*. These represent the past, present, and future functions performed for and by entities. The entity at every point is *de facto* representative of the metaphysical principle that every 'being' is a potential for a 'becoming'. The actual world itself, as a unit of actual entities, functions as the 'objective content' of each new actual entity playing the causal role of providing the data for its prehension, and that actual entity functions as the exemplification of the actual world. The superject within the actual occasion is defined by its purpose as the rational, decisive part of the present actual occasion after it receives the data. Its role is to select the subjective form with which it willprehend what is given. The eternal object also contributes to definiteness and is the permanency of an event

¹⁹⁶ The Category of Subjective Unity: The many feelings which belong to an incomplete phase in the process of an actual entity, though unintegrated by reason of the incompleteness of the phase, are compatible for integration by reason of the unity of their subject.

and does not perish as actual occasions. They function through 'ingression' into the becoming of actual entities and act as sorting mechanisms.¹⁹⁷ They determine the conceptual feeling of an actual occasion, thus allowing it to define itself yet maintain its interaction with its world uniquely. Therefore, the work of the eternal objects also enters the 'real internal constitution' of actualities. For the philosophy of organism, "the notion of a real internal constitution is taken to mean that the eternal objects function by introducing the multiplicity of actual entities as constitutive of the actual entity in question" (ibid, 59). The eternal object can function as the contributor of determination to an actual occasion through the objective datum and the subjective form inherited from past actualities. This dual relation ensures that "the solidarity of the world is based on the relational functioning of eternal objects" (ibid,164).

At this point, it must be highlighted that panexperientialism replaces consciousness with experience. This means that Whitehead does not hold that consciousness is fixed. He refers to it as one of the functions of the higher phase of experience. So, for Whitehead, "consciousness presupposes experience, and not experience consciousness" (ibid,53). In the order of occurrence, consciousness is "a special element in the subjective forms of some feelings. Thus, an actual entity may or may not be conscious of some part of its experience. Its experience is its complete formal constitution, including its consciousness, if any" (ibid). Based on this, the emphasis on varied functions of experience qualifies as an emphasis on the functions of consciousness, as the latter is a higher phase of experience.

No entity escapes its functional obligation, no matter how simple or complex. Since Whitehead's God is also an actual entity, God is equally defined by the purpose he serves for the actual world. God functions for creativity as its primordial exemplification by which other actual occasions embody the creative impetus. Because the basic constituents of nature are actual entities, and what makes an actual entity *what it is*, is its function in relation to itself and others, Whitehead's position is a form of naturalism. Naturalism does not require a denial of divine reality. It only rules out supernaturalism, where the conceived deity is considered wholly transcendent and has no implications in the natural world. God must necessarily share the metaphysical natures of all other actual entities. Whitehead is against any idea of "a deus ex machina capable of rising superior to the difficulties of metaphysics" (Whitehead 1925, 156).

In the same way, God is a creator, and the world is "self-creative and the actual entity as a self-creating creature passes into its immortal function of part-creator of the transcendent" (ibid, 85). Therefore, in process cosmology, the entities that make up the world are the world itself; they function in the actual world and by their relations to it. Finally, they contribute by accomplishing their functions

¹⁹⁷ Whitehead 1985, 23.

and picking up new ones. Actual entities are never in a state of non-functionality. They only vary in degrees of function and diversities of relation.

Now that I have functionally defined actual entities and, by extension, showed that because they are the final real things that make up the world, they stand in functional relations with themselves, it is expedient to highlight in what ways this thesis can offer compelling explanatory value. How can we rescue Whitehead's functional interpretation from being a trivial response to consciousness? What does panexperientialism truly offer that classical functionalism does not?

Whitehead's concept of function offers a complex multi-layered system with important implications and ramifications for the problem of consciousness. He speaks of diversities and degrees of functions that serve as the differences between actual occasions. For panexperientialism to fulfill the criterion of explanatory power, it must analyze the specific roles that actual entities play in the various processes of experience. This will require an examination of the causal interactions between actual occasions and the ways in which they cooperate to produce complex structures and behaviors. It is achievable by examining panexperientialism's response to thought experiments, where it must account for the emergence of complex properties and processes.

The explanatory framework of panexperientialism must designate its suitable starting point. I have described the fundamental constituents of the cosmos as actual occasions that increase in degrees of complexity to the top. The explanation of consciousness as a function of functions presupposes consciousness is constructed from the bottom up. Therefore, those elements most clearly lit up by consciousness are not the elements that actually arise first in experience. We are faced with two approaches, either to begin from the simple experiences in events to the complex experience of consciousness or to compartmentalize the already complex conscious experience to determine its parts.

5.3.1.1 Suitable line of Approach: Top-down or Bottom-up?

There have generally been two approaches to the problem of consciousness: the top-down and bottom-up methods. According to McGinn's analysis in *The Problem of Consciousness: Essays Towards a Resolution*, the top-down strategy entails reasoning based on concepts derived from introspection.¹⁹⁸ For McGinn(1991), higher-level cognitive processes influence our perception of sensory input, thereby shaping our consciousness in a peculiar way. Conversely, the bottom-up strategy involves analysis on the basis of conceptions derived from perception. It is a sensory-driven

¹⁹⁸ Colin, McGinn, *The Problem of Consciousness: Essays Towards a Resolution* (Oxford: Basil Blackwell, 1991).

approach that explains how sensory inputs progress to higher brain processing levels, culminating in our conscious experience. Unfortunately, these approaches to the problem of consciousness appear to face an unbridgeable epistemic gap between theories descending from the top and those building from the bottom. From a bottom-up perspective, even though we can observe the neural activity associated with conscious experience, it is unclear how those neural mechanisms give rise to subjective experience. While from a top-down perspective, it is difficult to explain how the mental aspects of consciousness, such as thoughts and feelings, can influence the physical brain. A typical example is: How does my mental decision to raise my hand produce the physical action of raising my hand?

Most philosophies that adopt a top-down approach have not gotten far enough in overcoming the explanatory gap because they typically start too far up. Their theories begin from the superficialities of human consciousness, such as beliefs, previous experiences, etc., rather than commencing with essential building ingredients common to all entities. The top-down methods begin their explanations with what makes our minds human and not what makes them 'actual'. Conversely, bottom-up approaches describe the basic neural and cognitive processes associated with consciousness but cannot account for the complex subjective feel accompanying them because they assume a complete absence of sentience in the neural mechanisms.

This functional panexperientialism is relevant in both top-down and bottom-up styles because it goes beyond the individual body or mental state. Its top-down approach is obtained from the previous discussions of organic realism in response to the problem of correlationism. It describes elements of experience that trickle down to the composite prehensive activities comprising that experiential event. In contrast, its bottom-up feature begins with the categoreal scheme where Whitehead enumerates the nature common to all forms of existents and how they combine in complexities to form the structured societies that have conscious experience. For Whitehead, there are no real differences in either method, top-down or bottom-up, because whichever direction the explanation takes, one must begin with actual occasions. Both at the conceptual and perceptual stages, actual entities are at the center of analysis. The insistence on the difference in the two approaches perpetuates a bifurcation between concepts as 'in the mind'(top) and percepts as 'outside the mind'(down).

Unlike the typical materialist doctrine, which assumes that all matter is without mentality, Whitehead presupposes experience as the nature of actual entities. The account of materialism is that the composition of our brain is no different from the matter external to us. Thus, if that external matter is without mentality, there is no mind over and above the brain. Whatever attributes given to observed matter, such as color and taste, are not inherent in the perceived object but are additions of the mind. If we assume that all that occurs in consciousness are the neural mechanisms, how do we explain why

perception is unified? Alternatively, if consciousness is nothing other than this functioning of the brain, then the question is, why is consciousness not as fragmented according to the execution of the individual tasks of the billions of neurons and connections?¹⁹⁹

The eliminativist doctrine of Dennett(1991) argues that the unity we presume in experience is nothing more than mere appearance.²⁰⁰ The unity experienced is the appearance of what a functioning brain gives, and “that's all that's going on”²⁰¹. Such responses appear ad hoc leaving the more overwhelming mystery of why such an ‘appearance’ of unity occurs in the first place if it is indeed illusory. Other dilemmas emerge from strictly identifying mental states with physical states of the brain, leaving the burden of explaining the emergence of ‘experiencing’ things from ‘non-experiencing’ ones. The argument is that it seems peculiarly bizarre to assert that the human mind is the ‘great exception’ of the cosmos to have suddenly emerged as experiential out of the universe of non-experiencing matter. According to materialist Levin in *Metaphysics and the Mind-Body Problem*, the argument for the validity of materialism is the overwhelming evidence of a regulative principle of simplicity or parsimony in the cosmos.²⁰²

According to Levin,

So far as we know, everything, except possibly the psychological states of sentient beings, is physical. . . . [Against dualism] it is simply more reasonable to think that the properties expressed by psychological predicates will turn out to be physical. Given that most of the universe is explicable physicalistically, the view which least multiplies independent principles is that the entire universe is explicable physicalistically (Levin 1979, 87).

Ironically, the great exception argument was initially aimed at dualists. However, it works equally against materialism in two ways. I have previously discussed the first. The second is a more categorical statement. It states that conscious experience is not explicable “physicalistically” either. The only possible explanation for dualism and materialism resides in an approach that rethinks the rest of the universe.

The reconception of cosmic mechanisms seems too high a price to pay for some materialists. Thus, they have attempted to circumvent it. One of the alternative explanations is to identify it as an emergent feature of the evolutionary process. Materialists can maintain the causal closure and hope to account for consciousness as emergent from purely material entities.

¹⁹⁹ Even for neurobiological theories of consciousness there is the issue of the binding problem at the neural level.

²⁰⁰ Daniel Dennett, *Consciousness Explained* (Boston: Back Bay Books/Little, Brown and Company, 1991), 23.

²⁰¹ Ibid.

²⁰² Michael Levin, *Metaphysics and the Mind-Body Problem* (Oxford: Clarendon Press, 1979).

According to Dennett(1991), our conscious minds result from successive evolutionary processes piled on each other, each with growing complexity and swiftness.²⁰³ Dennett uses Darwinian evolutionary ideas to explain the appearance of consciousness from a series of developments occurring in the highly plastic brains of our ancestors 10,000 years ago. This plasticity permitted the advancement of the Homo sapiens' brain in "radically new ways — by creating something like software to enhance its underlying powers" (Dennett 1991, 183). Dennett, with other evolutionists, assumes that the phenomenality of our conscious experience is one of the 'good tricks' our ancestral homo sapiens learned to do with their adjustable hardware, and by the Baldwin Effect, this mastery passed into the genome.²⁰⁴

On this, Griffin(1998) disputes that if consciousness emerged late in the cosmic evolution, as Dennett describes, it would have taken considerable time to allow the evolutionary process to reach its point today. This evolutionary correlation of time and experience, according to the arch materialist Adolf Grunbaum, pretends that time, in the real sense, presupposes experience.²⁰⁵ Consequently, assuming this necessary connection, if conscious experience arose historically, then time equally appeared at that same point in the evolutionary process and could not have existed prior to it.²⁰⁶ The typical responses against this assertion are that there must be something wrong with the assumption that time requires experience. An evolutionist who assumes consciousness is a function of evolution has one of two options; either assume that before the development of consciousness, there was no time or rethink the basis of a materialist cosmology to include a type of experience(minimal) in every aspect of the constituents of nature. Griffin underscores that the dominant position has been that time originated when there was a sufficient organization of matter for entropic processes to begin. However, this does not answer the question and only pushes back the problem.²⁰⁷ Given such a response, how would we explain the existence of temporality for the cosmic evolution to proceed even to that stage?

It is obvious that the responses to these questions require a cosmology capable of grounding theories of consciousness. In Whitehead's metaphysical exegesis, he somewhat anticipates the problem without direct reference to evolutionary consciousness. Whitehead defends the necessary union of time and experience in SYM and PR. However, because experience is present in "the most

²⁰³Dennett 1991, 181-182.

²⁰⁴ Ibid 183.

²⁰⁵ Adolf Grunbaum, "The Anisotropy of Time," in *The Nature of Time*, ed. Thomas Gold (Ithaca, NY: Cornell University Press, 1967), 149-86. He explains that without experience there would be no "now," and without a "now" there would be no distinction between past and future.

²⁰⁶ Dennett describes evolutionary history as follows "Since the systems in our brains are the products of several overlaid histories of opportunistic tinkering, the long history of natural selection and the short history of individual redesign-by-self-manipulations...." (Dennett 1991, 293).

²⁰⁷Griffin 1998, 62.

trivial puff of existence in far-off empty space” (Whitehead 1985,18), Whitehead can simultaneously hold that time came into being alongside experience while maintaining that consciousness is a more complex form of that experience. There was temporality before the formation of consciousness because the temporal sequence is implicated in the functions of actual entities. As occasions gain complexity, they engage in the abstraction of relations among actualities, giving rise to scientific time and space. Whitehead defines time as an abstraction from the more fundamental relation of extension in which events are said to extend over other events and include them. This is why measurements of temporal sequence, though they occur in presentational immediacy, are supplied in causal efficacy.²⁰⁸

Time did not emerge with consciousness but because of all entities' togetherness from the commencement of actuality. Every actual occasion has to be a factor equal to other factors in the fact of nature.²⁰⁹ To be a perceiving consciousness is no longer an exception, outside the general operation of nature, but an inherent part of it. Whitehead develops an entire theory on time, describing it as ‘epochal.’ The theory of epochal time defends the unification of the phenomenological aspects of internal time with the attributes of external time. Every aspect of internal time has an external correlation connected through prehension. I refrain from delving into this theory because it is long and may redirect away from the current discussion. Nevertheless, I briefly introduced the idea to exhibit how Whitehead’s panexperientialist hypothesis overcomes the difficulties of other metaphysical approaches.

I have affirmed from the discussions of the limitations of the current approaches the need for a combined approach to the hard problem of consciousness. Whitehead’s panexperientialism is a dual-aspect approach combining the conceptually based top-down with the empirically grounded bottom-up. It is expedient to fulfill the additional two criteria for the functionalization of panexperientialism. The use of thought experiments in subsequent sections will significantly aid these.

5.3.1.2 Facing up to the zombies

One of the significant obstacles to functionalist accounts is the thought experiment on zombies. Zombies signify human twins or doppelgängers who do not have the qualitative aspects of conscious experience. In this fictive scenario, two beings are physically or functionally identical. However, concerning mental states, there is a strange distinction. The distinction is that one has normal

²⁰⁸ Whitehead’s theory of congruence is controversial. However, I will keep my reference to it simple by saying that for Whitehead the functions of all actual occasions include the property of extension (extending over or being extended over). This relation is abstracted to obtain the measurements of spatial and temporal values. See further CN, Chapter III on time.

²⁰⁹ The fact represents the complex interactive web of the universe which is undifferentiated while the factors represent the individually discriminated parts essential to sense-awareness (See further Whitehead 1920, 4–5).

phenomenally conscious mental states (as we do), and the other has none, although it functions in all mechanical respects.

The argument is summarized here:

Premise 1: If functionalism is true, then it is not possible for me to have a zombie twin, i.e., a doppelgänger who functions just like me but has no mental states.

Premise 2: But it is possible for me to have such a zombie twin.

Premise 3: Therefore, functionalism is false, and consciousness is non-physical.

I will withhold discussing other philosophical responses to the zombie argument or similar metaphysical possibilities. I am interested in presenting how we can think with Whitehead on zombies. What does panexperientialism offer to explain the possibility of this phenomenon?

Whitehead does not explicitly use the term ‘zombie’ in his works. Nevertheless, in CN, he makes a close enough reference to the literary work Hamlet. He cites Macbeth seeing the Ghost of Banquo and exclaiming: “There is no speculation in those eyes!” (Whitehead 1920,6). Whitehead follows with the definition that “a demonstrative phrase demonstrates an entity speculatively” (ibid). In this presentation, a successful demonstrative phrase is one that is robbed of any suggestiveness (ibid,8). It follows that speculation, in this context, indicates a restraint on informational content, where the gesture of the demonstrative phrase purges itself further of the array of meanings that it could generate to increase its chances of effective communication.

At this point, we must remember that Whitehead believes that the Ghost of Banquo lacks speculation, meaning an absence of this sort of constraint. This indicates that a greater portion of options for interpretation is available to the ghost’s experience without restriction. Here, the demonstrative gesture in his visual perception, the sight of Macbeth, fails to inform with enough precision for a targeted response. An excess of possibilities with no principle of ‘narrowing’ equates to no speculation in his ‘eyes’, i.e., a system of information processing.

Speculation, here, implies an intensification of particular sets of data. The ghost is described as lacking experiential quality but, inversely, has more accessible data quantitatively. The lack of the purging required to turn the flux of data into precise, significant information is comparable to experience in pure causal efficacy with the incapacity of directed control. Because of the absence of Banquo’s body to act as the necessary limitation by which the mode of presentational immediacy attempts to delineate from the flux. In the pure mode of causal efficacy, no precise informational content is given in the objective datum.²¹⁰

²¹⁰ Refer to chapter four on the modes of perception.

It is often assumed that the metaphysical zombie is deprived of a distinguishing ‘stuff’ that makes the human-twin conscious. This assumption suggests that all the physical components in the zombie body are ontologically different from that additional element of consciousness it lacks. For Whitehead, the contrary is the case. Consciousness is an intensification of function. It is the result of restricting data to transform it into useful information, creating significant differences. This will require further explanation by evaluating what sets of actual occasions peak to consciousness. On this point, I shall evaluate the structuring of actual entities.

When actual occasions share a distinctive union, they are grouped into societies. In an actual occasion, the physical pole inherits data which is accompanied by a conceptual reaction partly conformed to it because of the data it receives from previous actualities and partly introductory of a relevant novel contrast which is its subjective form. The phase called concrescence is the specific integration of the physical and mental into a unity of experience. It comprises the perishing of the actual entity and transcending into objective immortality. Whitehead does not speak of a mentality that differs from physicality because the process begins with a physical feeling, out of which the mental arises from the choice of the subject of that initial physical feeling. The mentality in the simplest process of actuality is not an addition to the physical but selective discrimination of the data received. Whitehead clarifies that “though mentality is non-spatial, the mentality is always a reaction from, and integration with, physical experience which is spatial”(Whitehead 1985,108). The pertinent question of conscious experience is one of unification, not necessarily of difference. He maintains:

All the life in the body is the life of the individual cells. There are thus millions upon millions of centres of life in each animal body. So, what needs to be explained is not dissociation of personality but unifying control, by reason of which we not only have unified behaviour, which can be observed by others, but also consciousness of a unified experience(Whitehead 1985,108-109).

Whitehead refers to a conscious being as an *enduring object* or a *living structured society*. It is necessary to clarify exactly what these terms entail. Initially, Whitehead asserted that a person was a personally ordered society of actual occasions where personal order implied a serial sequence of occasions, each of which inherited a common character from its predecessor. This character earned societies the description of “enduring objects.” Electrons and molecules qualified as much as human beings as personally ordered societies.

However, the qualities of personally ordered societies began to appear more social than personal because they did not include any originality in their prehensive responses. Therefore, there were no distinguishing characteristics from one enduring society to another. Their distinctions were only based on their social grouping, yet, it is apparent that there are properties of learning and

adjustments that characterize certain categories of societies, i.e., human minds. With this, a need arose to distinguish between social ordering, which represents simple sequential inheritance, and personal ordering, which necessitates an original response, i.e., learning. In the instance of originality of response, Whitehead must account for how the novel responses are also passed down through prehension. At this point, hybrid feelings are evoked. Hybrid feelings are defined as prehensions of an antecedent occasion's conceptual feelings along with its physical feeling. Since prehension cannot modify the data it receives, the only means of introducing novelty is through the conceptual pole, which is the subjective form of reception. When there is a possibility of a hybrid prehension where the present occasion prehends the conceptual feelings, then this introduced novelty becomes a transmissible datum over the subsequent routes of occasions.

The hybrid feeling ensures that novel prehensions of that past occasion become part of the physical prehension of the new occasion. When this conceptual feeling is fully integrated into the data, the new information can be transmitted to future occasions through pure physical prehensions. Hybrid feelings are the bridge without which novel feelings in one moment could not be felt thereafter, therefore, can have no continuing effect. This changes the social order into personal order because of the capacity of learning, creating individuated routes of their constituent actualities.

Whitehead states:

...the life of [a] man is a historic route of actual occasions which in a marked degree.....inherit from each other. That set of occasions, dating from his first acquirement of the Greek language and including all those occasions up to his loss of any adequate knowledge of that language, constitutes a society in reference to knowledge of the Greek language. Such knowledge is a common characteristic inherited from occasion to occasion along the historic route. This example has purposely been chosen for its reference to a somewhat trivial element of order, viz. knowledge of the Greek language; a more important character of order would have been that complex character in virtue of which a man is considered to be the same enduring person from birth to death. Also, in this instance the members of the society are arranged in a serial order by their genetic relations. Such a society is said to possess 'personal order' (Whitehead 1985, 90).

It is worth noting from the latter parts of the above citation that Whitehead does not consider the concept of personal identity from birth to death as emanating from an immaterial, immutable soul which inhabits a material body. Instead, the numerical identity of the self is a function of the serial ordering of the patterns of any society. This pervasive ordering that characterizes the genetic relations in a society is by virtue of their prehension of each other. As long as the historic path inherited from one occasion to another remains unbroken, personal identity is equivalent to this ordering. Feelings are canalized in the objective datum, therefore transferrable to future occasions as in the example of Greek learning because new information is introduced into the route of occasions by the actions of the

society with personal order. The mental events associated with physical events are not always identical because of the choice of the occasions at each level of prehension. Therefore, the same subjective feeling can be produced by different routes of prehension.

From this observation, the question of type and token states naturally emerges again for panexperientialism. This constitutes the second criterion that Whitehead's theory of consciousness must fulfill to qualify as functionalism with multiple realizability. My initial reference to type and token was to describe the sort of monism Whitehead defends. Although this distinction was on the cosmic scale, it is important to the current section because Whitehead's cosmological structure must necessarily align with the particular instances of societies. In the context of multiple realizability, the notions of 'type' and 'token' concern the particular experience of complex organisms. They help explain how mental states and processes can be realized in diverse physical and biological systems without being tied to specific neural or physical structures.

In panexperientialism, it is necessary to determine how the occasion corresponding to a certain mental event can emerge from the physical processes of the different societies, i.e., biological systems. For example, in a 'type' event, i.e., perception of color might be realized in diverse token forms in different organisms. While humans might think using their brains, octopuses might use their distributed nervous system, and robots might use electronic circuits and programming to simulate perception. In panexperientialism, we might argue that there are no generic states, mental or otherwise, by which we can describe certain events for all persons. Since Whitehead claims a certain autonomy for actual occasions, especially those of structured societies, particular event types may differ for two people or even two moments for the same person. For instance, person **A** and person **B** can be in a particular mental state, such as 'pain,' yet will not share anything in common because their individual path of composite actual occasions may introduce uniquely novel feelings. Such that person **A** feels pain while **B** feels a tickle.

However, it is ordinarily seen that there are common traits that individuals share when they are in pain; if there were not, one would be unable to identify pain at all. In moments of pain, there are observable neurological similarities that show obvious physical properties associated with the feeling of pain. Everyone who has had a headache knows what it feels like. Whitehead must determine these relations and how they are possible while preserving self-creation among actual occasions. In order to navigate this tension between the unique experiences of individual entities and the common traits associated with mental states or processes, Whitehead's categoreal obligations provide a useful framework. The categoreal obligations require us to identify and describe the universal categories or concepts involved in any event while acknowledging each experience's unique qualities.

5.3.2 The Multiple Realizability Criterion for Functional Actual Occasions

The standard of multiple realizability is crucial for all functionalist doctrines, including the metaphysical functionalism I advocate (a form of identity theory)²¹¹. In this view, consciousness is a function of the experience of actual occasions. Thus, it is important to determine whether functional states are purely physical or mental. Token-state identity theories argue that every mental event can be identified with some physical event, such as pain associated with the c-fiber activity. On the other hand, type-state identity claims that mental kinds are wholly physical.

However, panexperientialism posits that mental states cannot be reduced to purely physical states because subjective experience is an essential component that cannot be explained solely by physical properties. An actual entity has a token-state identity because each occasion has a specific subjective form that prehends the datum of its physical feeling. This conceptual pole is not completely identical to the physical data it prehends, giving a distinctive identity to every event state. In Whitehead's terms, states such as pain are not wholly mental. Therefore, they cannot be completely identical even for the same person. Each actual occasion is unique, and no two prehensions are the same, even for the same individual.

How, then, can we continuously identify pain as pain when it occurs? I know what I feel as pain is what *it is* because there is something which *it is like* to feel pain—I have felt it before; therefore, I can identify it. For panexperientialism, we must not totally rule out type-identity, especially because it corresponds to what we know in experience. The Whiteheadian golden rule is that we must always let commonsense be the guide.

Here is the path through which identifying a mental state is possible.

In PR, Whitehead describes it as follows:

In the first phase of B's physical feeling, the subjective form of B's feeling is conformed to the subjective form of A's feeling. Thus, this eternal object in B's experience will have a two-way mode of functioning. It will be among the determinants of A for B, and it will be among the determinants of B's way of sympathy with A. The *intensity* of physical energy belongs to the subjective species of eternal objects, but the *peculiar* form of the flux of energy belongs to the objective species. For example, 'redness' may first be the definiteness of an emotion which is a subjective form in the experience of A; it then becomes an agent whereby A is objectified for B, so that A is objectified in respect to its prehension with this emotion. But A may be only one occasion of a nexus, such that each of its members is objectified for B by a prehension with an analogous subjective form. Then by the operation of the Category of Transmutation, the nexus is objectified for B as illustrated by the characteristic 'redness'. The nexus will also be illustrated by its mathematical forms which are eternal objects of the objective species(Whitehead 1985,292, emphasis mine).

²¹¹The identity theory, I am arguing holds that each and every 'mental' state is identical with the function of an actual entity.

Two qualities can be noted from the above extract: the intensity of physical energy (conceptual feeling) and the peculiar form (physical feeling). Expressed in terms of how pain is identified, the physical feeling is 'felt' by a 'society' of actual occasions of the data relative to an actual world (here, I will restrict it to the body of the subject as the actual world is defined as relative to the becoming of some definite actual entity).²¹² This data is felt with an intensity that conforms partly to the object of its prehension and subjective form. It must be clear that subjective forms are emotional in their primitive form (also described as sympathy)²¹³. When other occasions of society further objectify this data with more structural complexity, the emotional response is not 'blind' because the occasions, in their conformity, must consider their historical routes or the societies of which they are a part and to which they contribute. It has a peculiar form imposed on it by this ordering.²¹⁴

In a society of actual occasions, when new information is perceived as not fitting with the established patterns of past data, the subjective form intensifies and offers 'inhibition' as the response to that diverging information. This inhibition is a subjective form (in terms of pain, probably 'ickiness' or 'discomfort'). This happens when there is a diversion from the objective data received in the past, such as when a rock hits the foot and causes pain. The pain is noticed because of the background of past events that serve as the basis for comparison. The way the present occasions respond to the external cause is based on their subjective forms, which are unique to each occasion. This difference in response is what is meant by a non-conformative reaction. Pain at the primitive stages of simple actual occasions is identified as non-conformation.

This reactive information is passed on in the data prehended throughout that historic route acquiring more intensity until the unifying point in the brain where the transferred emotion is translated as pain because of the divergence between the initial embryonic feeling and the final concretescent feeling in the brain. Admittedly, the felt contrary at the primitive phase is the germ of consciousness.²¹⁵

In the transference of data, there is a definiteness of the subjective form introduced by the hybrid feeling which is carried on and objectified for subsequent occasions. If the subsequent actual

²¹² In Whiteheadian thought, the character of the society is defined by the physical feelings of individual members. Therefore their individuality shapes its emergent properties and behaviors. The society's 'feeling' here does not mean the collective feeling of the society of the actual world. Instead, the conformal feelings of these individual experiences.

²¹³ Primitive feelings are blind emotion, sympathy, or conformation as they occur in causal efficacy. See Whitehead 1985, 162.

²¹⁴ I quote Whitehead here on the structure of an ordered nexus which is a society: 'A nexus enjoys 'social order' where (i) there is a common element of form illustrated in the definiteness of each of its included actual entities, and (ii) this common element of form arises in each member of the nexus by reason of the conditions imposed upon it by its prehensions of some other members of the nexus, and (iii) these prehensions impose that condition of reproduction by reason of their inclusion of positive feelings of that* common form. Such a nexus is called a 'society/ and the common form is the 'defining characteristic' of the society' (Whitehead 1985, 188).

²¹⁵ Ibid.

occasion is prehended with the same subjective form present in its given data, then the emotion in the present objective data and the emotion in which the data is taken are identical. Furthermore, by the principle of transmuted feelings derived from the category of transmutation (Categoreal obligation VI), this ‘pain’ as the common subjective form comes to be identified with the nexus that contained the initial actual occasion or some part of it. Transmutation involves the transference of the characteristics of the prehended feelings to the new entity. So, there is now what *it is like* to feel pain, or a quality of ‘discomfort’ has become identified with the nexus of feelings that ‘caused’ it (gave it data).²¹⁶

Drawing from this, the emotional value carried by that actual occasion or society that presented the data becomes associated with that society, per the principle of transmuted feelings. So, the feeling of pain and the awareness of what *it is like* is associated with that feeling of non-conformity. This occurs mostly in living societies such as humans and animals. In this way, the conformation principle forms complex emotions such as hatred, love, etc. The awareness is registered in memory after repetitions of this felt emotion. Hence, the emotional value remains the same if any event occurs, although with different composite actual occasions. So that after having a headache, a tummy upset, eye pain, etc., the occurrence of ‘new’ pain in another part of your body where no pain has ever occurred is still recognizable as that type-state pain. There is the memory of the conceptual feeling associated with any form of nonconformity.

For societies that do not have unifying control, this storage of the felt contrast in memory is not feasible. Whitehead argues that there is a ‘physical’ memory for those kinds of societies. We may refer to the explanation of the mode of causal efficacy as exemplified in its pure mode by viscera and memory.²¹⁷ In actual occasions, where mentality is blind emotion for those that do not have the sufficiently complex intensity to attain consciousness, Whitehead says there is a ‘cumulation.’ He describes fatigue as the “expression of cumulation- it is physical memory” (Whitehead 1985, 239). The organism's body keeps the score and remembers the cumulative activity. This organism has the same pattern of prehensions of actual occasions, and its difference is in the ability to unify towards a single intensified occasion required for differentiation to occur.

This might be the mechanism involved in muscle memory, especially for persons who suffer long or short-term memory loss. It describes a type of procedural memory that allows a person to perform certain physical tasks without conscious effort. This type of memory stored in the brain's

²¹⁶ In Whitehead's idea of aesthetics this primitive non-conforming property is the same felt experience of hatred distaste, etc.

²¹⁷ Whitehead 1985, 122.

motor cortex and other parts of the nervous system is developed through repeated practice and training. Whitehead's concept of cumulation could be seen as a broader, more generalized form that applies to all types of physical activity, not just those that involve the muscular system. This shows that causation and physical memory spring from the same root. Both are physical perceptions therefore, as long as there is causation and subsequent conformation, there is cumulation and physical memory. This idea is consistent with observations of lower-level organisms without unified consciousness but still exhibit physical memory. When these organisms experience a disruption in their established patterns of behavior, it is noticeable that they have been affected.

The concluding hypothesis is that Whitehead supposes that no two mental states can be completely alike by the nature of actual entities. Hence, he supports the token-state identity thesis that each pain is distinct. However, there must be a certain way to identify what *it is like* to be in pain. This is obtained by an abstraction from repeating painful events where that subjective form is transmuted and associated with the nexus. Since only transmuted feelings lead to consciousness, we are able to associate the felt contrast with pain. Whenever there is consciousness, there is some element of recollection. Hence, our qualitative feel is dependent on intensity and memory²¹⁸.

5.3.3 Explaining Consciousness Itself: How Does it Arise?

The criterion of explanatory power is the final of the standard features of a functionalist theory. The fulfillment of this criterion will take the form of an evolutionary explanation of diversity among societies, the influence of environments, and reasons for development and persistence among actual entities. Many functionalists consider consciousness an evolutionary adaptive mechanism essential for various purposes such as information processing, decision-making, and facilitating social cognition and communication. Whitehead himself was inclined towards evolutionary explanations. He viewed his philosophy as identical to Plato's evolutionary ideas, aimed to provide a more comprehensive and integrated understanding of the natural world, including its evolutionary processes.

In Whitehead's metaphysical system, organisms are seen as complex, dynamic systems constantly evolving and adapting to their environment. He believed that evolution is driven by a process of creative adaptation, in which organisms respond to environmental challenges by creating new possibilities for action and growth. On this basis, Whitehead details how a simple primitive actual occasion 'evolves' into an enduring society in which the attributes of consciousness and memory are possible. The form of evolution here does not imply isolation and randomness but how functional

²¹⁸Ibid., 242.

intensities can move from simple to more complex functions. This evolutionary explanation also serves as a response to the *gradation problem*.²¹⁹ The gradation problem asks: How does a singular primitive feeling increase in degrees of complexity to attain unified control for consciousness?

There are several societies and subordinate societies within a body. Some are structured, while others are not. The roles of these societies are for a variety of bodily activities that can either be independently realized or subsumed into others towards a centrally integrated concrescence. Whitehead offers explanatory illustrations as follows:

A good many actions do not seem to be due to the unifying control, e.g., with proper stimulants a heart can be made to go on beating after it has been taken out of the body. There are centres of reaction and control which cannot be identified with the centre of experience. This is still more so with insects. For example, worms and jellyfish seem to be merely harmonized cells, very little centralized; when cut in two, their parts go on performing their functions independently. Through a series of animals, we can trace a progressive rise into a centrality of control. Insects have some central control; even in man, many of the body's actions are done with some independence, but with an organ of central control of very high-grade character in the brain (Whitehead 1985,108).

As Whitehead emphasizes in the above extract, there is a progressive rise into central control for some organisms because of the presence of an organ that functions as the lure to progressive complexities. This organ is a structural society connected to the web of occasions that feed it. In humans, we observe that some bodily actions are controlled by the seat of experience, which is the brain. The expression 'seat of experience' does not imply that the 'production' of experience is solely in the brain but that the culmination of routes of occasion occurs in the brain.

According to panexperientialism, the human body is a high-level coordination of actual occasions. Comparatively, in bodies considered low-level types, their occasions are much nearer to a democracy.²²⁰ By 'democracy,' Whitehead signifies a certain autonomy that actual occasions enjoy in their functioning in low-type organisms. For instance, their societies do not involve ordering occasions towards a single concrescent occasion. They act only in conformation and not upward intensity.

On the contrary, in high-type organisms, actual occasions are so coordinated by their paths of inheritance through the body that various occasions enjoy a peculiar richness of inheritance in some parts of the body. The brain is also coordinated such that "a peculiar richness of inheritance is enjoyed now by this and now by that part; and thus, there is produced the presiding personality at that moment

²¹⁹ The problem of how Whitehead justifies the upward gradation that occurs in actual entities since their changes are not composite but graduated.

²²⁰ Ibid., 108.

in the body” (ibid). It explains why consciousness is ephemeral. In Whitehead’s words, “consciousness flickers” (ibid, 237).

The question is how this occurs, given that actual occasions are ontologically identical. What accounts for the separation into high-level and low-level organisms? Since the extensive continuum binds together the physical world, no isolated societies exist. However, a society of actual occasions is formed based on the commonality of traits. This society must also be set in a wider environment that is permissive to its continuance.²²¹ The wider environment comprises all the other actual occasions which are not in its sphere of direct prehension. As an example of a society, the human body is situated in a particular part of the wider cosmos surrounded by other societies forming its adaptative environment. These include other humans, animals, stars, planets, etc. This co-existing of societies in their environment is a basic tenet of evolutionary theories.

Because a society requires a wider social environment, its stability depends on the changes in the environment. In reference to a type of change, a society is ‘stabilized’ “when it can persist through an environment whose relevant parts exhibit that sort of change. If the society would cease to persist through an environment with that sort of heterogeneity, then the society is, in that respect, ‘unstable’” (ibid). There is hence an important relationship between the wider environment of a society and the society’s complex structure.

When a society's complexity and the environment's specific features interact, it is called a process of *specialization*. Whitehead explains that ‘specialization’ includes both complexity and strictly conditioned ‘stability’.²²² A specialized society that is extremely dependent on the stability of its environment may lack the plasticity to adapt to external conditions. However, an ‘unspecialized society can survive through important changes in its environment’ (ibid, 100). The unspecialized society can take on various functions according to the changing environment. Therefore, just as it is highly flexible in functions, an unspecialized society lacks structural patterns when considered as a whole. With the deficiency of a structural pattern, an unspecialized society does not have conditions that favor the intensity of satisfaction among its members because there is virtually no selection of changes to which it will adapt. Therefore, it cannot strengthen any internal social structure. This argument is reminiscent of evolutionary theories, which suggest that environmental selection pressures drive the adaptation of organisms and societies to changing circumstances. In this context, the lack of strong selection pressure in unspecialized societies could lead to a lack of structural patterns and internal social cohesion.

²²¹ But the word ‘environment’ means those other actual things, which are ‘objectified’ in some important way so as to form component elements in our individual experience. See Whitehead 1928, 18.

²²² Whitehead 1985, 100.

Alternatively, a specialized society lacks the ability to take on various functions, so it is deficient in survival value. However, because of its selectiveness, it has the quality of intensification. It ensures that specialized societies are structured and have definite internal patterns. Specialized societies are obviously more complex yet are not adaptative enough for survival. Whitehead observes that nature must produce both structured and complex societies for intensity while being adaptable for survival. This conundrum presents a mystery of nature. However, this problem is resolved when 'intensity is mated with survival'(ibid,101).

There are two ways nature offers a solution, according to Whitehead. The first step is for a society to undergo an initial restriction in response to the diverse changes in the environment. It involves a 'massive objectification' of the environment, where the society ignores certain details and abstracts particular actual occasions as representing the character of its environment. This helps reduce the consistent changes that the society undergoes in response to slight environmental alterations.

The second step is to introduce novelty in a society's prehensions, which allows for intensification. The development of central nervous systems is an example of this, as they make it possible for organisms to have far more intense experiences than they would without them. The central control point in these nervous systems allows occasions to rise progressively in intensity. McGinn states, "Events in the nervous system constitute the predominant causal background to events in consciousness, but all of that whirring background is concealed from introspection. You can introspect religiously from dawn till dusk, and you will not figure out the physical causes of the conscious events you experience"(McGinn 1991, 74).

The initial phase is a step toward intensity because, by eliminating aspects of data received from the environment, this selection favors greater complexity of structure. Through the transmutative principle in societies, it is possible to ignore a great variety of individual occasions within an objectified society and apprehend it as a single entity.²²³ This feature, coupled with the introduction of novelty in prehensions, makes a society less susceptible to elimination from the environment.²²⁴ The first technique is dominant in societies called inorganic or non-living, and the second in those called *organic* or *living*. Since the first is a precursor to the second, the members of an organic society are made of inorganic and organic sub-societies. However, their proportions determine whether that society is living or non-living based on complexity and adaptability.

²²³ See entry on Category of Transmutation.

²²⁴ The Category of Conceptual Reversion. There is secondary origination of conceptual feelings with data which are partially identical with, and partially diverse from, the eternal objects forming the data in the first phase of the mental pole. The diversity is a relevant diversity determined by the subjective aim.

There are no sharp distinctions between living and non-living societies, so their functions occur in varying degrees. A prime example of a lower-end function in living organisms is the development of a rudimentary nervous system, which is how an organism armors itself to survive and control important features of the environment. The nervous system acts as an anticipation machine by vaguely objectifying its environment, then adapting systems specialized to react under those important changes.²²⁵ In an example, Dennett shows this basic application of objectification and novelty. He says: "...a clam's shell is fine armor, but it cannot always be kept closed; the hard-wired reflex that snaps the shell shut is a crude but effective harm anticipator/avoider" (Dennett 1991,178). In this way, there are living organisms that have more complex systems of protection with much higher targeted responses.

In the gradations from inorganic to organic, the initial narrowness of the objectified changing environment is made into 'explicit' feelings, received with new adapted subjective forms according to the complexity of the structured society.²²⁶ The society also generates novelty to meet the novelty given by the environment, which demarcates the rise towards living enduring societies. Now, on the one hand, considering that nature is attempting to merge intensity with survival, novelty is introduced by a subjective form of learning in living organisms at the low end of the gradation scale. This subjective form helps them apprehend physical feelings and have cognizance of it to produce novel adaptations. However, simple nervous systems cannot go far in nature because their subjective forms are crude and not adequately intensified. Whitehead describes the behavior of simple systems as "thoughtless adjustment of aesthetic emphasis in obedience to an ideal of harmony" (ibid,102). They can only know immediate societies in their environment and ignore a wider range of societies outside their relevant spatial locus. This is seen in the operations of the type of organisms Dennett describes as operating in particular responses to avoid danger.

On the other hand, Whitehead says for the higher end of the scale, in advanced living organisms, "conceptual initiative amounts to thinking about [the]diverse experiences" (ibid). These higher societies can extract more information faster and use it to preserve their existence in diverse ways. Every level of narrowness is rewarded with an intensification of learning on subsequent occasions.²²⁷

This is what makes humans unique as they represent the blend of the "vagueness of discrimination between actual entities and the intensification of the relevance of common characteristics" (Whitehead 1985,112). The physical correlative feature that has evolved to enhance

²²⁵ This is by the above categoreal principles working coordinated with each other.

²²⁶ Whitehead 1985,100.

²²⁷Whitehead says: "Intensity is the reward of narrowness" (Whitehead 1985,112).

this intensification is the central nervous system for humans. With this kind of system, there is unified control, learning, and novelty in its heightened forms. Intensity has finally merged with survival, and humans have won the evolutionary jackpot!

This idea is indicative of Richard Dawkins' explanation in *The Selfish Gene* that 'survival of the fittest' is a special case of a more general "law of survival of the stable".²²⁸ A stable society must bear these novelty, intensification, and learning markers. Consciousness does not precede these intense prehensive activities, as I have highlighted. Whitehead insists that "it originates in the higher phases of integration and illuminates those phases that compose it with greater clarity and distinctness"(Whitehead 1985,110). It is often erroneously assumed that organisms without consciousness are equally without information. Here, the inverse seems to be the case. In panexperientialism, "knowledge is relegated to the intermediate phase of the process. Cognizance belongs to the genus of subjective forms which are admitted, or not admitted, to the function of absorbing the objective content into the subjectivity of satisfaction" (ibid,160).

There is learning among the very crude forms of societies without consciousness. This suggests that consciousness is not a necessary condition for learning but a specialized form of information processing suited to certain organisms. This aligns with functionalist interpretations, which assume that consciousness emerges from learning and information processing in the brain rather than being a precondition for these activities. According to the functionalist perspective, the brain processes information in a way that generates consciousness as a byproduct. Empirical support for this view is given by specific patterns of brain activity associated with conscious perception of visual stimuli, such as increased activity in the visual and prefrontal cortex. Other studies have investigated the role of brain networks in generating consciousness, such as the default mode network and the fronto-parietal network. These results show consciousness as an emergent quality preceded by information integration.²²⁹

The position of classical functionalism on this aspect of the emergence of consciousness appears to trivialize Whitehead's dimension because it is not obvious what new information he offers with his functionalist panexperientialism. However, this might prove to be a hasty conclusion if one considers that Whitehead aims to break down the limits of brain functions and expand this functionalist approach to the cosmic level. Classical functionalists accept the emergence of consciousness from

²²⁸ Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 2006), 13.

²²⁹ See Stanislas Dehaene et al., "Conscious, Preconscious, and Subliminal Processing: A Testable Taxonomy," *Trends in Cognitive Sciences* 10, no. 5 (2006): 204-211, doi:10.1016/j.tics.2006.03.007 and also Victor A. F. Lamme, "Towards a True Neural Stance on Consciousness," *Trends in Cognitive Sciences* 10, no. 11 (2006): 494-501, doi:10.1016/j.tics.2006.09.001.

integrating information but assume that the emergent feature has no causal implications outside the human body. It is considered a mere by-product with no real functional implications for other entities of the world.

For Whitehead's functional interpretation, consciousness has more in common with the entities of the cosmos than it is distinct from them. He advocates viewing the brain, just like any other actual entity, as a 'retreat' of the cosmos and the cosmos as an 'extension' of the brain. The categorical principle of the 'many' becoming 'one' and the 'one' representing the 'many' is reflected in this view. However, rather than denying everything that makes the experience what it is, we must acknowledge that consciousness only reveals what composes it and does not create itself out of nothing.

The conclusion is that "Consciousness is the subjective form involved in feeling the contrast between the 'theory' which may be erroneous and the 'fact' which is 'given'(ibid,16). Perceptual events have a direction from the target percept to the body part (area concerned with external stimulus) transmitted to the brain cells. Out of these brain societies, a dominant occasion rises to prehend the data given through these sequential integrations. This dominant occasion that rises at the peak of the activities of the central nervous system prehends the data it receives (from neural processes) with a new subjective form at the latter phase. The dominant occasion's data reveals the contrast between the 'theory', the intensified feelings along that route, and the 'facts' given in the initiating physical prehensions.²³⁰ Our arrival at consciousness is not a process of adding any new element but an integration of information by removing the excess of multiple pathways of interpretation. In this procedure, the strictness of the system proportionately narrows its functional interpretation to create intensity in learning.

The question, then, is, what defines the height of intensification? If consciousness occurs only when the occasions have reached a peak of concrescence, who or what determines which concrescence is truly the height of integration? It depends on the dominant type of society and its capacity for integration. The character of those concrescent occasions of the society determines the highest phase. After serial intensification along a route of occasions, if at any point in that sequence, no further learning can occur, then the concrescent occasions at which no more novelty is introduced but the mere

²³⁰ In CN, even before he presented the extended account in PR, he anticipated this difference. Whitehead says: Thus, for thought 'red' is merely a definite entity, though for awareness 'red' has the content of its individuality. The transition from the 'red' of awareness to the 'red' of thought is accompanied by a definite loss of content, namely by the transition from the factor 'red' to the entity 'red.' This loss in the transition to thought is compensated by the fact that thought is communicable whereas sense-awareness is incommunicable"(Whitehead 1920, 13). 'Thought' in CN represents conscious perception in presentational immediacy while awareness is in causal efficacy. The transition describes how information is moved from prehension to prehension towards the unified concrescence. The loss is as a result of the transmuted feeling of the datum of the individuality of the composite entities of the color 'red' which is present at the concrescing level in its transmuted form. Its initial form remains incommunicable to thought.

transference of datum qualifies them as the intensified higher phases. Therefore, Whitehead speaks of higher intensities of concrescence as a *phase*, not necessarily any singular occasion at a particular time.

This idea is reminiscent of the famous ‘Boss of the Body,’ ‘Ghost in the Machine’, and ‘Audience in the Cartesian Theater’ that most functionalists try to avoid²³¹. Even Whitehead(1985) compares this central direction in the animal body to the harboring of a living person or persons. He says, “Our own self-consciousness is direct awareness of ourselves as such persons. There are limits to such unified control, which indicate dissociation of personality, multiple personalities in successive alternations, and even multiple personalities in joint possession” (Whitehead 1985, 107). In this sense, the person or persons that ‘inhabit’ the body are not foreign to the individual, they are not of a distinct ontology, and the individual’s experiences create them in conjunction with the world. It is evidence of the law of nature as creative in the body. The person inhabiting our body refers to the duration of unified control, which Whitehead calls a “concrete slab of nature” (i.e., process) (Whitehead 1920, 53).

Duration describes the integration of data received and is characteristically spatiotemporal. While the temporal scales at which consciousness occurs are not exactly in question, the duration of consciousness is analogous to the “passage of nature.” Our consciousness passes because nature passes as well. The sequence of passing events that make up our life sometimes produces an emergent occasion of greater intensity than the multiplicities of occasions up to that point. This awareness of the emerging difference is, but for a moment, it then passes into oblivion, yet leaves a lingering memory.

Consequently, we see an affinity to James’ idea of an ‘arch-cell’ or ‘pontifical neuron.’ James (1890) maintains that each brain cell has its own peculiar consciousness to which no other brain cell is privy.²³² The individual consciousnesses are ‘ejective’ to each other, according to James’ idea. The pontifical cell, however, is the *primus inter pares* to which our consciousness is attached. He specifies that all the other cells physically influence this arch-cell, and through producing their ‘joint effects’ on it, these other cells may be said to ‘combine’. So that “physical modifications of the arch-cell thus form a sequence of results in the production whereof every other cell has a share, so that, as one might say, every other cell is represented therein” (James 1890, 179, emphasis mine).

Whitehead's elaboration of learning and intensity enlightens James’ viewpoint by describing the quality of ejection that James uses and what corresponds to a pontifical or arch cell. The arch cell should be understood rather in terms of the integrated unity achieved from the falling away of contributing societies towards that subjective aim. The arch cell or Whitehead’s final percipient only

²³¹Dennett 1991, 228.

²³² James(1890) uses ‘consciousness’ for the individual brain cells in the way Whitehead talks of ‘experience.’

'ends up' being the last concrescent event on a certain route of actualities. This is why Whitehead says the "route of presiding occasions probably wanders from part to part of the brain, dissociated from the physical material atoms. But central personal dominance is only partial, and in pathological cases is apt to vanish" (Whitehead 1985,109). The arch cell resembles the last straw or the last drop of water that fills a cup. It does not stand in isolation from the earlier contributions but in relation to it.

By means of its prehensions of the earlier actualities, its attainment of intensity is attributive to all entities far and near. This is James' idea of 'joint effects' on the arch-cell and the combination of other cells.²³³ The path towards our individual consciousness is comparable to a baton-passing race where each actual entity performs its function and passes it forward but is not completely obliterated because its data (speed, endurance, etc.) are all passed on to the next. The next marathoner uses a subjective form (personal running style) and appropriates the received baton, representing the culmination of all the data of the previous holders. The ultimate winner cannot claim an isolated victory. He is the product of all the previous athletic prowess and the novelty of his intensity as a function of the earlier roles played by the athletes.

Regarding zombies, it is undeniable that a completely identical doppelganger to humans in all respects will have our kind of consciousness. The doppelganger's body and environment will provide the right proportion of organic and inorganic societies that allow for the intense learning required for consciousness to occur. If this process does not occur, the zombie lacks one of the necessary structural functions. The experience of a zombie does not need to be imagined to be studied because it is a familiar state of the human body. If consciousness is the only missing aspect, then there are periods in our lives where our experiences are comparable to those of zombies. There are moments of our daily lives in which we lack the attention needed for consciousness. Here, attention is synonymous with the narrowing and intensity of learning. Whitehead explains that "by diversion of attention we can inhibit its entry into consciousness" (Whitehead 1985,178). For such intellectual feelings as consciousness, a type of contrasting feeling, their primary function involves a "concentration of attention involving increase of importance. But intellectual feelings are not to be understood unless it be remembered that they already find at work 'physical purposes' more primitive than themselves. Consciousness follows and does not precede, the entry of the conceptual prehensions of the relevant universals" (ibid,273).

Zombies represent when our activities fall within the "large penumbral region of experience which tells of intense experience in dim apprehension" (ibid,267). We must not mistake the "simplicity of clear consciousness" as a "measure of the complexity of complete experience" (ibid). Consciousness

²³³ See further Whitehead 1985, 99&106 on the nature of living cells as societies with subsocieties such as molecules.

restrains the functions that happen ‘in the dark’ by shining light only on a small focal region of clarity while the large proportions of activities remain unknown. When Chalmers asks why our experiences do not occur in the dark without consciousness, Whitehead answers that they do almost always. In those moments, we are zombies only with the *capacity* for consciousness yet animated by unintegrated yet complex functioning.²³⁴

In all living societies, there is evidence of the doctrine that the laws of nature develop together with societies that constitute an epoch. In a particular epoch, there are statistical expressions of the prevalent types of interaction.²³⁵ In a living cell, the statistical balance has been disturbed (Whitehead 1985,106,). This disturbance means that the laws of nature that let all societies grow together have been restrained in a living cell. The cell is tipped off balance because there is a greater proportion of organic societies than inorganic. This causes the difference in behavioral patterns of the occasions in the cell compared to identical ones outside it. For example, in a living cell, Whitehead says, the “molecules within an animal body exhibit certain peculiarities of behavior not to be detected outside an animal body” (ibid). The behavioral patterns of sub-societies in living societies differ from those in nonliving societies. Thus, some living organisms are distinct in their complex structure.

Whitehead describes this as evidence that life takes away from its environment. The character of living things is to take away from societies and ‘feed’ other societies. The interacting societies “have been robbed of something.... in living societies this interplay takes the form of robbery. But whether or no it be for the general good, life is robbery. It is at this point that with life morals become acute. The robber requires justification” (Whitehead 1985,105).

Whitehead(1958) states, “Life lurks in the interstices of each living cell, and in the interstices of the brain” (ibid,105). This seemingly random statement emphasizes that life is not reducible to individual cells or even the brain alone. Instead, life is a process that emerges from the interactions and interconnections between cells and organs within an organism. The “interstices” refer to the spaces or gaps between cells and organs, which are not empty but filled with processes and interactions that contribute to the overall vitality of the organism.

In Whitehead's view, life is not just a property of individual cells or physical structures but a dynamic process that arises from the interactions of many different elements. It is the robber that pounces just when occasions attempt to furnish mere responsive reception. It takes the data away from the inorganic societies that carried them, binding them to acknowledge the details of the data and

²³⁴ The use of capacity is in the same way as Whitehead uses it here: “Every actual entity has the *capacity* for knowledge, and there is graduation in the intensity of various items of knowledge; but, in general, knowledge seems to be negligible apart from a peculiar complexity in the constitution of some actual occasion” (Whitehead 1985,161).

²³⁵Ibid.,106.

produce suitable novel higher contrasts. It is the culture of interstices of Stengers. Life charges the organism to take up the possibilities that lie before it, and consciousness is the awareness of this possibility.

Summary

I began this chapter attempting to weave together all the parts of Whitehead's thought with the contemporary issues of philosophy of mind. To achieve this, I compared the technique Whitehead uses to the lithographic work of the *drawing hands* by M.C Escher. Escher's work presents a synchronicity of the focal points of Whitehead's philosophical tasks. First, I depicted Whitehead's technique for resolving all the problems of bifurcation as circular, meaning that in breaking down the strict dichotomies, what Whitehead offers in their place has no definite beginning nor end but in process. The concept is not Whitehead's origination but nature's. Nature is a process, and all its elements are themselves processes. Ideas, terms, and epistemological methods are part of nature, and nature insists on adherence to its core value. A defiance of this creates unresolvable theoretical contradictions. Second, I spoke of the imposition of self-boundary. In this same sense, there are things in nature of which one cannot speak because it is simply not given in experience. This creates a boundary around our explanations of processes. As a firm empiricist, Whitehead believes everything one needs to speak of nature is what is given through the senses and requires no further postulation. Lastly, the mix of all spheres of knowledge leads to the dynamic process of self-production. Self-production and circularity do not mean knowledge of nature is exhaustible. On the contrary, the interacting parts decide how to interpret the data they receive, leading to an infinite possibility of imaginative leaps.

Panexperientialism is one of the applications of such methods that applies the three-fold character of the cosmos to the hard problem of consciousness. Panexperientialism, as a theory of mind, attempts to maintain this fidelity to nature by defining functionality as the essence of actual entities of all types. Consciousness is one of the organism's higher functions that occur in the phases of prehensive integration of data received. However, this definition of consciousness as functional with respect to the culmination of cosmic functions of actual occasions is not the typical position of functionalism. I argued that this does not disqualify panexperientialism from being a functionalist position. Instead, we must hold it to the key characteristics of functionalism to determine if it passes the litmus test. These criteria are emphasis on functionality, multiple realizability, and explanatory value. I determined that panexperientialism supplies adequate responses that align with functionalism on all three counts. The distinguishing addition that Whitehead's functional theory of organism brings is the coherency of the account of subjective experience with the larger reality of the world. Because

actual occasions are creative, they create persons like us and compose our thoughts. This provides a more consistent explanation of how subjective experience emerges from complex systemic functions and how cosmic activities necessarily include us. Panexperientialism, as a functionalist perspective, supplies a more integrated view of the universe by emphasizing the interconnectedness of all entities to legitimize our place in the cosmos.

Chapter 6

PANEXPERIENTIALISM AND PANPSYCHISM

But whether or no it be for the general good, life is robbery. It is at this point that with life morals become acute
(Whitehead 1985,105)

The task I have been attempting to bring to fruition over the last few chapters is a revival of Whiteheadian ideas within the context of contemporary philosophy of consciousness. This focus is crucial for both ardent devotees of Whitehead and generally curious thinkers because it opens up Whitehead's notoriously challenging work to extensive evaluation and, eventually, systematic constructive criticism. Whitehead has largely suffered dismissive attitudes from the philosophical and scientific community, especially over his use of unconventional terminologies, the density of his imaginative systematizing, and his inclusion of different and specialized disciplines such as geometry, aesthetics, logic, physics, and philosophy of science in his speculative philosophy. These criticisms against process metaphysics mask his pertinence in contemporary debates.

The primary objective of the current chapter, as an addition to the previous chapters four and five, is to peel back the veil obstructing the merits of Whitehead's ideas. This objective is achieved by putting Whiteheadian ideas to further use, even at the risk of overstepping their initial boundaries. When made to stand alone apart from his other ideas, Whitehead's work loses itself in the maze of highly speculative ideas. However, it cries for expression in external problems, as does the actual entity in the world. It requires a merging with the world because it is created by that very coming together. In SMW, Whitehead reiterates this:

The doctrine thus cries aloud for a conception of organism as fundamental for nature. It also requires an underlying activity—a substantial activity—expressing itself in individual embodiments, and evolving in achievements of organism. The organism is a unit of emergent value, a real fusion of the characters of eternal objects, emerging for its own sake” (Whitehead 1925,135).

In the previous chapter, I explored the interconnectedness of various subjects such as consciousness, evolution, phenomenality, life, and self-identity. This chapter will expand on these by examining the panexperientialist response to the knowledge argument. The knowledge argument in the form of a thought experiment posits that the existence of qualia is inexplicable by physical processes alone. To evaluate the merits of its response, I will compare Russell's neutral monism with Whitehead's panexperientialism, as they closely resemble each other. I will focus on the aspects of Russellian monism that need adjustment according to Chalmers' evaluation.

Furthermore, I will demonstrate how Whitehead's philosophy grounds moral and aesthetic value in the nature of primitive actual occasions. The chapter fulfills its objectives in four ways. Firstly, it presents the details of the knowledge argument and Chalmers's two-dimensional semantic framework, which bridges the epistemic claims with the metaphysical ones. Secondly, it evaluates Russellian monism and its associated difficulties according to Chalmers' evaluation. The chapter presents a comparative view of Russellian panpsychism and Whiteheadian panexperientialism. It addresses Whitehead's physicalist leanings and how he overcomes the combination problem of panpsychism. Lastly, I discuss the implications of both theories on the questions of moral and aesthetic judgments. The chapter concludes with Whitehead's panexperientialism as capable of providing an understanding of how human experiences composed of actual occasions have moral and aesthetic significance.

6.1 The Knowledge Argument: Mary, The Brilliant Scientist

One of the popular responses to the question of why understanding consciousness remains crucial is that consciousness underpins existential principles. Being conscious gives a reason why we act the way we do and have moral and aesthetic judgments that shape our personalities. Consciousness lies at the frontiers between modern science and its complete understanding of the mechanisms of the world. Therefore, the enigma of consciousness stands in the way of a holistic understanding of the human species and other entities in their environments. It leaves the question of why and how some organisms have less complex behavioral patterns and value-laden reactions in others. I will offer responses to these claims in §6.4 of this chapter. However, they are imperative to our understanding of the importance of these discussions on the problems of consciousness.

In his work, *The Meta-Problem of Consciousness*, Chalmers claims that the hard problem of consciousness is still one of the most puzzling problems for science and philosophy because there appears to be no consensus on certain key foundational aspects.²³⁶ For this reason, Chalmers redefines some key terms and distinctions often misunderstood within these debates. First, Chalmers(2018) explains what he terms the *easy problems of consciousness*. They comprise the study of objective behavioral or cognitive functions such as learning, memory, perceptual integration, and verbal report. To explain how the brain achieves a particular 'easy' function, we need only to identify the proper neural or computational mechanism which performs that role. Second, he employs the term the *hard*

²³⁶David Chalmers, "The Meta-Problem of Consciousness," *Journal of Consciousness Studies* 25, no. 9-10 (2018): 6-61.

problem of consciousness, which is the difficulty I have previously identified as the problem of explaining how phenomenal feelings accompany these mechanisms.²³⁷

The difficulty so far between easy and hard problems of consciousness has been the position that the functional and phenomenal qualities of brain activities are wholly separate. For those who affirm the reality of only the functional attributes, they assume that any phenomenal feel is either unreal or already explained by the psycho-functional descriptions. However, understanding the separation of functional consciousness (implied in easy problems) and phenomenal consciousness (implied in the hard problem) is not always straightforward. Because qualitative feelings always accompany functionality, it is difficult to know precisely what one will be without the other. Based on this, thought experiments have been designed to evaluate such suppositions and offer the appropriate responses. One such thought experiment, the zombie conceivability argument, was discussed in chapter five of this dissertation, albeit in a brief manner. In this chapter, I will be concerned with another thought experiment called the ‘knowledge argument’.

Frank Jackson gives the most popular type of the knowledge argument against materialism in *Epiphenomenal Qualia*.²³⁸ However, there have been various precursory forms in the philosophical literature. There are two approaches common to these types of arguments. The first is an appeal to the ‘knowledge intuition’²³⁹. This highlights the idea that no amount of knowledge of physical information or physical facts about certain experiences can be enough to cover the knowledge of what *it is like*, i.e., qualitative characters. The second uses fictive personalities to depict the validity of the initial assumption. These personalities are presented as imaginary beings with extraordinary capacities to absorb the complete knowledge of physical facts relating to certain experiences without having experienced those events.

The work of C.D. Broad in *The Mind and its Place in Nature* tells of the capacities of a mathematical archangel with all the physical knowledge about our world.²⁴⁰ Broad(1925) confirms that this mathematical genius has knowledge of what the “microscopic structure of ammonia must be, but he would be totally unable to predict that a substance with this structure must smell as ammonia does when it gets into the human nose. The utmost that he could predict on this subject would be that certain changes would take place in the mucous membrane, the olfactory nerves, and other sense organs. However, he could not possibly know that these changes would be accompanied by a smell in

²³⁷ Refer to §5.2 on the Problem of consciousness.

²³⁸ Frank Jackson, "Epiphenomenal Qualia," *Philosophical Quarterly* 32 (1982): 127-136.

²³⁹ See further David Stoljar and Yujin Nagasawa, "Introduction," in *There's Something About Mary: Essays on Phenomenal Consciousness and Frank Jackson's Knowledge Argument*, edited by Peter Ludlow, Yujin Nagasawa, and David Stoljar, 1-36 (Cambridge, MA: MIT Press, 2004).

²⁴⁰ C. D. Broad, *The Mind and its Place in Nature*, vol. 2 (London: Routledge and Kegan Paul, 1925).

general or the peculiar smell of ammonia in particular, unless someone told him so, or he had smelled it for himself” (Broad 1925,71). This position stands against the mechanistic explanation of materialism which fails to demonstrate how this ‘mathematical archangel’ lacks the capacity to know what ‘it feels like’ to smell ammonia despite his extensive knowledge of the physical and functional structure of the cosmos.

Another significant example of the knowledge claim is provided in Nagel’s *What is it Like to be a Bat*. Nagel(1974) initially proposes a similar line of argument that we may know all the objective facts of the bat’s perceptual system but can never determine how *it feels like* to be a bat from the first-person perspective. Nagel does not set out to disprove materialism as Broad but to show how with the current understanding of science, we do not know how this distinct difference between physical facts and experience occurs.

Now, I shall turn to Jackson’s presentation of his argument.²⁴¹ Jackson’s(1982) thought experiment is often cited in discussions of consciousness as Mary, the brilliant scientist, after the name of the character of the scenario. Mary is a brilliant neuroscientist who is, for some reason, confined to a black-and-white room. All her learning is through black-and-white books and on black-and-white television. Mary demonstrates extraordinary intelligence in her learning of facts. She knows all the physical facts about humans and their environment, in a wide sense of ‘physical’, which includes everything in completed physics, chemistry, and neurophysiology, and all there is to know about the causal and relational facts consequent upon all this, including functional roles. These functional roles comprise, for example, the understanding of neural mechanisms during perception. If physicalism is true, then Mary knows all there is to know because physical facts concern physical entities.

Nonetheless, Jackson questions what will happen when Mary is released from her black-and-white room or is given a color television monitor. If physicalism is true, Mary would not acquire any new physical fact besides what she had learned, but if it is possible to think that she learned something new, then physicalism is false. For Jackson, it seems obvious that Mary learns something about the world and our visual experience. Therefore, it is undeniable that her previous knowledge was incomplete. She received all the physical information, yet her knowledge did not include the experiential aspect. Ergo, there is more to have than that, so physicalism is false.²⁴²

²⁴¹ Frank Jackson, "Epiphenomenal Qualia," *Philosophical Quarterly* 32 (1982): 127–136.

²⁴² *Ibid.*

6.1.1 Understanding the Key Elements of the Knowledge Argument: A Chalmersian Distinction

To understand the claims of the argument, Chalmers emphasizes in his work *Phenomenal Concepts and the Knowledge Argument* that it is imperative to distinguish between phenomenal properties and phenomenal beliefs.²⁴³ For example, a qualitative feeling of smell or taste is called a phenomenal property, while phenomenal beliefs include the convictions that “I am tasting an apple” or “I can smell ammonia”. Chalmers defines phenomenal properties as those that characterize what it is like to be a subject or to be in a mental state, while phenomenal beliefs attribute phenomenal properties using phenomenal concepts.²⁴⁴

According to this exegesis of Chalmers(2002), when Mary looks at a red apple as she leaves her room, she visually experiences its color. This experience instantiates a phenomenal property represented as **R** or what Chalmers calls *phenomenal redness*. We can say that Mary has a red experience, although this red experience is certainly not in the same sense as apples are generally red. In simple terms, “Phenomenal redness (a property of experiences, or subjects of experience) is a different property from external redness (a property of external objects), but both are respectable properties in their own right” (Chalmers 2002, 3).

The concept of 'red' used in ordinary public-language expression or 'red experience' or 'phenomenal redness' is distinct from its subjective expression. The concept itself is fixed via a relation to red things in the external world and via a relation to certain paradigmatic red objects taught in learning the public-language term 'red'. We learn to identify the experiences typically brought about by these 'red' objects (in the phenomenal sense) and to call the objects that typically bring about those experiences 'red' (in the external sense). The phenomenal concept involved here is *relational*, in that it has its reference fixed by a relation to external objects. The property of redness referred to need not be relational, but the concept of red is.²⁴⁵

Chalmers(2002) distinguishes at least two relational phenomenal concepts, depending on whether the reference is fixed by external relations across a whole community of subjects or by relations restricted to the particular subject in question. The first is described as the *community relational concept* or *red_c*, which is the phenomenal quality characteristically caused in normal subjects within a community by paradigmatic red things. The second is the *individual, relational concept* or *red_i*. This can be roughly described as the phenomenal quality often caused *in me* by

²⁴³ David Chalmers, "Phenomenal Concepts and the Knowledge Argument," in *Philosophy of Mind: Classical and Contemporary Readings*, edited by D. Chalmers (New York: Oxford University Press, 2002), 111-143.

²⁴⁴ *Ibid.*, 3.

²⁴⁵ *Ibid.*, 3-4.

paradigmatic red things. The two concepts red_C and red_I will refer to each other for normal subjects but may occur differently for abnormal subjects.²⁴⁶

Additionally, phenomenal properties can also be picked out indexically. When seeing the red apple, Mary indexically refers to a visual quality associated with it by saying 'this quality' or 'this sort of experience'.²⁴⁷ Using the same reference Chalmers employs, we shall call this phenomenal property E . E functions indexically by referring to whatever quality the subject is currently describing. It has a demonstrative character, which fixes reference in a context by picking out whatever quality is ostended in that context. Its distinct content corresponds to the quality that is actually exhibited — in the case of Mary, phenomenal redness. The demonstrative concept E has a rigid designation of its referent, so it picks out the quality even in counterfactual worlds where no one demonstrates it.²⁴⁸

So far, I have described three concepts red_C , red_I , and E , as various phenomenal concepts, all referring to the same quality of phenomenal redness. They all refer to this quality relationally, characterizing it in terms of its relations to external objects or acts of demonstration, and they designate this quality rigidly. Mary can have the physical facts about color because various phenomenal concepts (red_C , red_I , and E) can be identified, a priori, based on the above conditions.

However, another phenomenal concept does not fall within the boundaries of those rigidly designated as described above but is identified in terms of its intrinsic phenomenal nature. I earlier referred to this as the instantiated property of phenomenality represented by R . This pure phenomenal concept is needed to explain what Mary stands to learn for the first time when she leaves the room. It is the concept she forms of red as *such-and-such* quality or the belief that red things will typically cause experiences of *such-and-such* quality in her and in other members of her community, that the experience she is now having has *such-and-such* quality, or again that the quality she is now ostending is *such-and-such*. The “such-and-such” concept described here is the pure phenomenal concept, R .

Here, Mary's pure phenomenal concept R picks out phenomenal redness only after she has had a visual experience of it, and it is distinct from the earlier concepts red_C , red_I , and E . Chalmers(2002) argues that by cognitive significance, we can test for this difference between the concepts. First, we can confirm the significance of Mary's capacity to gain the belief $red_C=R$ — that the quality typically caused in her community by red things is such-and-such —as cognitively significant knowledge. Second, she may equally gain the cognitively significant belief $red_I = R$, in a similar way as the quality caused in her by the perception of red as this such-and-such. Lastly, the belief $E=R$ may be obtained

²⁴⁶ In the case of inverted qualia, for example, a red/green-inverted subject's concept red_C will refer to what others identify as phenomenal redness, but their concept red_I will refer to what others call phenomenal greenness.

²⁴⁷ Chalmers 2002, 4.

²⁴⁸ Ibid.

as roughly the belief that *this* quality is such-and-such, which is as cognitively significant as any of the other two beliefs or of any other belief in which the object of a demonstrative is independently characterized. However, for Mary, $E=R$ is not a priori because “no a priori reasoning can rule out the hypothesis that some other quality is the object of her current ostension” (ibid).

Chalmers(2002) supports this assertion by citing an equivalent example that no a priori reasoning can rule out the hypothesis that he is David Chalmers or David Hume or that the object he points to is short or long. Indeed, nothing known a priori entails that R is ever instantiated in the actual world. It follows, therefore, that the concept R is distinct from red_C , red_I , and E . Unlike these other concepts, R picks out the phenomenal quality as the phenomenal quality that it is.²⁴⁹ The conclusive thesis is that pure phenomenality is not knowable a priori. Having established the distinctness of the concept R , we can determine the validity of the materialist claim that Mary has all the knowledge and learns nothing new when she experiences things outside her room.

6.1.2 From Epistemic to Metaphysical Claims

Knowledge arguments, which focus on epistemic claims about the nature of experience, raise important questions about the limits of our knowledge. However, it is significant to note that any metaphysical conclusions we may draw based on these arguments are subject to the criticism of ‘reality’. It may be argued that these conclusions are merely the result of thought experiments and do not replicate the true nature of experience. Therefore, the epistemic difficulties highlighted by the knowledge arguments may only support the existence of an epistemic gap rather than an ontological one. It is possible that these difficulties highlighted in thought experiments only suggest that there are limitations to what we can know about experience, rather than implying that elements we experience are fundamentally inexplicable in physical terms. I discussed, in chapter five of this research work, how some philosophers insist on an ontological gap through the interpretations of these thought experiments.

A possible bridge from the epistemic claims to the ontological can be provided by modal logic. Modal logic allows the reasoning of propositions that involve modal operators such as necessities, possibilities, contingency, belief, and time. Given that the knowledge argument makes claims of metaphysical possibility or necessity, this type of logic helps to reason out the epistemic and

²⁴⁹ Chalmers(2002) uses the difference between pure and relational phenomenal concepts given by Nida-Rümelin's distinction between "phenomenal" and "nonphenomenal" of belief attributions concerning phenomenal states. Phenomenal belief attributions can only be satisfied by beliefs involving pure phenomenal concepts, while nonphenomenal belief attributions can be satisfied by beliefs involving either pure or relational phenomenal concepts. See further, M. Nida-Rümelin, "An Argument from Transtemporal Identity for Subject-Body Dualism," in *The Waning of Materialism*, edited by G. Bealer and R. Koons (Oxford: Oxford University Press, 2010).

metaphysical implications of the given scenario. Chalmers' two-dimensional analysis employs this logical format to distinguish between two kinds of conceivability: primary and secondary. Primary conceivability is the ability to imagine a scenario without logical contradiction, while secondary conceivability is the ability to conceive a scenario with the understanding that it is metaphysically possible, even if it is not currently instantiated. Chalmers argues that Mary's case demonstrates secondary conceivability, meaning that we can conceive of a world in which Mary has all the physical knowledge about color experiences, but still lacks certain knowledge about the subjective experience of seeing color.

The two-dimensional analysis also introduces the concept of a “possible world,” which is a way of describing a hypothetical scenario that is logically consistent (primary conceivability) and metaphysically possible (secondary conceivability). According to Chalmers, the knowledge argument shows that Mary gains new knowledge about a particular possible world when she experiences color for the first time, even though she already had all the physical knowledge about color experiences in that world. Using the two-dimensional analysis, Chalmers shows that the knowledge argument is not just a thought experiment but a genuine challenge to physicalism that raises deep metaphysical questions about the nature of consciousness.

The distinctions described in the above paragraphs show that the pure phenomenal concepts of Mary's visual experience of color could not have been included in the complete physical fact she learned in the room, nor could it have been ruled out by any a priori reasoning.

The initial intuition of the knowledge argument can be expressed in the following way:

If P = Complete microphysical truth about the world,

Q = Phenomenal consciousness as instantiated by a pure phenomenal concept
(i.e., phenomenal redness is given only by pure phenomenal concept R).

Then, Q cannot be deduced from P by a priori reasoning.

Therefore, $P \supset Q$ is not knowable a priori.

The claim that phenomenal redness is not knowable a priori is shown here in modal logic as:

1. $P \supset Q$ is not knowable a priori, $P \supset Q$ is a posteriori.
2. If $P \supset Q$ is a posteriori, $P \supset Q$ is contingent.
3. If $P \supset Q$ is contingent, then physicalism is false.

—Physicalism is false.

The above premise (1) is a version of an epistemic claim, and premise (2) is an instance of a conventional thesis relating epistemic and modal claims. This holds that when a sentence S is a

posteriori, **S** is contingent. Premise (3) states a modal constraint on the metaphysical thesis of physicalism.²⁵⁰

However, these modal claims above have been undercut by Kripkean identity relations.²⁵¹ The Kripkean argument is that truth statements could be a posteriori yet necessary. For instance, 'water is H₂O' is an aposteriori statement that is necessarily true. Based on this Kripkean claim, the contingency of premise (2) as an a posteriori truth ($P \supset Q$) cannot hold. Hence, these metaphysical conclusions cannot justifiably be obtained from the earlier laid out epistemic premises. Hence, Chalmers proposes a two-dimensional semantic framework that provides a different way of connecting the epistemic and modal domains, which enables the derivation of metaphysical conclusions while accommodating the aposteriori necessity.

The knowledge argument is reformulated as follows:

The complete physical truth P is conjoined with a “that's-all” claim T . The T claim explains that our world is a *minimal* world satisfying P i.e., a world having no more than it needs to satisfy P .

If the T claim is true, then the knowledge argument fails since there is no gap between physical facts and phenomenal experience. However, if the T claim is false, then physicalism is also false since there is something more to the world than just the physical facts. Thus, the T claim is an important component of the physicalist response to the knowledge argument, and its truth or falsity has significant implications.

Therefore, we can reformulate our initial premises as follows,

1. $PT \supset Q$ is a posteriori.
2. If $PT \supset Q$ is a posteriori, $PT \supset Q$ is 1-contingent.
3. If $PT \supset Q$ is 1-contingent, $PT \supset Q$ is 2-contingent or panprotopsychism is true.
4. If $PT \supset Q$ is 2-contingent, physicalism is false.

—Physicalism is false or panprotopsychism is true,

where panprotopsychism is the metaphysical theory that consciousness is an intrinsic aspect embedded into the fabric of the universe.

In the two-dimensional framework, 1-contingent refers to a proposition that is contingent upon the physical truths of our world (P) and is a posteriori. It means that the proposition is not necessarily true in all possible worlds that share the same physical truths as our world but is true in our world based on the contingent fact of our world's physical truths. For example, the proposition “water is H₂O” is 1-contingent because it is contingent in our actual world, as there could have been a world

²⁵⁰ See Chalmers 2002.

²⁵¹ Saul Kripke, *Naming and Necessity* (Cambridge, MA: Harvard University Press, 1980).

where water was not H₂O. On the contrary, a proposition is 2-contingent if and only if it is contingent in the space of metaphysical possibilities. This means that it is not just contingent in our actual world (which is the first dimension) but also across all possible worlds that share the same microphysical facts as our actual world (which is the second dimension). Therefore, “water is H₂O” is not 2-contingent because it is true only in the possible worlds that share the same microphysical facts as our actual world (i.e., in all worlds where the chemical structure of H₂O exists).

In the case of the knowledge argument, the claim $PT \supset Q$ is 1-contingent because it is contingent in our actual world since we can conceive of a world where PT is true, but Q is not, but it may or may not be 2-contingent depending on whether the truth of Q is contingent or necessary in the space of metaphysical possibilities. If Q is 2-contingent, it means that physicalism is false. Conversely, if Q is necessary across all metaphysical possibilities, it means that panprotopsyism is true.

In the context of the two-dimensional framework, the T claim becomes even more important because it allows us to make a *posteriori* claim about the relationship between physicalism and phenomenal consciousness. The argument presented above shows that if PT (the conjunction of the complete physical truth about the world and the “that's-all” claim) implies Q (phenomenal consciousness), then this implication is a *posteriori* and 1-contingent. Furthermore, if PT implies Q is 2-contingent, then physicalism is false. This is significant because it demonstrates that the T claim, which asserts that our world is wholly physical in all essential ways, is not sufficient to support physicalism if Q is 2-contingent. This two-dimensional framework more nuancedly examines the relationship between physicalism and phenomenal consciousness by distinguishing between epistemic and subjunctive intensions.

In the two-dimensional framework, distinguishing primary and secondary intensions, the identity relation reads as follows when an identity $A=B$ is a *posteriori*, the concepts A and B have different epistemic or primary intensions across epistemically possible scenarios. Chalmers' in *On Sense and Intension*, explains that epistemic intensions describe in what way the truth-value of an expression depends on which epistemic possibility turns out to be actual.²⁵² However, if A and B are rigid concepts and the identity is true, then A and B have the same subjunctive (or secondary) intensions. A subjunctive intension is also a function from worlds to extensions, but the worlds are seen as counterfactual metaphysical possibilities, and expressions are evaluated in these worlds in the way in which we evaluate counterfactual scenarios.²⁵³

²⁵² Chalmers, David. "On Sense and Intension." In *Philosophical Perspectives 16: Language and Mind*, edited by James Tomberlin, 135-182. Blackwell, 2002.

²⁵³ See further, *ibid.*

So, we should expect that the concepts *red_C*, *red_I*, *E*, and *R* have different epistemic intensions, but the same subjunctive intension. In the Mary argument, this is evident because the subjunctive intension of each concept picks out phenomenal redness in all worlds. The epistemic intension of *red_C* selects, in a centered world, the quality usually caused by certain paradigmatic objects in the community of the subject. The epistemic intension of *red_I* picks out roughly the quality typically caused by those objects in the subject.

I am particularly interested in the conclusions Chalmers draws from this two-dimensional semantic framework on the truth of panprotopsyism. According to this conclusion, consciousness is a fundamental aspect of the universe and is present even in the smallest particles of matter. Panprotopsyism postulates the presence of protophenomenal qualities, which are the most basic elements of consciousness. These ‘protophenomenalities’ are often described as “raw feels” or “qualia” unintegrated into a coherent complex experience present in all physical entities. The conclusion of the modal logic analysis requires an analysis of the metaphysical basis of panpsyism and what protophenomenal properties are. On this front, an extensive Hegelian-type argument is made in defense of Russellian monism in Chalmers’s *Panpsyism and Panprotopsyism*.²⁵⁴ Chalmers believes that both panpsyism and panprotopsyism are supported by this type of monism. In subsequent discussions, I will use the terms panpsyism and panprotopsyism interchangeably.

6.2 Russellian Monism: A Panpsyist Response to the Knowledge Argument

Chalmers, one of the contemporary philosophers who strongly advocates for panpsyist solutions, places panexperientialism under the same aspect of panpsyism.²⁵⁵ In Chalmers’ paper, he argues for Bertrand Russell’s panpsyism taken primarily from Russell’s work *Analysis of Matter*.²⁵⁶ Russell defends the view that there is a certain complexity in holistically expressing physical truths because phenomenality is deeply intertwined. Both physicality and mentality share a common neutral base of which we are largely ignorant. According to Russellian monism, the fundamental constituents of reality are not physical particles but rather entities that have neither physical nor mental properties yet can combine to form either.

According to the Russellian perspective, scientific empirical studies only reveal the relational structure of matter and not its intrinsic nature. For instance, while standard physics tells us about the functional role of mass, it does not address its intrinsic properties.²⁵⁷ This ignorance of intrinsic states

²⁵⁴Chalmers, David. "Panpsyism and Panprotopsyism." *The Amherst Lecture in Philosophy* 8 (2013): 1-35.

²⁵⁵ *Ibid.*, 1.

²⁵⁶ Russell, Bertrand. *The Analysis of Matter*. (London: Kegan Paul, 1927).

²⁵⁷ *Ibid.*, 10.

which forms one of the three core principles of Russellian panpsychism is termed structuralism, which states that physics describes the world solely in terms of its spatiotemporal structure and dynamics. The second principle is in the existence of percepts or quiddities, described as those real intrinsic properties underlying the structure and dynamics of physics. Finally, Russellian monism believes in quidditism about consciousness, which assumes that quiddities are relevant to consciousness.²⁵⁸ These quiddistic properties are not known because they are not directly observable in experience or empirical observations. Quiddities are sometimes called “hidden variables” because they are not directly observable.

Russell(1927) explains:

Percepts are the only part of the physical world that we know otherwise than abstractly. As regards the world in general, both physical and mental, everything that we know of its intrinsic character is derived from the mental side, and almost everything that we know of its causal laws is derived from the physical side. But from the standpoint of philosophy the distinction between physical and mental is superficial and unreal (Russell 1927, 402).

Russellian monism is a version of *type* monism, not *token* monism, because it claims the existence of a singular kind of entity in the universe. Several versions of this monism have since been developed from Russell’s position. However, I will stick to Chalmers' interpretation as it expresses the main components common to all versions of Russellian monism. It is imperative to define some important terminology at this point. I earlier introduced the term ‘quiddity’ or ‘quiddities’ to refer to the properties that ground the physical structure or relations physics describes. I shall now offer some essential details.

In Russellian monism, quiddities are regarded as the fundamental categorical basis of the microphysical dispositions in physics, but they are conceptually distinct from the roles or dispositions themselves. According to Russell, ascribing functional properties alone to the underlying structures of physical entities would entail asserting the non-existence of quiddities, as these are separate from dispositional properties. His perspective differs from the conception in physics, where dispositional or structural properties are believed to extend to the most fundamental levels of reality. However, philosophically, it is inadequate to close the gap between phenomenality and functionality. It is not obvious whether there are or are not quiddities, but according to Chalmers, “a worldview that postulates quiddities is perfectly coherent, and there is little clear evidence against it” (Chalmers 2013, 9). Chalmers uses the term protophenomenal properties to mean properties that are not themselves

²⁵⁸ See further explanation in Alter, T., & Pereboom, D. "Russellian Monism." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Winter 2016.

phenomenal yet result in phenomenal properties when combined in certain ways. Therefore, Russellian monism agrees also with some form of panprotopsyichism.²⁵⁹

In Russellian panpsychism, protophenomenal or microphenomenal qualities play roles related to microphysical properties. These microphenomenal properties serve as the grounds for macrophenomenal properties by constituting the macroexperience while also playing their microphysical roles. The view posits that the world consists of fundamental entities bearing fundamental microphenomenal properties, where these microphenomenal properties are connected to each other (and perhaps to other quiddities) by fundamental laws which have the structure of the laws of physics. The microphenomenal structure serves to constitute the macrophenomenal realm, just as the microphysical structure serves to constitute the macrophysical realm— this is constitutive panpsychism. For example, the microphenomenal properties of the basic elements of consciousness are present at the most fundamental levels of reality, including in the brain's neural activity. The firing of individual neurons is a microphysical process, and the properties of these neurons are related to their microphenomenal qualities. At the macrophysical level, the firing of neurons gives rise to our subjective experience of consciousness, such as the experience of seeing color. This means that the microphenomenal properties of individual neurons are relevant at the microphysical level of neural activity and play a crucial role in the emergence of macrophenomenal properties at the level of conscious experience. These microphenomenal properties of the neurons play roles at the neural level and those pertaining to consciousness at the macro level.

For Chalmers, constitutive Russellian panpsychism is the most promising form of panpsychism to avoid the classic problems of both physicalism and dualism. It, in principle, avoids the conceivability argument against physicalism and the causal argument against dualism. However, he suggests that the essential question for this form of panpsychism is determining which side of the divide it falls, either physicalism or dualism. If quiddities identify as physical properties, then constitutive Russellian panpsychism supports the thesis that microphenomenal properties are physical properties and macrophenomenal properties are constituted by these physical properties. Therefore, materialism is true. However, if quiddities are not physical, then macrophenomenal properties will be constituted by nonphysical properties, and a form of dualism will be true. The position for Russellian monism lies in its distinction between ‘narrowly’ defined physical properties and ‘broadly’ defined ones.

Narrowly physical properties refer to microphysical role properties, which are properties that are closely associated with the microphysical behavior of entities, such as their mass or charge. For

²⁵⁹Chalmers 2013, 18.

example, the property of having a certain mass can be considered a microphysical role property, as it is closely tied to the behavior of particles at the microphysical level. On the other hand, broadly, physical properties refer to physical role properties and any other properties relevant to realizing those roles. These can include categorical bases for the mass dispositions, which are the underlying properties that give rise to the behavior of particles with respect to mass, as well as first-order properties that play the mass role.

In effect, narrowly physical properties include structural properties of microphysical entities but exclude quiddities, while broadly, physical properties include both structural properties and quiddities. At the same time, if there are quiddities, it is plausible that they (like phenomenal properties) cannot be fully characterized in structural terms. Therefore, quiddities are not narrowly physical but broadly physical.

Chalmers(2013) concludes that constitutive Russellian panpsychism is incompatible with narrow physicalism, rather, it supports a form of broad physicalism.²⁶⁰ This distinction between narrowly defined physical properties and broadly defined ones is significant because it highlights the idea of multiple levels of organization and explanation within physical systems. While narrowly defined physical properties are important for understanding the microphysical behavior of entities, broadly defined physical properties are needed for understanding how those entities fit into larger systems and give rise to macroscopic phenomena.

Having laid out these essential terms and definitions, the Russellian responses to materialism appear straightforward when applied to thought experiments. In the context of beings deprived of phenomenality, Russellian panpsychism postulates that there is the possibility of two types of zombies, one narrowly physical, thereby duplicating its human twin without consciousness, while the other being broadly physical duplicates with consciousness. We can call the first type duplicate a *structural* zombie since it replicates just our relational, physical structure, while the second type is *categorical* zombies because it also duplicates the underlying categorical properties in addition to the structural ones.

According to Russell's distinction, our ignorance of quiddities causes us to conceive zombies only in the structural sense and not as categorical zombies. Structural zombies are conceivable and perhaps metaphysically possible, but not categorical zombies. At most, Russell's position shows that traditional physicalist theories are false because they refer solely to the structural, while in Russellian physicalism, a class of physical truths includes structural and quiddistic truths.²⁶¹

²⁶⁰ Ibid.

²⁶¹ Cf. Stoljar, David. "The Conceivability Argument and Two Conceptions of the Physical." *Philosophical Perspectives* 15 (2001): 393-413.

Now to the Mary knowledge experiment, the focus of our discussion. Russellian panpsychism contends that Mary's prior knowledge leaves out quiddistic information. She is only informed about the narrow physical truths, which are only concerned with the microphysical structure of color perception. However, this does not include any information about the quiddistic properties that underlie color perception. When Mary leaves the room and experiences color for the first time, she gains knowledge about the quiddistic properties of color perception, which are the categorical foundations of the microphysical dispositions that give rise to our experience of color. These quiddistic properties are distinct from the narrow physical properties that Mary learned about in the room. What she learns by 'acquaintance' after she leaves the room is equally physical, even though they correspond to non-structural quiddistic truths.

From the above explanation, Russell's position extends causal roles to quiddities as the means by which microphenomenal properties supply macrophenomenal subjects with causal efficaciousness. If this is the case, what is the particular causal role played by the microphenomenal experience of Mary's visual perception of red outside her room? It appears, for Russellian panpsychism, the response is that the microphenomenal experience causes or grounds the macrophenomenal experience. Here lies the contention. If microphenomenal and microphysical properties are produced by the quiddities that underlay both, at what point do they 'remerge', leading us to identify the macrophysical with the macrophenomenal?

Additionally, is there a specific physical change corresponding to the macrophenomenality of what *it is like*, if yes, how does it interact or combine with the phenomenal aspect to form the macrophenomenal consciousness Mary has? If the response is no, then the experience outside the room is no new experience or simply non-interactive with the physical. Then eliminative narrow physicalism or dualism sneaks back in.

It immediately becomes evident that faced with the famous combination problem, this panpsychist position needs an ontological property by which combination is possible. The combination problem questions how microphenomenality combines to yield macroexperiences. If Russell's constitutive panpsychism posits that several separate experiences had by separate entities could combine to yield a distinct experience of a composite entity, it must explain how one experience can merge with another. It is particularly hard to see how these supposedly neutral quiddities attain subjectivity of the distinctive kind of macroexperience we find in consciousness.

6.3 Russellian and Whiteheadian Fusion

The problem of how consciousness emerges from quiddities appears unsolvable for Russellian panpsychism. Chalmers(2013) suggests a number of possible solutions available to this form of panpsychism. One of which bears close affinity with Whitehead's panexperientialism and has prompted this attempt at fusing their ideas.

The relationship between Whitehead and Russell cannot be overemphasized. It is no coincidence that I choose Russellian monism for my comparison as this monistic theory identifies with Whitehead's in important areas. Russell(1927) himself cites on several occasions the influences of Whitehead's epistemology over his theories. He agrees with Whitehead that modern physics alienates the world of experience, causing the bifurcation of nature, and he equally seeks to bridge perception and physics just like Whitehead attempts. This may partly explain why the directionality of Russellian monism closely resembles Whitehead's.

It is equally interesting to note that Russell's *Analysis of Matter* was written in 1927, two years after Whitehead presented PR at the Gifford lectures, arguably the core of his metaphysics. I will avoid speculations on why these ideas appear identical because there is no direct evidence that Russell constructed his panpsychist position based on Whitehead's philosophy of organism. But it is safe to assume that he knew its key contents based on Russell's earlier admission of Whitehead's influence on many other ideas.²⁶²

My main interest here is to use Russell's ideas as aiding lenses to view what Whitehead's panexperientialism can offer differently with regard to the difficulty at hand. It is common knowledge that one of the reasons for Whitehead's poor reception at his time and even today within the philosophical community is his vocabulary and writing style, which appear to render his arguments challenging to follow. On the other hand, Russell is lauded for his effective communication of systematic ideas. If both theories are appreciably similar, then it is possible that the one could help explain the other. Based on these two reasons, the similarity of ideas and clarity, I believe the use of Russellian panpsychism extends an opportunity to resurrect Whitehead to fill in the gaps created by contemporary questions on experience.

I compare the relationship between Whitehead's philosophy of organism and Russellian panpsychism to a typical artistic overlay technique. This technique compares two or more still images, one serving as a base picture over which there is usually an image on a transparent film, simply

²⁶² Russell mentions a number of times in how his ideas owe a great deal to Whitehead's thoughts especially on the bifurcation of nature, the bridging of the physics and perception divide, conceptual evolution of philosophical and scientific positions. He however appears hesitant of the direction of his logic and describes it as approaching a sort of pantheism (Cf. Russell 1927, 341).

supplying supplemental information either in text or image. A typical example is the artistic predictions of how Rome looked in the past and the current state of the city's ruins. The overlay fills in where the base image leaves spaces, yet without the base image, no substantive comprehension can be made of the overlay image because it is blurry and lacks visible details. They do not obscure each other but work in tandem to produce a third image as a transcendent blend of both. Russell's theory clarifies certain details that Whitehead appears to gloss over and offers a stable base structure and direction of ideas. We can then superimpose Whitehead's panexperientialism upon this base structure to complement it by revealing other theoretical specifications. To achieve this, I shall apply the principles of the categories to determine the function of the entities implicated in Mary's previous experience in the black-and-white room and the ones that are involved when she leaves the room. Based on the identified problems in Russell's panpsychism in the form of its affinity to physicalism as well as the combination problem, I tailor Whitehead's categoreal scheme to answer these queries in a way that aligns both schools of thought.

6.3.1 Filling-in the Gaps: A Panexperientialist Response to the Knowledge Argument

In Whitehead's panexperientialism, every event is unique and offers something new to be learned by the subject, regardless of whether the subject is conscious of it or not. Thus, when we consider the case of Mary in the knowledge argument, the question of whether she learns something new is redundant in the sense that every experience, including her experience of the colors in her room, constitutes a unique event in its own right. Nonetheless, whether Mary is conscious of her new knowledge is a different matter. Whitehead's panexperientialism holds that all events have some form of experience or feeling, but not all are necessarily conscious. Thus, whether Mary is conscious of this new knowledge, she acquires depends on whether her experience of the colors in her room constitutes a conscious event.

Using Chalmer's distinction as a basis, Whitehead would agree that the conclusion $E=R$ is not knowable a priori, but we can go further in the description by determining the nature of the events in the room compared to those outside. The event of Mary's experience in the room of learning colors could be evaluated on the basis of the three qualities of process events, qualities of *objective diversity*, also termed the principle of the many, *subjective unity* or the one, and *process* or creativity. These criteria, when fulfilled, offer a sufficient basis to predict the directionality of the event based on the categoreal obligations. When we apply these criteria to Mary's experience in the room of learning colors, we can predict whether the event of her confinement constitutes a significant microphenomenal change that would allow her to have an awareness of the difference in her experience before and after confinement.

Subsequently, Mary's experience during confinement satisfies the principles of objective diversity, subjective unity, and process. Then, we can predict the nature of the occasions of experience after leaving the room as the latter functions in her experience will be partly supplied by their previously formed patterns. The event of her confinement would have contributed to the ongoing process of becoming, and her experience after leaving the room would reflect this contribution. Objective diversity refers to the fact that every event has its own unique set of constituent elements that contribute to its identity. There are many diverse occasions that come together as the objective past received by the superject of the occasion. On objective diversity, I evaluate the possibility of transmuted feelings and subjective integration of the diverse occasions of that experience.

Let us represent Mary's knowledge of colors in the black-and-white room as “C_x” and her perception of color outside the room as “P_y”. For Whitehead, her phenomenal concept of color is given by the direct perception of the object in the following way, as it typically happens in common everyday experiences. The primary phase is Mary's initial prehension of the simple physical feelings (P_y) derived from the object of her attention (her perception of the blue sky) and the conceptual feelings accompanying those physical feelings of the object. There are several multiplicities that constitute the event of a blue sky, all of which make up the past of that event which is objectified in the present perception.

The entities that make up the sky itself ‘up there’ are processes that collectively form the nexus of the sky by their mutual prehensions of each other. Mary, also a structured society or nexus, possesses her own historic route of occasions that she initially feels in conjunction with the external world in the mode of causal efficacy. The many actual occasions that constitute the nexus of the sky receive unity by virtue of a unique subject rising out of those occasions. Mary also feels a certain unicity of self, being the subject of her bodily occasions. All the actual occasions that constitute her bodily functions with a certain serial ordering of the patterns of prehensions. The pervasive ordering characterizes the genetic relations in a society by virtue of their prehension of each other. This is the quality of subjective unity of the percipient occasion.

The second phase of the prehension is the concrescent stage. The percipient subject prehends the percept with a particular subjective form, giving that physical prehension a conceptual aspect. The prehension of physical and conceptual feelings leads to forming a new entity— a synthesis of those feelings. The new entity undergoes transmutation, which involves the transference of the characteristics of the multiplicity of prehended feelings to the unity of the new entity. The continued prehensions along the path is the exhibition of the character of the process. It is the exemplification of the ‘creative advance’.

The synthesized feelings are afterward progressively prehended based on the arrangement of the structured society i.e., the body of Mary. As discussed in chapter five, the evolutionary advantage of the human body as having centralized control of the nervous system allows the progressive intensification of feelings from occasion to occasion. These new feelings are each synthesized to produce subsequent actualities. In order toprehend these occasions as a unity, the many feelings are transmuted into one to represent the character of the nexus. The transmuted feelings are carried along and intensified in terms of their current and predicted future intensity.

Phenomenal consciousness, or the quale associated with these perceptions, occurs at the final phases of these serial concrescences. The quality of what ‘it feels like’ is thus the “subjective form arising in the higher phases of concrescence. Consciousness primarily illuminates the higher phase in which it arises and only illuminates earlier phases derivatively, as they remain components in the higher phase. It follows that the order of dawning, clearly and distinctly, in consciousness is not the order of metaphysical priority” (Whitehead 1985,162). Our conscious perception when it occurs is vivid and undeniable because it is made of highly intensified feelings that are restricted aspects of the initial information prehended.

In Mary’s normal direct experience P_y , to obtain phenomenal consciousness R , we must determine the value of the initial concrescent stage and the concrescence of the final occasion at the highest phase of intensity that those occasions can reach. It is this differential value that is felt as consciousness. To represent the differential value between the first and last concrescences, I use the following logical notation:

$$Diff = \int[F(f_n)dx] - \int[F(f_1) dx]$$

where *Diff* is the differential value, F is the function representing the intensity of feeling, f_n is the feeling at the last concrescence, and f_1 is the feeling at the first concrescence.

The notations $\int[F(f_n)dx]$ and $\int[F(f_1)dx]$ are the integrals of the function F with respect to the feeling values of f_n and f_1 , respectively. The differential formula assumes that the intensity of feeling is continuous between the first and last concrescences. Continuity is essential for the self-identity of the subject experiencing. We may also specify the feeling that f_1 is itself a concrescence of past actualities going further back to include the entirety of cosmic events. However, this is abstracted to represent the immediate event nexus between Mary and the object of her perceptual experience.

The values represent the increase in the intensity of feeling over the historic concrescences that characterize the unity of the subject. Hence, the unity of consciousness presupposes subjective unity, which in turn presupposes objective diversity, subjective form, and aim. Theoretically, we can measure the capacity for consciousness by measuring the capacity for intensifying integrated data over several occasions. This idea is featured in the current integrated information theory of consciousness

(IIT). In this theory, consciousness is considered equivalent to the capacity of integration within a system represented as Φ . The value of Φ is the measure of this integrated information content in a system considered as a unit. It proposes a quantitative measure of the amount of integrated and irreducible information within a complex system's interactions.

The formula to calculate Φ is represented as: $\Phi = \Phi_{\max}(S) - \Phi(S)$

where:

- $\Phi_{\max}(S)$ is the maximum integrated information that can be generated by a system S with the same number of elements and the same causal repertoires as the actual system.
- $\Phi(S)$ is the actual integrated information generated by the system S .

The higher the value of Φ , the more integrated the system is and the more conscious it is considered to be, according to the proponents of the theory. If this theory is right, then the quantification of consciousness as equal to the differential value between the highest integrated informational content and the minimum irreducible repertoire resembles the mathematical responses we should expect from a cosmos made of irreducible interacting actual occasions. This $\Phi_{\max}(S)$ is identical to the description of the 'theory' representing the highest possibility of the intensified occasion, which contrasts with the 'fact' identical to $\Phi(S)$, the primitive actual prehensive feeling on a society's prehensive route. I will avoid further discussing the similarities between the theories and the possibility of offering a mathematical formulation of Whitehead's theory for predictive purposes. This task would require several highly technical papers out of my current capacities. However, I introduced the IIT idea to aid the understanding of how the Whiteheadian categories can have promising relevance in contemporary theories of consciousness.

So far, I have not considered the structure of Mary's experience in her black-and-white room. However, with the above outline of events, as they occur in perception, we can identify which aspects of her confined experience correspond to the qualities of ordinary experience. The difference in both events will account for the production or absence of significant knowledge.

Identifying by the same sequence of events according to the metaphysical categories is expedient. Mary's experience in the black-and-white room constitutes an event simply because Mary experiences it. For Whitehead, "what you have experienced, you have experienced"(Whitehead 1928,6), and every experience counts. It is obvious that the three components of experience are present. She experiences the unity of her subjectivity and the unity of the physical explanations of a particular color(here, the blue of the sky). This means that no matter how diverse the descriptions of the character of blue, it refers to a particular color. For example, what Chalmers calls the Red_c , Red_i , and the E are the various ways the facts about color are deducible outside the direct experience of it, i.e., its hue, its relation in paradigmatic things, etc. However, phenomenal consciousness obtained from

the differential value is not reached because the initial feelings are not pure physical feelings prehended from direct perception of the object in causal efficacy. Instead, they are ‘descriptions’ of a mix of physical and conceptual feelings which are here attempting to be absorbed as physical ones.

I will summarize her perception in confinement as follows:

We are told Mary has a black-and-white screen in her room, so she primarily experiences the colors black and white. She prehends the physical feelings derived from the entities she can directly perceive in her black-and-white environment. i.e., the monitor and the information displayed in diagrams, graphs, words, etc. Those entities are experienced in the same modes of perception as when they are experienced out of the room. For example, her perception of a black-and white-screen outside will take an identical route of actual occasions as it did in her confinement. When she sees a screen similar to the ones she had when confined, no remarkable changes happen to the sequence of prehensions. It might already be transmuted data hence she easily identifies it according to the character of some aspects of the nexus characterized as ‘monitor’.

However, the physical facts she learns are instead mixed feelings of both indirect physical and conceptual feelings because no direct physical prehension of the entities has taken place. Although they are descriptions of transmuted feelings, they are abstracted from the experience of initial direct physical feelings of others, i.e., authors of the book, neuroscientists, chemists, etc. Although Mary studies the information, she does not directly inherit the past world in which those prehensions are given. Even if one argues, by the principle of interconnectivity, that they form the basis of the experience that produced the information she is presently studying, therefore, are part of the objective data of the world, it is obvious that they are far removed from her immediate environment so cannot be directly implicated in her immediate experience. For example, reading the history of Julius Caesar's assassination does not make one directly feel the experiences of Caesar, although that event is immortalized into the fabric of the cosmos and is, in a sense, a part of the inherited past of contemporary events.

Mary experiences these objective data as propositions of nexūs whose physical prehensions are not included in her series of occasions. Each proposition is rendered more complex and concretescences to form new propositions as well. An obvious example of this growth in complexity is how her understanding of basic language grows into a more complex understanding of scientific terms, equations, explanations, etc. Correspondingly, a transmutation of these new complex propositions at each moment of further study increases in similar complexity. Thus, she can grasp the idea of blue without referring to the individual light waves or the chemical formulas she learned about the color. So, whenever she studies a text that uses the concept blue, she identifies it holistically as that such-and-such color with all the diverse physical facts she learnt. The structure of experience is not altered

despite her confinement. According to the principles of process cosmology, Mary's individual experience cannot be removed from the ongoing process of experience, which means her restrained experience contributes to the wider cosmic experience.

In the same way, we can describe her experience confined (C_x) as follows:

$C_1(I)$ = "I" is an indirect feeling at the first concrescence" $C_n(y)$ = "y is a feeling at the last concrescence".

Then, determining the value of $\text{Diff} = \int [F(C_n(y)) dy] - \int [F(C_1(I)) dx]$ is not possible because there are no shared feelings. There is only an intensification of the repetition of patterns. The continuity of events by which the intensified concrescence illuminates the composite ones reveals no equivalent direct physical feelings. Whatever feelings are intensified in the higher phases of concrescence reveal that the initial information was not a physical fact but a theory. So, the subjective feeling of what it is like to see color does not occur for Mary because her sequence of prehensions does not form a contrast of theory versus fact but theory versus more complex theory. This does not amount to any significant difference in experiential value for Mary's event inside the room while learning about the colors, as the occasions of the event are not real contrasts.

Based on the perspective of process panexperientialism, it is obvious that because of the differential value in the experience outside the room when Mary sees the sky for the first time and exclaims, 'This is what it feels like to see the blue sky', she learns something significantly new. I have shown that her experience of learning about the color blue in her confinement cannot produce the same differential value required for consciousness of that experiential event. The conclusion is that physicalism cannot fully account for the totality of reality since there is an aspect of direct perception that occurs through the mode of causal efficacy. Although this type of perception is often subtle and overlooked, it is persistent and provides significant cognitive knowledge.

6.3.2 To be, or not to be, a physicalist?

Up to this point, I have avoided giving a definite answer to whether or not Whitehead's panexperientialism is a physicalist theory. At this juncture, it is one of the unavoidable pillars that needs to either align completely with Russell's or add supplemental information on the nature of the physical for the response to the knowledge argument to be considered complete. I will use some of the criteria Jaegwon Kim sets out in *Supervenience and Mind* to define the pillars of physicalism.²⁶³

²⁶³ Kim, Jaegwon. *Supervenience and Mind: Selected Philosophical Essays*. Cambridge: (Cambridge University Press, 1993).

First is the claim of ontological physicalism. According to Kim(1993), all that exists in spacetime is physical.²⁶⁴ Any theory that claims to have a physicalist grounding must demonstrate how its ontological entities are in spacetime. This condition in Whitehead's panexperientialism is equally fundamental. Every actual entity is bound within the extensive continuum of spacetime. This is why his concept of God must necessarily imply a physical pole imminent in the world. On this basis, Whitehead marks the contrast between actual occasions and entities. Although both have physical poles, thus 'tied', in a sense, to the continuum, God remains the only actual entity outside spacetime by virtue of his primordial nature. Other entities called eternal objects are described as pure potentialities, therefore not physical. Although they necessarily interact with actualities, they are not bound to one spatiotemporal locus so they can be ingressed into multiple events at a time.

Actual occasions actualize eternal objects and cannot have definite existence apart from these occasions in the continuum. Kim's precision that "a physical entity must have a determinate location in space and time" (Kim 1993, 340) is satisfied by the connection to the extensive continuum. The extensive continuum exhibits the determinate spatiotemporal location of each occasion relative to all others, including all types of occasions, dominant ones belonging to the human mind or constitutive simple actual occasions.²⁶⁵

Second, Kim highlights that for any theory to be authentically physicalist, it must hold that the physical aspect precedes the mental aspect of actualities. This is termed a "thesis of primacy, or basicness, for physical properties in relation to mental properties" (Kim 1993, 340). On this front, panexperientialism is also clearly in agreement. The mental pole of an actual occasion is always derivative from the initial physical pole. It is the response of the physical to the world of data it receives. Panexperientialism likewise recognizes Kim's formulation that "what is physical determines all the facts of the world" (ibid, xv). This is an expression of Whitehead's ontological principle that apart from actual entities, there is nothing, so every explanation is found in some actual entity somewhere. If all entities have physical poles, then by this principle, every fact is determined by virtue of actual entities, therefore, by the physical facts.

Third, physicalism further asserts that some spatiotemporal entities have no mentality such that, for Kim, "there can be, and presumably are, objects and events that have only physical properties" (ibid, 340). Here, panexperientialism and Russellian panpsychism would have other precisions to offer. For Russell, quiddities underlie all physical entities. Therefore, although some entities do not demonstrate mentality, they are comprised of the quiddities that have the capacity to do so. For

²⁶⁴ Ibid., 266.

²⁶⁵ Whitehead 1985, 25& 195.

Whitehead, actual entities have mentality because of their function of prehension, so as long as they apprehend, there will be mentality all the way down. There are no actual occasions that do not apprehend. Ergo, all actual entities have mental qualities.

In conclusion, on the alliance with physicalism, both Russell's position and Whitehead's align with physicality in different ways. For Russell, there are phenomenal qualities because neutral quiddities can produce microphenomenal properties that culminate in macro-experiences. Whitehead offers an important deviation: phenomenal qualities result from the functional relations that exist between actual entities. Therefore, there is functionality all the way down from the macro to the micro. Phenomenality results from the function of actualities apprehending or feeling each other. This deviation saves panexperientialism from the combination problem as it postulates subjectivity as a quality of individual microentities. Therefore, the macroentity is merely a complex progression from primitiveness to sophistication. Panexperientialism defines physicalism as the initiating point of all feelings, grounding all experiences in the physical, but the feelings that emerge from the physical apprehension are not wholly reducible to them. The principle of creativity allows physical occasions to act with a certain rational autonomy of choice, therefore, accounting for mentality. Because occasions are grounded in a physical initiating feeling, panexperientialism holds that the mental depends on the physical, fulfilling a fundamental criterion of physicalism.

6.3.3 Combining Russell and Whitehead to Overcome the combination problem

I argued in several aspects of this research thesis that prehension is the pivot of Whitehead's philosophy. It is the basis of the functional relation among entities by which all entities act, and there are no idle actual entities. The combination problem reveals this suitability. The combination problem for panpsychism is the challenge of explaining how the individual subjective experiences of fundamental particles or basic quiddities can combine to form the complex, unified, and integrated conscious experiences we have as human beings.

Chalmers(2013) discusses one of two possible ways to skirt the combination problem in his paper. He states that the first inclination is to give up entirely on constitutive panpsychism and instead opt for emergent panpsychism. This emergent panpsychism makes the claim that consciousness is not reducible to purely physical processes but emerges from them in a way that is not fully predictable from a knowledge of the physical processes alone. The consciousness experienced is an emergent property arising from the complex interactions between the physical components of a system. However, this kind of panpsychism fails to explain how the macrophenomenal can have a causal influence on physical entities.

A second option for Chalmers(2013) is to assert that macro-subjects are identical to certain micro-subjects: that is, they are like certain fundamental physical entities with fundamental phenomenal properties, and they share those phenomenal properties avoiding the need for subjects to combine into distinct subjects. This position is analogous to Leibniz's "dominant monad" view, on which human subjects are identical to a single fundamental particle, perhaps in their brain.²⁶⁶

On the first appeal, it has been argued by some interpreters of Whitehead's monism that he favors an emergentist approach. According to Anderson Weekes in *The Mind-Body Problem and Whitehead's Non-reductive Monism*, William Seager suggests that an emergentist solution is apt for the combination problem in a way that clarifies Whitehead's notion of transmutation.²⁶⁷ Transmutation, accordingly, is considered a form of emergence, and since the difference between societies that achieve consciousness and those that do not, hangs on this categorical obligation, Whitehead's solution must be essentially emergentist.

On the contrary, transmutation need not be considered an emergent principle to respond to the combination problem. If it did, it could open Whitehead's panexperientialism up for a critique of interactionist dualism. In panexperientialism, more complex societies are constituted and reducible to the component prehensions. No completely new property emerges apart from actual occasions. I believe this emergentism thesis arises because of the subjective decisions of actual occasions such that they are not fully determined by the data they receive. However, this does not constitute a basis for assuming consciousness as a fully emergent property because Whitehead holds that there is a clear route of approximation from the actual world to the specific locus of the body of the percipient. I will leave this question at this point to explore other possible interpretations which are less problematic.

The second possibility Chalmers(2013) proposes has a certain appeal to the Whiteheadian stance because of the relation between actual occasions, nexus, enduring objects, and societies as living and non-living. The option involves identifying macro-subjects with micro-subjects that possess fundamental phenomenal properties, thereby avoiding entirely the need to combine distinct subjects into one. Below is how it would work theoretically.

The macro-subject here is equivalent to the dominant occasion to which the micro-subjects combine. The macro subject is the final product of the process of the many subjects before it. An example to help illustrate this approach is the collective work of a band of musicians. Imagine a group of musicians playing together in a band. Each musician has their own experience of playing their

²⁶⁶Chalmers 2013, 27.

²⁶⁷ See further Weekes, A. "The Mind-Body Problem and Whitehead's Nonreductive Monism." *Journal of Consciousness Studies* 19, no. 9-10 (2012): 40-66. Also, Seager, W. "Panpsychism, Aggregation and Combinatorial Infusion." *Mind & Matter* 8, no. 2 (2010): 167-184.

instrument and hearing the other instruments, but these individual experiences combine to create a unified musical experience for the audience. In this scenario, each musician represents a micro-subject with its own subjective experience, and the audience experiences the macro-subject that results from the combination of these micro-subjects. Whitehead's unified control resembles such a mechanism. We would not need to account for individuated subjects because each prehension has a subject. However, by the category of subjective unity, that micro-subject loses itself by entering the next prehensive unity, ultimately leading to the creation of the macro-subject.²⁶⁸

Our error occurs when we identify the macro-subject with the entire society, that is, the conscious person. In the above example, this means identifying the current song played by the band as all they do, ignoring the individual contribution of each musician's experience outside the current event. It is equally erroneous to assume that the lead player is independent of the band and to attribute the entire musical experience to the lead alone. Similarly, in a structured society, each individual occasion has its own unique experiences that contribute to the larger collective experience, and we cannot simply take the macro-subject as a single entity without considering the role of each contributing micro-subject. This gives the illusion of an ontological disparity between the individuals and the final outcome of their functions.

Chalmers(2013) raises a possible reproach at this position. He asserts that this claim begs the question: What happens if that particle or dominant occasion is destroyed? For Whitehead, its destruction is assured. In experience, the occasion perishes the moment it reaches completion. The differential feeling may be stored in memory, but the concrescent event is gone into the future. However, this perishing is not an obliteration but a metamorphosis into the data of subsequent concrescences. The dominant occasion perishes as soon as it achieves the recognition of the contrast of consciousness. This is why we cannot grasp and hold on to our consciousness; it is fleeting because it is truly gone as soon as it comes.

Therefore, Whitehead's theory of the nexus of actual occasions achieves a synthesis that solves the composition problem of Russell's constitutive panpsychism and the combination problem. It clarifies the constitutive aspects of Russell's by placing subjectivity at the base. Russell's theory of panpsychism, emphasizing quiddities as the fundamental building blocks of reality, makes it difficult to ascribe intentionality to them because quiddities are seen as neutral, lacking any subjective qualities. This creates a challenge when it comes to explaining how these neutral entities can come together to form complex subjects with intentionality and agency. In contrast, Whitehead's theory allows for the

²⁶⁸ The Category of Subjective Unity states that "the many feelings which belong to an incomplete phase in the process of an actual entity, though unintegrated by reason of the incompleteness of the phase, are compatible for integration by reason of the unity of their subject" (Whitehead 1985, 26).

emergence of intentionality and agency among all entities so that the micro-subject is what it is for the sake of the macro-subject, and the macro-subject becomes what it becomes because of the micro-subject. This, according to Weekes, shows that experience, “even at its most complex, is really the property of a Planck-scale unit of nature; but this is possible only because that unit benefits from the massive complexity of the environment it experiences” (Weekes 2012,16).

Whitehead’s metaphysics can play an additional complementary role in Russell’s position to overcome the barrier of the combination problem. Russellian monists may also postulate that the underlying quiddity is not neutral but a principle—the ‘reformed subjectivist principle’. This principle states that apart from the “experiences of subjects there is nothing, nothing, nothing, bare nothingness” (Whitehead 1985, 167). This means that neutral stuff can be considered the principle by which entities must be prehended. This principle will be a fundamental law across all of the cosmos. Then, the quiddities in consciousness or physics would only be exemplifications of such a principle. The idea will imply that this subjectivist principle, by which entities are experiencing subjects, can be compared to a fundamental force or field ensuring its enforcement in the universe. The objective datum generates the subject it takes from the world, and because this is a pervasive principle, once it receives the data, it must obey the rule and become the subject of the prehensive activity.

Accepting such a principle makes Russell and Whitehead’s theory one and the same because this subjectivist principle is the actual entity. This explains why Whitehead says the philosophy of the organism inverts the Kantian process, where experience is a process from subjectivity to apparent objectivity. Instead, he inverts this analysis and explains the process as “proceeding from objectivity to subjectivity, namely, from the objectivity, whereby the external world is a datum, to the subjectivity, whereby there is one individual experience” (ibid,156).

6.4 Panexperientialism versus Panpsychism on Morality and Aesthetics

At the beginning of this chapter, I stated that understanding consciousness is vital because of its role in moral and aesthetic judgments. The advance of civilization is on the back of determining moral boundaries and acting in accordance with or contrary to them. For instance, in a materialist world, morality is determined as a human construct that arises from a combination of evolutionary, cultural, and social factors. Because materialism holds that there is nothing over and above physical matter, moral judgments are considered purely evolutive and not grounded in objectivity or transcendent reality. This interpretation of the materialist stance on moral judgments can lead to a relativistic stance on moral principles or the view that these principles are solely derivable from human ‘well-being’, rationality, and social cooperation.

A reductionist form of materialism might claim that aesthetic properties like beauty or sublimity can be fully explained in terms of the physical properties of the objects or experiences that exhibit them. From this perspective, aesthetics is reducible to physics or biology, not explained by any metaphysical factors. Some materialists may also take an emergentist view of aesthetics. This perspective explains that aesthetic properties and experiences emerge from the complex interactions of physical elements but cannot be reduced to them. There is a level of organization or complexity at which aesthetic properties and experiences emerge, but these phenomena cannot be predicted or fully explained by a reductionist approach.

Panpsychists are divided on this subject of moral status. On the one hand, those that consider consciousness or sentience as ubiquitous assume that all things have some moral status. On the other hand, those that believe that a certain capacity for combinative complexity leads to consciousness, therefore, moral judgments, claim that moral status is completely subjective. I will consider the second school of thought because of the Russellian interpretation of panpsychism. Regarding moral and aesthetic values, Russell believes that these are not inherent in the physical world, rather, they arise from the conscious experiences of individuals. This view became known as *subjectivism*, which is the position that there are neither objectively true nor false moral statements. Ethical and moral judgments, according to Russell, remain an expression of personal preferences. He holds on to the Humean belief of reason being a slave of the passions and states that outside human desires, no moral standard of any human action exists.²⁶⁹ These conclusions develop from his panpsychist position since underlying quiddities are neither mental nor physical, therefore, do not contain any inherent objective moral or aesthetic standards. For instance, the experience of beauty does not exist in itself in the physical world but is rather a quality that arises when neutral stuff is experienced in a certain way by a conscious being. Russell's panpsychism concludes that moral and aesthetic values are not objective features of the physical world but rather subjective experiences that arise from the quiddities interacting with humans.

The Russellian position is problematic in several ways. However, I will discuss three of these difficulties. Firstly, the interpretations of Russellian panpsychism inevitably align with reductive physicalism. Consequently, all mental experiences, including moral and aesthetic judgments, are reducible to physical processes broadly defined (i.e., include quiddities). If this is the case, this theory fails to show morality and aesthetics and how they can be reduced to physical processes by investigating material combinations. Russellian panpsychism claims a physical basis but one that

²⁶⁹ See further Bertrand, Russell. "A Philosophy for Our Time." In *Portraits from Memory*, 178-184. New York: Simon & Schuster, 1956.

cannot be accounted for. We must accept that everything is grounded in physicality. However, some aspects of this grounding cannot be revealed to us. Therefore, moral and aesthetic choices are purely subjective, yet our material combinations cannot fully account for how this subjectivity emerges because they include quiddities that cannot be empirically observed. The difficulty lies with the insufficiency of the solution to explain why humans have moral and ethical implications if we are oblivious to its quiddistic sources.

Secondly, a more complex dilemma brought on by this panpsychist view is how to explain the apparent objective moral and aesthetic judgments we experience. According to this theory of neutral stuff, all experiences are subjective, defined by the complex combination of 'stuff'. However, in experience, we make moral and aesthetic judgments with a certain objective standard in mind. These norms are thought of as independent of individual preferences or cultural values. For example, most people understand that murder is bad and kindness is good. Although there are some nuances, the core of the issue appears objectively fixed in these cases. Russell accounts for the subjective aspects of moral and aesthetic judgments by the nature of complex structures of the organism, yet this feeling of transcendence of moral standards does not receive a satisfactory response.

Lastly, moral and aesthetic values have normative force. Normative force refers to the power of normative statements or propositions to prescribe what ought to be done or believed. Normative statements are typically contrasted with descriptive statements, which describe the world as it is, while normative statements describe the world as it should be. Hence, normative force refers to the aspect of normative statements that have the ability to guide or direct action, thought, or behavior. If moral and aesthetic values are ultimately reducible only to physical processes, it is not clear how they can have normative force or how they can provide reasons for action or judgment.

In panexperientialism, morality and aesthetics are intrinsically related. Whitehead states that "the principles of morality are allied to the canons of art, in that they also express, in another connection, the same requisites" (Whitehead 1985,317). In this vein, I will discuss moral and aesthetic values according to Whitehead. In CN, Whitehead makes an interesting remark, however, he fails to develop it further in his other works. He says that the real question we should be asking when we perceive phenomenality is, "What else is found there also?"

Namely, we are asking for an analysis of the accompaniments in nature of the discovery in nature"(Whitehead 1920, 41). For Whitehead, the quest to understand the cosmos does not end with the understanding of consciousness. Other essential revelations of nature are moral and aesthetic values. He describes "... moral or aesthetic values [as those] whose *apprehension* is *vivid* in proportion to self-conscious activity. The *values of nature* are perhaps the key to the metaphysical

synthesis of existence” (ibid,6, emphasis mine). These values form the core of the philosophical task in its truest forms.

In the preface of PR, Whitehead states that one of the motives of a complete cosmology is to construct a system of ideas that brings the aesthetic, moral, and religious interests into relation with those concepts of the world which have their origin in natural science. He adds that “the selectiveness of individual experience is moral so far as it conforms to the balance of importance disclosed in the rational vision; and conversely, the conversion of the intellectual insight into an emotional force corrects the sensitive experience in the direction of morality” (Whitehead 1985,15). In his view, the very nature of our experience is grounded in aesthetic and moral relevance as the basis of our selectiveness.

Moral responsibility in panexperientialism differs fundamentally from Russell’s panpsychism. Its grounding in physicality does not imply that there are no objective moral standards. In Whitehead's view, moral values arise from the subjective experiences of individuals, which are then integrated into the larger collective experience of the universe. Moral standards are not transcendent and absolute but rather emerge from the subjective experiences of individuals in the context of their interactive activities. However, because this ‘selectiveness’ is not restricted to the human sphere, there is a pervasive knowledge of morality from the crudest actual entity to God. Whitehead is able to unite both the aspects of subjective morality and the value of collective experience. His naturalist perspective opens up the possibility of reconciling divergent points of view because of the principle of the interrelatedness of the entities. He suggests that there is an underlying understanding of the ‘good’, which explains why diverse cultural and moral values can share certain core principles of judgment.

On the question of normative power, Whitehead’s moral explanation offers a more nuanced and unified view. In *Aims of Education*, he discloses that his deductive principles are formulated not to go against what he considers the natural interactive structure of actual occasions.²⁷⁰ Moral values have normative power because they are not passive observations of the world but active engagements with the creative process of the cosmos. In line with the structure of actual occasions, they do not lie in inactivity but are in constant interaction and evolution. In the concrescence of an occasion, the superject is both the outcome and the subject operative in its production. Subjects are the creation of their own creature.

²⁷⁰ Whitehead, Alfred North. "The Aims of Education." *Daedalus* 88, no. 1 (1959): 192-205.

This cosmological explanation holds that the actual entity is in a state of process during which it is not fully definite yet determines its ultimate definiteness. Whitehead interprets this as “the whole point of moral responsibility. Such responsibility is conditioned by the limits of the data, and by the categoreal conditions of concrescence” (Whitehead 1985,15). As such, freedom and discipline refer to primitive processes of actual occasions. Freedom in its crude phase is the positive prehension of feelings because of the wide array of data available for prehension, while discipline is the limitation that the subject imposes on itself, which is the process of prehending negatively— of exclusion.

The crudest form of morality is in the decision-making of actual occasions, yet in the higher phases, these initial decisions are translated as either good or evil, beautiful, distasteful, etc. Whitehead’s justification is in his statement: “A conceptual prehension is a direct vision of some possibility of good or of evil— of some possibility as to how actualities may be definite. There is no reference to particular actualities or any particular actual world. The phrase 'of good or of evil' has been added to include a reference to the subjective form; the mere word 'vision' abstracts from this factor in a conceptual prehension” (ibid).

Normative values are the culmination of individual decision-making of the actual entities within a particular historic route of prehending occasions. This explains how virtues or vices are built per the categories of transmutation. In this categoreal obligation, such feelings become associated with a certain nexus of events. They are objectified in the percipient subject by systematic characteristics. Whitehead affirms that

For difficulty arises in the operation of the Category of Transmutation when a characteristic prevalent among the individual entities of one nexus is to be transferred to another nexus treated as a unity. The difficulty is that the individual actualities of the recipient nexus are also respectively objectified in the percipient subject by systematic characteristics which equally demand the transference to their own nexus, but this is the nexus that should be the recipient of the other transference. Thus, there are competing qualities struggling to effect the objectification of the same nexus. The result is attenuation and elimination(Whitehead 1985,318).

For the triumph of moral good or vice, the transmutative process shows that transferring certain characteristics or values from one nexus to another can be problematic, as competing qualities may also demand transfer. An example of such difficulty is evident in the moral dilemma in the decision to smoke or use illicit substances. There are two competing values in the form of self-control and health prioritization versus the vices of addiction and self-harm. If an individual is dominated by the characteristics associated with addiction and self-harm, like depression, genetic disposition, social pressure, etc., the virtues of self-control and health may struggle to be transferred to that decisive nexus, and although good values exist, they may be attenuated, or eliminated. Conversely, if virtues are dominant, they may have a better chance of triumphing over any competing values or

characteristics. Ultimately, the triumph of virtue or vice depends on balancing values and characteristics within a particular nexus and their relationship to other nexūs. The interactivity between individual experiences and the collective shows that at the initiating phases of any event, the character of occasions is given by the past world as influencing characteristics of the environment. Simply put, the more good deeds one does, at least quantitatively, the better one can do in the future, and vice versa.

The implications of such perspectives are enormous because Whitehead suggests that our individual decisions have real active implications for the world. They become part of the influencing data that actual occasions receive from the actual world and contribute to those subjects' decisions. However, humans have greater effects because of the nature of their structured occasions as having the capacity to learn and introduce novelty. Whitehead says in such activities of learning among a nexus, "A novelty has emerged into creation. The novelty may promote or destroy order; it may be good or bad. But it is new, a new type of individual, and not merely a new intensity of individual feeling. That member of the locus has introduced a new form into the actual world; or, at least, an old form in a new function" (Whitehead 1985,187). In this way, structured societies have larger implications on the cosmic advance, no matter how small their decisions are.

Consequently, "Morality of outlook is inseparably conjoined with the generality of outlook. The antithesis between the general good and the individual interest can be abolished only when the individual is such that their interest is the general good, thus exemplifying the loss of the minor intensities to find them again with finer composition in a wider sweep of interest" (ibid,15). Whitehead's philosophy tasks itself with the evaluation of how our cosmic interactive structure enables the normative force of both good and evil. For "Philosophy may not neglect the multifariousness of the world— the fairies dance, and Christ is nailed to the cross" (ibid,338).

Aesthetic experience also features greatly in Whitehead's metaphysics, although he does not specifically spell out a philosophy of aesthetics. In his philosophical writings, he mentions that aesthetic experience is the key to his metaphysics. Expressions like 'aesthetic experience', 'aesthetic unity', 'aesthetic fact', and 'aesthetic order' are described as not limited to human experience alone but extend to all actual entities. To assess the panexperientialist stance on aesthetics, it must be clear what definition Whitehead gives to his use of the term. There are two approaches to this assessment.

Firstly, there is the understanding that the way Whitehead uses the term 'aesthetics' is so generic that it is difficult to evaluate any true philosophy of aesthetics from his works. Donald W. Sherburne, in his work *A Whiteheadian Aesthetic*, argues this.²⁷¹ Sherburne(1961) notes that

²⁷¹ Donald, Sherburne. "A Whiteheadian Aesthetic." *Science and Society* 27, no. 1 (1961): 109-111.

Whitehead uses the terms ‘aesthetic experience’, ‘aesthetic fact’, ‘aesthetic synthesis’, ‘aesthetic understanding’, etc., in a way independent of the aesthetical treatise that can be drawn from his metaphysics.

The second interpretation is given by Shaviro in his work *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics* to show that Whitehead’s own use of aesthetic terms is in line with his aesthetical philosophy in general.²⁷² He argues that process thought does not require an additional interpretation of aesthetics as extrapolated from the works of Whitehead because an aesthetical philosophy is already present. Shaviro(2009) claims that what is important is the unification of the ideas dispersed throughout Whitehead’s work. The widespread employment of aesthetics terms and concepts in Whitehead’s philosophy qualifies his philosophy as one of an ‘aesthetics of existence’. This aesthetics of existence comes from one of the core principles of speculative thought –imaginative generalization.²⁷³

The method of speculative thought stands on three pillars, one of which is an imaginative generalization. This imaginative generalization describes our capacity to grasp factors in our experience that can supply the difference lacking in direct observation. I explained the role of this aspect of the speculative method in chapter two §2.4.2 as the ‘take-off’ point of any speculative project. In the discharge of its duty, speculative philosophy is analogous to imaginative art, which suggests “meaning beyond mere statement” (Whitehead 1985,5). Whitehead remarks how his philosophical style solicits this imaginative perspective in his commentary on the nature of philosophy²⁷⁴:

Philosophical thought has to start from some limited section of our experience – from epistemology, or from natural science, or from theology, or from mathematics. Also the investigation always retains the taint of its starting point. Every starting point has its merits, and its selection must depend upon the individual philosopher. My own belief is that at present the most fruitful, because the most neglected, starting point is that section of value-theory which we term aesthetics. Our enjoyments of the values of human art, or of natural beauty, our horror at the obvious vulgarities and defacements which force themselves upon us – all these modes of experience are sufficiently abstracted to be relatively obvious. And yet they disclose the very meaning of things. (Whitehead 1937, 184–85)

In a paper by Martin Kaplický titled *Aesthetics in the Philosophy of Alfred North Whitehead*, he states that this confirmative remark reflects Whitehead’s conviction for the aesthetic value of his

²⁷²Steven, Shaviro. *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics*. Cambridge, MA: (MIT Press, 2009).

²⁷³ *Ibid.*,32.

²⁷⁴ Whitehead, Alfred North. "Remarks." *Philosophical Review* 46, no. 4 (1937): 449-460. This article was originally Whitehead’s contribution to a symposium of the Eastern Division of the American Philosophical Association devoted to Whitehead’s philosophy. The same article was later published as ‘Analysis of Meaning’ in *Essays in Science and Philosophy* (New York: Philosophical Library, 1947), 122–31.

philosophical endeavor.²⁷⁵ He admits that philosophy retains its starting point throughout its elaboration. If this is true for speculative philosophy, then it must be through and through aesthetic in character. Kaplický(2019), hence, argues that both approaches of Shaviro and Sherburne to Whitehead's aesthetics are one and the same. Whitehead's project is "an attempt at a metaphorical view of all the facts that enter our experience on the basis of the conceptual scheme that has its origin, its metaphorical core, in one of the areas of experience – namely, the aesthetic experience" (Kaplický 2019,164).

His position is congruent with my initial arguments on the imaginative leap required to get the speculative schema going. It is the retention of this starting point that ripples through his applications. I argued in chapter four that no aspect of the speculative method is without its exemplification within nature. Therefore, this imaginative generalization is characterized in experience as imaginative thought. It proceeds from a more fundamental ubiquitous principle of creativity. In this sense, aesthetic judgments, just like moral values, are not just passive observations of the world but rather active engagements with the creative process of the universe. Actual occasions in their exemplification of this principle share a collective creative value: the germ of aesthetic experience.

Whitehead finds aesthetic appreciation as present among actual occasions through what he terms 'aesthetic supplementation'. This supplementation phase is where there is an emotional appreciation of the contrasts and rhythms inherent in unifying the objective content obtained in the concrescence. In other words, it is the stage where the 'forest is seen for the trees'. I explained in the obligations of subjective unity and objective identity that the data prehended must conform to the subjective aim of the subject prehending it, yet there is no coalescence in that objective datum²⁷⁶. There is harmony by the unity of the subjective aim, but the datum itself does not lose the individual diversities. The absence of complete coalescence ensures that the contrasts in data and subjects are felt and not silenced. These contrasts are highlighted in subsequent phases, where they are received with emotional responses such as beauty, pleasure, distaste, etc.

Whitehead(1933) considers beauty in its primary form exemplified in actual occasions as a quality to which all occasions can severally participate.²⁷⁷ Although he specifies that there are gradations in beauty and types of beauty, beauty arises when the intensities of subjective forms, which conformally arise from the objective data, do not inhibit each other.²⁷⁸This means variations in the

²⁷⁵ Kaplický, Martin. "Aesthetics in the Philosophy of Alfred North Whitehead." In *Whitehead's Philosophy of Organism*, edited by Lucian Petrescu and John W. Murphy, 71-88. Leiden: Brill, 2019.

²⁷⁶ See entry on Categoreal obligations 'objective diversity' in chapter 3.

²⁷⁷Whitehead 1933, 234.

²⁷⁸ Ibid.

received data do not strongly hinder each other but find a certain complementarity. Since prehensions include subjective forms, these emotional responses, either synchronicity or conflict, are noticeable.

The preliminary absence of ‘clash’ or ‘vulgarity’ between the prehending subject and the objective datum secures a minor form of beauty. A major form of beauty occurs as aggregate occasions follow the same path of complementarity of subjective forms received through their data. There can be the introduction of novelty throughout the prehensions. However, the novel forms must not clash with the antecedent subjective forms to intensify that primal beauty. At the integrated phase, new conformal intensified feelings arise, and their illuminative aspect in consciousness detects the intensities of those initiating feelings in the composing sets. It follows that the components constitute the immense feeling of the whole, and the whole contributes to the intensity of the feeling of the parts. Beauty, then, is perfected harmony, and perfected harmony is the perfection of subjective forms, and this perfection is strength, strength as a unit, strength individually.²⁷⁹

Privately, the actual occasion enjoys beauty through its subjective form as it does not inhibit the objective content of other occasions entering it or the complex society it contributes to. Publicly, beauty is appreciated in the structured society as its dominant occasion feels the conformities felt by its constituent occasions. It becomes evident that beauty is appropriate to Whitehead’s world of relations, in which entities continually affect, touch, and interpenetrate one another.

Additionally, the uniqueness of Whitehead’s position is raised by Shaviro in a critique of Harman’s speculative realism. Shaviro remarks that his theory of the privacy of the inner life of objects cannot provide a basis for beauty as Whitehead’s relations do.²⁸⁰ It would seem, with Harman’s view, that we are left with a definitive opposition or antinomy between relations with an aesthetics of beauty on the one hand and substances with an aesthetics of sublimity on the other. Shaviro believes Whitehead’s aesthetics speak more to contemporary times than Harman’s because the former highlights a relational system while the latter represents a substantivist one. Whitehead envisages that any form of bifurcation will inevitably leave all that is beautiful to the poet and all that is barren to nature. Whitehead makes his aesthetic dimension bold and not sublime, so Shaviro calls this Whitehead’s workings “against the grain of his own time” as the twentieth-century aesthetics favored the sublime (Shaviro 2009,289).

The belief in the appropriateness of Whitehead in a post-modernist time is in his ability to give the individual and the collective an equal measure of value and responsibility. Such a feat seems unattainable according to strict materialist doctrines, which have almost no place for aesthetics,

²⁷⁹ This is because survival is guaranteed by the novelty brought by the mental pole of an actual occasion which is its subjective aim.

²⁸⁰ See further Shaviro, 2011, 14&303.

morality, and the collective interest. For Dennett, these are mere “spells” or “magic” in the phenomenological garden that can be dissipated by a materialist model.²⁸¹ However, his materialist model does not seem to live up to this promise because the absence of these so-called spells affect the core of our existence.

Alternatively, Whitehead shows us, from a naturalist evolutionary account, that we can conclusively determine the nature and function of these values without descending into eliminativism. The value-laden functions are not only created by ‘selfish genes’ according to Dawkins, in their desire for self-preservation at the complex stages of the evolutionary process. These values go much deeper, as deep as the initiating actualities of the cosmos. It is the function of occasions conspiring to protect the whole through protecting the constituent parts. The initial actual entity envisaged the future of the cosmos and responded to that vision. This is why God, as the primordial actual entity, can be considered the source of the cosmos because his exemplification of creativity replicates itself by envisaging the future world intensities and conspiring to produce them.

Summary

The focus of the present chapter has been the relevance of Whitehead’s panexperientialism to the contemporary debate on consciousness. Firstly, I introduced the knowledge argument as one of how the hard problem of consciousness has been formulated. I showed that Jackson’s Knowledge argument, involving the fictional character of Mary, makes a strong epistemic claim about the gap between physical facts and experience. From this point, I employed Chalmers’ two-dimensional argument to transform the epistemic claims of the knowledge argument into a metaphysical one. I showed that this modal argument concludes in favor of some form of panprotopsyhism or panpsychism. Secondly, I showed that Chalmers supports Russellian panpsychism as a tentative solution to the problem of consciousness based on the conclusions of his two-dimensional framework. I discussed the main tenets of this type of panpsychism and the kinds of problems it faces. Thirdly, I attempted to fuse Russellian and Whiteheadian monism by interpreting the categoreal principles as apt to resolve Russell’s limitations and clarify Whitehead’s explanations. While Russell claims neutral stuff underlay both physical and experiential states, Whitehead insists on the subjective experience of actual entities. Mentality becomes a function of the physical, so that subjectivity becomes fundamental. Finally, I compare these philosophical positions based on moral and aesthetic experience. Considering that the nature of consciousness has moral and aesthetic implications, while other theories claim moral guidelines and aesthetical judgments are personal preferences of complex conscious

²⁸¹ Dennett, 1991, 65.

beings, Whitehead grounds them in more fundamental experiences. For Whitehead, consciousness is not the “be it all” of experience. If one looks at nature, aesthetic experiences are exemplified in the minutest of actual occasions. The human mind has value-laden experiences because the cosmos has value and beauty.

CONCLUSION

This dissertation has examined Alfred North Whitehead's speculative method, his organic realism about the world, and its specific application to contemporary issues of consciousness. The overarching aim of this thesis was to present Whitehead's ideas more clearly and concisely and to show that his position has more in common with contemporary theories of consciousness than is discussed in the current literature.

One of the key questions asked by readers in the attempt to engage with Whiteheadian material is 'How should we read Whitehead'? The nature of his writing and the inability to classify him under any of the large philosophical schools of thought dominant in his time makes Whitehead a project that requires a balance of caution and adventure. The titles Whitehead uses for his works attest to this polarization. For instance, in *Concept of Nature*, Whitehead calls us to carefully revise the rigid *concepts* our thoughts have inherited, weighing them against the vast, untamed texture of *Nature*, which is what we perceive in experience. As his debut to 'proper' philosophy, this work aims to signal that our experience refuses to yield to the confines of these concepts. Ultimately, he aims to lead us to rethink our ideological frameworks in a way congruent with the nature perceived.

This style plays out again in *Process and Reality*, which appears as a play on Bradley's Appearance and Reality title. Both titles suggest contrasting modes of being in the world, although Whitehead attempts to replace Bradley's concept of 'appearance', which denotes the world as objective and external to us, with 'process', which is the passage of all entities. Subsequently, Whitehead understands that this passage of the world is indeed the texture of reality, so the initial bipolarity is knitted together as an exegesis of the reality of the world as the reality experience and the reality of experience as that of the world.

Other works like *Science and the Modern World* follow similar thought patterns centering on demonstrating that science is not apart from modern civilizations, which advance in consort with all aspects of the world. Science is not only progressed by geniuses but also by the thoughts of ordinary and unintelligent minds. By the time of writing *Adventures of Ideas*, Whitehead believes his readers are firmly grounded to take on the 'adventure' he has been luring their minds towards. Whitehead shows us that nature gives us faith in the reality that the future is open and that there is indeed human agency. We are not powerless in the world; we can indeed create a better future. Our concepts are a part of these open-ended processes of reality, which science shares in the understanding of our modern world.

Therefore, reading Whitehead allows one to be lost in the maze, probably recognizing a few markers as you tag along. However, these landmarks are not necessarily to help you find your way to the finish but to make you realize that you are walking through an interconnected system. The landmarks are points of intersection that show that the parts of the maze are not completely disconnected. It is “A mighty maze! but not without a plan” (Whitehead 1925, 100).

Chapter one of this thesis represents the recognition of such intersections among Whitehead’s philosophical themes. Whitehead introduces his philosophical position as a critique of what he declares the problem of Modern science and philosophy—the bifurcation of nature. This bifurcation is the separation of the apparent world from the causal, the mind from the body, the separation of substance and attribute, and many other dichotomies. It is the refusal to see the interconnectedness always present in our experience. I argued in this chapter that this bifurcation problem reveals itself in different ways in philosophy and science. Hence, Whitehead uses identical descriptions to highlight their connecting characteristics. I distinguished these bifurcationist theories in two ways: strong bifurcationism and weak bifurcationism. Strong bifurcationism is illustrated by complex scientific theories with an air of certainty and concreteness in their postulations about the nature of reality. One of these is the ‘doctrine of matter’, which is an abstraction from the process of nature to the substratum of nature. He argues that scientific materialism is grounded in this idea of ‘matter’ as secluded in space and time. The problem with this conception is that it conflicts with the stubborn facts of experience. I concluded that an exemplification of a strong bifurcationist theory is what Whitehead describes as the *fallacy of simple location*. Whitehead admits that the efficacy of thinking in such a concise, clear-cut, and trenchant manner makes these types of theories difficult to discard. Because they evaluate concise aspects of the study, such theories provide precise answers in targeted areas of knowledge. However, when put up against the texture of experience, they fail to hold up. Whitehead raises this argument at an interesting time when the ideas of quantum physics began to revolutionize science. He believed that even in the midst of these radically distinct ideas, we must be cautious of overconfidence in our postulations.

The other form of bifurcation, I termed weak bifurcationism. This type of bifurcation is subtle, brought on by the unevaluated use of concepts and the establishment of a methodology that facilitates the perpetuation of detached spheres of knowledge. In the use of concepts, Whitehead talks of the concept of ‘substance’ inherited from Greek philosophers. These terms, concepts, and explanations offered by Aonian thinkers shaped our notion of reality as possessing a certain substratum stripped of all perceivable qualities. In *Science and the Modern World*, he calls this the *fallacy of misplaced Concreteness*. It is the fallacy of assuming that this substratum is the concrete fact of nature. The

fallacy has infiltrated the way we have done philosophy over time so that it finds justification for the separation of epistemology from ontology.

Whatever angle the bifurcation takes, either through concepts or the methods by which we approach philosophy, they have only separated areas of knowledge farther apart without providing the answers we need about reality. The chapter concludes with what Whitehead prescribes as the tasks of science and philosophy in rectifying the bifurcation problem. In terms of conceptual changes, Whitehead suggests a replacement of ‘substance’ with ‘process’, while in method, he replaces the misplaced concreteness of substance metaphysics with the holistic speculative approach. He argues that merely replacing the theory of matter with another doctrine might only disguise the problem without confronting its roots. Philosophy must also redefine its task as evaluating the abstractions of science. In place of criticizing or blindly aligning with scientific postulates, philosophy must find justifications for the abstractions of science and ensure that throughout their use, they still hold the character of abstractions from processes, not the substratum of nature. Whitehead’s process philosophy aims to unite the spheres of knowledge of philosophy and science to reflect the unity of reality.

Although modern science and philosophy are set in ideas that perpetuate bifurcation, any attempt to address the problem exclusively from either side may result in a further separation and prioritization of one discipline’s method over the others. Here, Whitehead shows the importance of a close connection between ‘proper science’ and ‘good metaphysics’ to resolve the problems that ‘false science’ and ‘bad metaphysics’ have created. The chapter's conclusions open up the question of metaphysics and its suitability for this task of evaluation.

In the preliminary part of chapter two of this work, I explore Whitehead's motivations for engaging in speculative metaphysics despite the prevailing disdain for such pursuits in his time. The second part of the chapter evaluates the system of speculative thought. The factors that influence Whitehead can be categorized into two. There were internal motivations that comprise Whitehead’s influences like Bradley, James, Ward, and McTaggart, whose discussions, inquiries, and interpretations about the nature of science and philosophy influenced his metaphysical leanings. I labeled them ‘internal motivations’ because the ideas of these thinkers birthed a unique metaphysics already budding in Whitehead. It was the kind of metaphysics he spoke of in his early work as a unification of all spheres of knowledge, akin to a “pan-physics”. The other kinds of influences on his metaphysical project are what I term external factors. These influences imply the general climate regarding metaphysics. I assessed the criticisms against metaphysics by Russell, Wittgenstein, and Carnap and evaluated how Whitehead's approach diverges from these critiques.

Additionally, I highlighted similarities between Whitehead and these early analytics, such that his speculative philosophy tackles the problems they held up against the nature of metaphysical statements. Whitehead does not approach metaphysics from a typical metaphysician perspective. He is, at first, a mathematician and logician and is well aware of the defective logical structure of classical metaphysics up to that point. However, being equally aware of our inability to rid ourselves fully of metaphysics, he attempts to set it in its proper context. Whitehead's speculative metaphysics also focuses on using language as a tool for philosophical investigation. Although logical positivists criticize metaphysical language, he holds that language as the tool of trade can be rendered suitable while constructing an authentic knowledge framework all the same. Whitehead believes that metaphysics must employ already existing terms and stretch them in a way to accommodate new meanings. Language is inapt to express metaphysical ideas. However, metaphysics does not need to be exact in its expression but serves as a lure of thought into new ideas beyond that which are immediately expressed. The second part of chapter two explores the trifold nature of Whitehead's speculative method as a response to the bifurcation problem.

The method employs empirical, rational, and imaginative approaches to produce a form of metaphysics that leaves nothing out. Whitehead's working principle is that as long as a thing is given in experience, the metaphysician must find its reason within the world that has produced it. I compared Whitehead's speculative method to Strawson's divisions of metaphysics. I show that Strawson's revisionary and descriptive metaphysics distinction generates conceptual and ontological gaps because it ascribes a superior place to the descriptive task over ontological revisions. With this system of elucidation, the descriptive metaphysician is limited to certain categories, i.e., substance-attribute categories, even if it is ill-suited. Strawson advocates substance-based metaphysics because his conceptual framework is not dynamic enough to support a process-based theory. Throughout this chapter two, I emphasized the importance of understanding Whitehead's thought in its own terms rather than attempting to fit it into some pre-existing philosophical framework.

Chapter three delves into the details of Whitehead's speculative metaphysics. Whitehead calls this elaboration the categoreal scheme. It specifies the basic constituents of the universe as actual occasions, and the scheme represents a retrieving of relations from the elements of ordinary experience to a comprehension of the relations of the cosmos. The purpose of this chapter was to present Whitehead's metaphysical categoreal scheme as fulfilling the criteria defined for speculative metaphysics. The chapter offers three key ideas. First, I insisted that the categories must be understood as playing complementary roles to the category of the ultimate, which is the most generic explanation of experience. The categories do not intend to be dogmatic but to offer possible elucidations of

experience compatible with all spheres of knowledge. These categories are, just like the cosmos, a web of interrelated points, each expressing the other in further abstract terms. There are four categories in all. First, the category of ultimate exhibits the basic axioms of experience: its unity, its diversity, and its process or advance. These axiomatic inferences are translated into corresponding postulates in the actual world. This is the purpose of the category of existence, which is the second category. It exhibits how the properties are exemplified in reality. Thirdly, the category of explanation reveals the descriptive details of how these actualities relate within the actual world and what other relations are obtained from such relations. Lastly, the categorial obligations stand as the principles that govern all these relations. The principles are not externally imposed on the entities but are derived from the actuality of their intermingling.

The second part of chapter three addressed some critiques against Whitehead's metaphysics in general. The most important one is leveled against his theory of eternal objects. I highlight that some interpretations of eternal objects distort their natures in relation to actual occasions. I insisted that eternal objects are not ontologically preeminent in the cosmic process since they are given to the actual occasion from past occasions, and when ingressed into an event, they are part of the data that only partially determines the direction of the occasion. Eternal objects do not contradict the ontological principle of actual entities as the only fundamental elements of nature. Even the case of God as the primordial entity implies that eternal objects are not taken as the ontological basis of the universe. I also evaluated the critique of Whitehead's principle of creativity and its consistency with other key principles of the categories. I argued that the principle of creativity God exemplifies cannot be considered apart from his function as the actual entity. The same principle holds for all actual occasions as exemplifying actuality by virtue of the creative impetus. Creativity is nothing without actuality. Hence the ontological principle remains the ultimate explanatory basis of Whitehead's categories.

In chapter four, I opened up discussions and applications of the categorial scheme. Most of the literature on Whitehead does not precisely consider a direct application of his scheme to specific philosophical problems. There may be good reasons to avoid this, as it places some limitations on Whitehead's thought within some spheres of knowledge. However, Whitehead believes that 'good metaphysics' must be capable of saying something about every aspect of human life. Consequently, the total avoidance of such philosophical terrains largely does a disservice to the core of Whitehead's mission because his ideas are left on the generic level without in-depth evaluation. I choose in this dissertation to apply the principles of his scheme to questions on perception and consciousness precisely for the reason mentioned above. The beginning of chapter four presents Whitehead's theory of perception. This theory derived mainly from his work *Symbolism* grounded in the cosmological

account of actual entities. Because actual entities are highly interactive processes and not static, their interactions must be equally exhibited in our experiences. Whitehead's theory of perception essentially elucidates how interactivity is perceived in everyday experience. The chapter provided an exposition of classical positions on sense perception and the inconsistencies these theories present in understanding causality. Whitehead offers a preliminary mode of causal efficacy as fundamental. The perception in the mode of causal efficacy is the experience of a full continuity of the cosmos. It is the mode in which we sense the past world influences the present. This means it is the basis for our perception of vivid things in the present, which he terms a mode of presentational immediacy. However, our truest perceptions occur in a combined mode of symbolic reference where the initial symbols of causal efficacy are united with their meanings given in presentational immediacy. The postulation of causal efficacy lies at the base of Whitehead's empiricism. Without it, there will be no true continuity, and the process cosmology will simply not work. The justification of the doctrine of perception of causal efficacy is important if it is not to remain an ad hoc hypothesis. This means that relations be directly perceived for temporal continuity to be justified. Whitehead cites the relations among organisms that are not as sophisticated as humans to show that the knowledge of causality is not an a priori category as determined by Kant or a force of habit as it was for Hume. These less-complex organisms prove that the awareness of the extensive continuum does not require consciousness.

In light of this, a new system of elucidation arises. In this system, epistemology no longer takes precedence over ontology. Whitehead shows that any true cosmology must account for both epistemic and ontological truths. I refer to this method as an onto-epistemic approach. Although the term has been featured in some current literature, it is fairly new. The onto-epistemic approach considers the relationship between what we are and how we know. In the framework of Whitehead's actual entities, the onto-epistemic perspective offers an understanding of how the actual entity shapes our ways of understanding the cosmos and how these ways of knowing the cosmos influence our understanding of what kinds of entities exist. Our experiences are real acquaintances with the existent entities in nature. I compared Whitehead's realist approach to two other forms, i.e., agential realism and speculative realism. I enumerated how they agree with Whitehead's breakdown of traditional barriers that promote the human-centered cosmos. I argue that the problem of correlationism, which assumes that we can only speak of the cosmos from a human standpoint, is essentially one of the offshoots of the bifurcation problem. I showed how these forms of realism fare in striking a balance between ontology and epistemology. I argued that Whitehead's theory of prehensions plays between the atomism of the actual

entity and the continuity in external relations it has with others. In this way, real relations exist among entities because they do not precede their relations but are constituted by them.

Chapter five follows in the direction of the application of Whitehead's philosophy of organism. It discusses its advantages to the hard problem of consciousness. Most philosophers consider Whitehead a panpsychist because he considers experience as pervasive. However, I explored a new perspective that would seamlessly merge our current understanding of consciousness provided by neurocognitive models and Whitehead's panexperientialism. My claim was that Whitehead's panexperientialism is a functionalist theory of consciousness. His type of functionalist panexperientialism suggests that experience arises from the functional organization of actual occasions in the universe. According to this view, consciousness is not an all-or-nothing property present or absent in different types of matter but rather a degree of complexity arising from this functional order of actualities as experiencing agents.

There are three important criteria of functionalist theories that Whitehead must achieve. They are the emphasis on consciousness as a function of states, multiple-realizability, and explanatory power. Panexperientialism fulfills all three criteria through the principles of the categoreal scheme. For panexperientialism, mentality springs from the initial physical prehension, and experience is always grounded in the physical but not limited by it. Multiple micro-subjects merge into the macro-subject, which is the dominant actual occasion within an experiential event. Whitehead holds to the "faith in the order of nature which has made possible the growth of science" and which "springs from direct inspection of the nature of things as disclosed in our own immediate present experience" (Whitehead 1985, 27).

Panexperientialism, as a theory of mind, attempts to maintain this fidelity to the order of nature by defining functionality as the essence of actual entities of all types so that the human consciousness is not a 'great exception' to the cosmic order. The consideration of panexperientialism as a functionalist theory integrates the descriptions of functions of individual brain states into the larger framework of the cosmos. Consciousness is one of such functions occurring in the phases of comprehensive integration of data received. I argued that based on the criteria fulfilled, panexperientialism qualifies on all three counts thus, it works as a functionalist theory. The question, then, is how unique is this Whiteheadian perspective from the classical functionalist solution? The distinguishing addition that the panexperientialist functional theory brings is a cohesion between the account of subjective experience and the totality of cosmic life. It is a more integrated view of the universe emphasizing the interconnectedness of all entities instead of static independent matter.

Finally, in the concluding chapter six, I delved into discussions of this functional panexperientialist perspective and Russell's panpsychism. The discussions began with evaluating thought experiments, such as Mary, the brilliant scientist. In deciphering the perspectives of the argument, I employ Chalmers's distinctions between phenomenal qualities and phenomenal beliefs. I concluded that it is obvious that Mary attains cognitively significant information from her experience of her environment outside the confines of her black-and-white room. Subsequently, I show, with the help of Chalmers's two-dimensional argument, that the epistemic claims of the knowledge argument imply ontological claims about the truth of materialism. From these ontological claims, Chalmers supports a kind of Russellian panpsychism as a tentative answer to the problem of consciousness. This panpsychist position is closely related to panexperientialism but fails to respond adequately to the combination problem. I explained what changes Russell's monism needs to make to tackle this hurdle. It must either revise its physicalist leanings or consider underlying quiddities as a principle instead of 'neutral stuff'. Accordingly, the answer to the nature of consciousness is not an isolated response. It is crucial to answer many existential questions about the nature of human morality and aesthetic judgment. I compared these positions on these grounds. While Russell claims that there are no objective moral standards, only preferences of conscious beings, Whitehead offers a way to think of morality and aesthetic cognizance as grounded in a quality more fundamental than consciousness. He does not imply the complete transcendence of principles but the idea that the world creates the laws by which it operates. The consequence is that all our moral and esthetic compasses are aligned because we live in such an interactive cosmos.

Overall, this dissertation has presented a unique perspective of Whitehead's process philosophy and its application to contemporary issues of consciousness. Whitehead's process philosophy provides an alternative to the mainstream materialist and dualist approaches to consciousness, which have been unable to address the problem of consciousness satisfactorily. This research work also offers a refinement of panpsychist theories in a way that aligns with the ongoing evidence on the function of brain states. With such contemporary indications supporting the view that cognitive processes are continuously dynamical and richly temporal, crisscrossing levels and boundaries, metaphysical frameworks that perpetuate static entities, such as those of the classical theories of consciousness, fail to illustrate such attributes. I have suggested that Whitehead's philosophy of actual occasions founds a plural universe. This pluralistic universe supports a variety of connections and gradations which together compose a mosaic unity. Its unity is expressed in the parts of the particular experiences of actual occasions. The experience of these composite actualities must not be taken as high-grade human consciousness. However, human experience and agency, although complex and highly abstracted, are

continuous with non-human modes of existence. Whitehead gives a reason to reevaluate our relations with other occasions in the world, knowing that our acts, thoughts, and words do not dissipate into nothingness. They create who we are and what the universe is.

REFERENCES

Primary sources :

1. Whitehead, Alfred North. *A Treatise on Universal Algebra*. Cambridge University Press, 1898.
2. Whitehead, Alfred North. *Adventures of Ideas*. New York: The Macmillan Company, 1933.
3. Whitehead, Alfred North. *An Enquiry Concerning the Principles of Natural Knowledge*. Cambridge University Press, 1919.
4. Whitehead, Alfred North. *An Introduction to Mathematics*. Oxford: Oxford University Press, 1911.
5. Whitehead, Alfred North. *Modes of Thought*. New York: The Macmillan Company, 1938.
6. Whitehead, Alfred North. *Process and Reality*. New York: The Macmillan Company, 1985.
7. Whitehead, Alfred North. *Religion in the Making*. New York: The Macmillan Company, 1926.
8. Whitehead, Alfred North. *Science and the Modern World*. New York: The Macmillan Company, 1925.
9. Whitehead, Alfred North. *Symbolism, Its Meaning and Effect*. New York: The Macmillan Company, 1927.
10. Whitehead, Alfred North. *The Aims of Education*. New York: The Free Press, 1929.
11. Whitehead, Alfred North. *The Concept of Nature*. Cambridge: The University Press, 1920.
12. Whitehead, Alfred North. *The Function of Reason*. Princeton: Princeton University Press, 1929.
13. Whitehead, Alfred North. *The Organisation of Thought, Educational and Scientific*. Cambridge University Press, 1917.

Secondary sources :

14. Alexander, Samuel. *Artistic Creation and Cosmic Creation*. London, 1927.
15. Alter, Torin, and Derk Pereboom. "Russellian Monism." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Winter 2016 ed.
16. Ariew, Roger, and Daniel Garber, eds. *G. W. Leibniz Philosophical Essays*. Hackett, 1989.
17. Barad, Karen. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs* 28, no. 3 (2003): 801–831. <https://doi.org/10.1086/345321>.
18. Barad, Karen. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Duke University Press, 2007.

19. Basile, Pierfrancesco. "James Ward." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta.
20. Bennett, Jonathan. *Prolegomena [= Preliminaries] to any Future Metaphysic that can Present itself as a Science Immanuel Kant*. Cambridge University Press, 2004.
21. Bergson, Henri. "The Creative Mind." *Philosophical Review* 55 (1946): 714.
22. Bergson, Henri. *Time and Free Will: An Essay on the Immediate Data of Consciousness*. New York: Humanities, 1910.
23. Bohr, Niels. *Atomic Theory and the Description of Nature*. The Macmillan Company, 1934.
24. Bradley, D. "Carnap's Epistemological Critique of Metaphysics." *Synthese* 195, no. 5 (2018): 2247–2265. <https://doi.org/10.1007/s11229-017-1335-x>.
25. Bradley, F. H. *Appearance and Reality* (2nd ed. with appendix). Oxford University Press, 1897.
26. Bradley, F. H. *Principles of Logic*. Vols. 1 and 2. Oxford: Oxford University Press, 1922.
27. Bradley, James. "The Speculative Generalization of The Function: A Key to Whitehead." *Tijdschrift Voor Filosofie* 64, no. 2 (2002): 253–271.
28. Bradley, James. "Transcendentalism and Speculative Realism in Whitehead." *Process Studies* 23, no. 3-4 (1994): 155-191.
29. Broad, Charlie Dunbar. *The Mind and its Place in Nature* (Vol. 2). Routledge and Kegan Paul, 1925.
30. Calvert-Minor, Chris. "Epistemological Misgivings of Karen Barad's 'Posthumanism.'" Springer, 2013.
31. Carnap, Rudolf. "Empiricism, Semantics and Ontology." *Revue Internationale de Philosophie* 4 (11) (1950): 20-40.
32. Carnap, Rudolf. "Pseudoproblems in Philosophy." In *The Logical Structure of the World & Pseudoproblems in Philosophy*. Open Court, 1928.
33. Carnap, Rudolf. "The Elimination of Metaphysics Through Logical Analysis of Language." In *Logical Positivism*, edited by A. J. Ayer. New York: The Free Press, 1959.
34. Chalmers, David. "On Sense and Intension." *Philosophical Perspectives* 16 (2002): 135-182.
35. Chalmers, David. "The Combination Problem for Panpsychism." In *Panpsychism*, edited by Godehard Brüntrup and Ludwig Jaskolla, 201-216. Oxford University Press, 2016.
36. Chalmers, David. "The Meta-Problem of Consciousness." *Journal of Consciousness Studies* 25, no. 9-10 (2018): 6-61.

37. Chalmers, David. "The Two-Dimensional Argument Against Materialism." In *Oxford Handbook to the Philosophy of Mind*, edited by Brian P. McLaughlin and Sven Walter. Oxford University Press, 2009.
38. Christian, Claudio. "Power, Possibility, and Agency: Speculative Realism and Whitehead's Theory of Relations." *A Journal for Philosophy of Culture*, 2020.
39. Cobb, John B. *Whitehead Word Book: A Glossary with Alphabetical Index to Technical Terms in Process and Reality*. Process Century Press, 2015.
40. Dawkins, Richard. *The Selfish Gene*. Oxford University Press, 2006.
41. Debaise, Didier. *L'appât des possibles – Reprise de Whitehead*. Paris: Les Presses du réel, 2015.
42. Dehaene, Stanislas, Jean-Pierre Changeux, Lionel Naccache, Jonathan Sackur, and Catherine Sergent. "Conscious, preconscious, and subliminal processing: a testable taxonomy." *Trends in Cognitive Sciences* 10, no. 5 (2006): 204-211.
43. Dennett, Daniel C. "Quining Qualia." In *Consciousness in Contemporary Science*, edited by A. J. Marcel and E. Bisiach, 42-77. Oxford University Press, 1988.
44. Dennett, Daniel C. *Consciousness Explained*. Little, Brown and Co., 1991.
45. Descartes, René. *Principia Philosophiae*. 1644 Accessed January 2020. https://data.bnf.fr/fr/12442057/rene_descartes_principia_philosophiae/.
46. Desmet, Ronny. "Was Whitehead an Analytic Philosopher?" In *Whitehead - The Algebra of Metaphysics*, edited by Ronny Desmet and Michel Weber, 211–248. Les Éditions Chromatika, 2010.
47. Eames, Elizabeth Ramsden. *Bertrand Russell's Dialogue with His Contemporaries*. Routledge, 1989.
48. Emmanuel, Léon. "James Ward's Doctrine of Experience." *The Monist* (1926). Oxford University Press.
49. Emmet, Dorothy. "Some Primary Notions of the Philosophy of Organism." In *Whitehead's Philosophy of Organism*, edited by Dorothy Emmet, 69–101. Palgrave Macmillan UK, 1966. https://doi.org/10.1007/978-1-349-00397-6_4.
50. Epperson, Michael, and Elias Zafiris. *Foundations of Relational Realism: A Topological Approach to Quantum Mechanics and the Philosophy of Nature*. Lexington Books, 2013.
51. Escher, M. C. *Drawing Hands* [Drawing]. In *La méthode, tome 1: La nature de la nature* [The method, volume 1: The nature of nature], by Edgar Morin, reproduced on the front cover. Paris, France: Editions du Seuil, 1977.

52. Ford, Lewis S. "The Emergence of Whitehead's Metaphysics." *International Journal for Philosophy of Religion* 18, no. 3 (1985): 169-172.
53. Ford, Lewis S. *A Biography Alfred North Whitehead: The Man and His Work*, Volume 1. *The Journal of Religion*, 1986.
54. Francis, Charles, and Christof Koch. "Toward a Neurobiological Theory of Consciousness." (1990). Retrieved January 12, 2020, from <https://philpapers.org/rec/CRITAN>
55. Frigerio, Christian. "Power, Possibility, and Agency: Speculative Realism and Whitehead's Theory of Relations." *A Journal for Philosophy of Culture*, 2020.
56. Gendlin, Eugene T. *Line by Line Commentary on Aristotle's De Anima*. 2012.
57. George, John S. *Martin Heidegger and the Pre-Socratics: An Introduction to His Thought*. Lincoln: University of Nebraska Press, 1964.
58. Griffin, David Ray. "The 'Whitehead Century' Revisited." *Process Studies* 44, no. 2 (2015): 246-258.
59. Griffin, David Ray. *Unsnarling the World Knot: Consciousness, Freedom, and the Mind-Body Problem*. University of California Press, 1998.
60. Grunbaum, Adolf. "The Anisotropy of Time." In *The Nature of Time*, edited by Thomas Gold, 149-186. Ithaca, N.Y.: Cornell University Press, 1967.
61. Hampe, Michael. *Alfred North Whitehead*. Paperback DM24. Munich: Beck, 1998.
62. Harman, Graham. "Object-Oriented Ontology (OOO)." *Oxford Research Encyclopedia of Literature*, 2019. <https://doi.org/10.1093/acrefore/9780190201098.013.997>.
63. Harman, Graham. *Thought*. Issue 2. Princeton University Press, 1973.
64. Hartmann, Klaus. "Types of Explanation in Hegel and Whitehead." In *Hegel and Whitehead: Contemporary Perspectives on Systematic Philosophy*, edited by George R. Lucas. State University of New York Press, 1988.
65. Hartshorne, Charles. "Whitehead on Process: A Reply to Professor Eslick." *Philosophy and Phenomenological Research* 18, no. 4 (1958): 514-520. <https://doi.org/10.2307/2104648>.
66. Hartshorne, Charles. "Whitehead's Revolutionary Concept of Prehension." *International Philosophical Quarterly* 19, no. 3 (1979): 253-263. Chapter 9 of *Creativity in American Philosophy*.
67. Heidegger, Martin, Fried, Gregory, and Polt, Richard. *Introduction to Metaphysics*. Yale University Press, 2000. <http://www.jstor.org/stable/j.ctt1npphz>.
68. Heidegger, Martin. *The Question of Being*. Twayne Publishers, 1958.
69. Hofstadter, Douglas. *Gödel, Escher, Bach: An Eternal Golden Braid*. Basic Books, 1979.

70. Hosinski, Thomas E. *Stubborn Fact and Creative Advance: An Introduction to the Metaphysics of Alfred North Whitehead*. Lanham: Rowman and Littlefield, 1993.
71. Jackson, Frank. "Epiphenomenal Qualia." *The Philosophical Quarterly* 32, no. 127 (1982): 127-136. JSTOR. <https://doi.org/10.2307/2960077>.
72. James, William. *The Principles of Psychology*. New York: Holt, 1890. <http://archive.org/details/theprinciplesofp01jameuoft>.
73. Johnson, A. H. "Whitehead's Theory of Actual Entities: Defense and Criticism." *Philosophy of Science* 12, no. 4 (1945): 237–295.
74. Kaplický, Martin. "Aesthetics in the Philosophy of Alfred North Whitehead." In *Whitehead's Philosophy of Organism*, edited by Lucian Petrescu and John W. Murphy, 71-88. Leiden: Brill, 2019.
75. Kennedy, Bart F. "Whitehead's Doctrine of Eternal Objects and Its Interpretations." *Tulane Studies in Philosophy* 23 (1974): 60-86.
76. Kim, Jaegwon. *Supervenience and Mind: Selected Philosophical Essays*. Cambridge University Press, 1993.
77. Kraus, Elizabeth M. *Metaphysics of Experience: A Companion to Whitehead's Process and Reality*. Fordham University Press, 1998.
78. Kripke, Saul A. "Identity and Necessity." In *Identity and Individuation*, edited by Milton Karl Munitz, 135-164. New York: New York University Press, 1971.
79. Lamme, Victor A. F. "Towards a True Neural Stance on Consciousness." *Trends in Cognitive Sciences* 10, no. 11 (2006): 494-501.
80. Latour, Bruno, and Steve Woolgar. *Laboratory Life: The Construction of Scientific Facts*. Princeton University Press, 1979.
81. Leclerc, Ivor. "A Rejoinder to Justus Buchler." *Process Studies* 1 (1971): 55-59.
82. Levin, Michael E. *Metaphysics and the Mind-Body Problem*. Oxford: Clarendon Press, 1979.
83. Levine, Joseph. "Materialism and Qualia: The Explanatory Gap." *Pacific Philosophical Quarterly* 64, no. 4 (1983): 354-361. <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>.
84. Lovejoy, Arthur O. "'The Meaning of Φύσις in the Greek Physiologers'." *The Philosophical Review* 18 (1909): 369-383.
85. Lovejoy, Arthur O. *The Revolt against Dualism: An Enquiry Concerning the Existence of Ideas*. Routledge, 1930.
86. Lowe, Victor. "Understanding Whitehead." *Revue de Métaphysique et de Morale* 69, no. 2 (1962).

87. Lowe, Victor. *Alfred North Whitehead: The Man and His Work: 1910-1947*. Johns Hopkins University Press, 2019.
88. Lucas, George R. Jr. "Muddleheadedness and Simplemindedness – Whitehead and Russell." *Process Studies* 17, no. 1 (1988): 26-39.
89. Martin, Jay N. *Russell and the Philosophical Foundations of Physics*. Routledge, 1988.
90. McClure, M. T. "The Greek Conception of Nature." *The Philosophical Review* 43, no. 2 (1934): 109-124.
91. McGinn, Colin. "Can We Solve the Mind-Body Problem?" *Mind* 98 (July 1989): 349-366.
92. McGinn, Colin. *The Problem of Consciousness: Essays Towards a Resolution*. Basil Blackwell, 1991.
93. McTaggart, John McTaggart E. *The Nature of Existence* (Vols. 1-2). Cambridge University Press, 1921.
94. Meillassoux, Quentin. *After Finitude: An Essay on the Necessity of Contingency*. Translated by Ray Brassier. New York: Continuum, 2008.
95. Nagel, Thomas. "What It's Like to Be a Bat?" *Philosophical Review* 83, no. 4 (1974): 435-450.
96. Nagel, Thomas. *The View from Nowhere*. Oxford University Press, 1986.
97. Nida-Rümelin, Martine. "An argument from transtemporal identity for subject-body dualism." In *The Waning of Materialism*, edited by G. Bealer and R. Koons. Oxford University Press, 2010.
98. Pepper, Stephen C. "Metaphor in Philosophy." In *Dictionary of the History of Ideas*. Charlottesville: The Electronic Text Center, 2003. Accessed November 7, 2020. <http://etext.virginia.edu/cgi-local/DHI/dhi.cgi?id=dv3-23>
99. Plamondon, Ann L. *Whitehead's Organic Philosophy of Science*. New York: State University of New York Press, 1979.
100. Quine, W. V. "On Mental Entities." In *The Ways of Paradox and Other Essays*, by W. V. Quine, 149-172. Random House, 1966.
101. Ramsey, William. "Eliminative Materialism." In *The Stanford Encyclopedia of Philosophy*, edited by E. N. Zalta. Metaphysics Research Lab, Stanford University, Spring 2019. <https://plato.stanford.edu/archives/spr2019/entries/materialism-eliminative/>.
102. Russell, Bertrand. "The Philosophy of Logical Atomism." In *Iterussell1986*, 1-19. Open Court, 1918.
103. Russell, Bertrand. *The Analysis of Matter*. Vol. 37. Kegan Paul, 1927.

104. Seager, William. "Panpsychism, Aggregation and Combinatorial Infusion." *Mind & Matter* 8, no. 2 (2010): 167-184.
105. Searle, John R. "Minds, Brains, and Programs." *Behavioral and Brain Sciences* 3, no. 3 (1980): 417-424. doi:10.1017/S0140525X00005756.
106. Segall, Matthew David. "The Varieties of Physicalist Ontology: A Study in Whitehead's Process-Relational Alternative." *The Journal of Philosophy, Theology, and the Sciences* 7, no. 1 (2020).
107. Sellars, Wilfrid S. "Empiricism and the Philosophy of Mind." *Minnesota Studies in the Philosophy of Science* 1 (1956): 253-329.
108. Shakespeare, William. *The Tragedy of Macbeth*. London, England: Penguin Classics, 1606.
109. Shaviro, Steven. *Whitehead on Causality and Perception*. Cambridge University Press, 2018.
110. Shaviro, Steven. *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics*. MIT Press, 2009.
111. Sherburne, Donald. *A Key to Whitehead's Process and Reality*. The University of Chicago Press, 1966.
112. Siebers, Johan. *The Method of Speculative Philosophy: An Essay on the Foundations of Whitehead's Metaphysics*. Dissertation, University of Leiden, 1998.
113. Stebbing, L. Susan. "Review of Alfred North Whitehead's *Process and Reality*." *Mind* 39 (1930): 466-475.
114. Stebbing, L. Susan. "Universals and Professor Whitehead's Theory of Objects." *Proceedings of the Aristotelian Society* 25 (1924): 305-330. Stengers, Isabelle. *Penser avec Whitehead, une libre et sauvage création de concepts*. Le Seuil, 2002.
115. Stoljar, Daniel, and Nagasawa, Yujin. "Introduction." In P. Ludlow et al. (Eds.), *There's Something about Mary: Essays on Phenomenal Consciousness and Frank Jackson's Knowledge Argument*, 1-17. MIT Press, 2004.
116. Stoljar, Daniel. "Physicalism and phenomenal concepts." *Mind and Language* 20, no. 2 (2005): 296-302.
117. Stoljar, Daniel. "The conceivability argument and two conceptions of the physical." *Philosophical Perspectives* 15 (2001): 393-413.
118. Strawson, Peter Frederick. *Individuals: An Essay in Descriptive Metaphysics*. Methuen, 1959.

119. Strawson, Peter Frederick. *Skepticism and Naturalism: Some Varieties*. Columbia University Press, 1994.
120. Stengers, Isabelle. *Thinking with Whitehead: A Free and Wild Creation of Concepts*. Cambridge, MA: Harvard University Press, 2002.
121. Tononi, Giulio. "Integrated information theory of consciousness: An updated account." *Archives Italiennes De Biologie* 150, no. 2-3 (2012): 56-90. <https://doi.org/10.4449/aib.v149i5.1388>.
122. Turing, Alan M. "Computing machinery and intelligence." *Mind* 59 (1950): 433-460.
123. Weber, Michel. "A Systemic Reading of Whitehead's Organic Philosophy." *Process Studies* 49, no. 1 (2020): 115-142.
124. Weber, Michel. "Whitehead's onto-epistemology of perception and its significance for consciousness studies." *New Ideas in Psychology* 24, no. 2 (2006): 117-132. <https://doi.org/10.1016/j.newideapsych.2006.06.006>.
125. Weekes, Andrew. "The Mind-Body Problem and Whitehead's Nonreductive Monism." *Journal of Consciousness Studies* 19 (9-10, 2012): 40-66.