PERSISTING HUMANS:
A STUDY ON VAGUE COMPOSITION
IN
FOUR-DIMENSIONAL SPACE-TIME

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

ARGUN ABREK CANBOLAT

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
IN
THE DEPARTMENT OF PHILOSOPHY

SEPTEMBER 2015

Approval of the Graduate School of Social Sciences

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ABSTRACT

PERSISTING HUMANS:
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September 2015, 156 pages

The main theme of this work is the persistence of human persons. Within a redescriptive physicalist framework, and favouring four-dimensionalism and perdurantism, a criterion based on functioning can be the best way to analyse both synchronic and diachronic composition. To be more specific, this work principally holds that the synchronic composition of humans can be analysed given a criterion which suggests that things that function to sustain or constitute the particular life of a given human being are parts of that human being. And since there seems to be vagueness in human composition we can talk of parts in degrees. For diachronic existence, on the other hand, given a four-dimensionalist framework and perdurantism one can analyse the existence of the temporal parts of a single human through functioning parts, referring to a single functioning part's four-dimensional history.

Keywords: Persistence, person, composition, parthood, perdurantism.

ÖZ

İNSAN SÜRERLİĞİ: DÖRT BOYUTLU UZAY-ZAMANDA MUĞLAK KOMPOZİSYON ÜZERİNE BİR ÇALIŞMA

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Eylül 2015, 156 sayfa

Bu çalışmanın genel konusu insanların zaman içindeki sürerliğidir. Yeniden tanımlayıcı bir fizikalist çerçevede, dört boyutluluğu ve perdurantizmi öne çıkararak, fonksiyona bağlı bir kriter koymak hem senkronik hem de diakronik kompozisyonun analizindeki en iyi yöntem gibi görünüyor. Daha fazla ayrıntı vermek gerekirse, bu çalışmada genel olarak söylenen insanın senkronik kompozisyonun şu şekilde analiz edilebileceğidir: Bir insanın parçaları, o insanın yaşamını oluşturan ve onu devam ettirmesini sağlayan fonksiyonları olan şeylerdir. Dahası, insan kompozisyonunda muğlaklık söz konusu olduğundan parçaların derecelerinden de bahsedilebilir. Diğer taraftan dört boyutlu uzay ve perdurantizm çerçevesinde bakıldığında diakronik süregelim açısından insanın zamansal parçalarının tek tek senkronik parçaların fonksiyonlarını yerine getirip getirmeme durumlarına göre analiz edilebileceğini söylemek mümkündür.

Anahtar Kelimeler: Sürerlik, insan, kompozisyon, parçalılık, perdurantizm.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor, Dr. Erdinç Sayan, for his guidance. I also wish to thank the examining committee for their helpful comments.

In addition I would like to thank Dr. Barış Parkan for her guidance and support, both for the thesis and in life itself. I owe a lot to Özkan Sever who has shared my pain at the very deepest level, and Ünsal Giriş who has stood by me since high school.

I would like to thank all the members of the Department of Philosophy at METU.

I extend my thanks to Aysun Aydın, who has always supported me.

I am in debt to my colleague, Selma Aydın Bayram, who has never hesitated to help me.

My deepest gratitude to the academics who guided me through this thesis: Dr. Philip Goff and Dr. Howard Robinson for their influential Philosophy of Mind class; and Dr. George Darby for his guidance in metaphysics.

Special thanks to the Caledoniacs, namely Yasemin Yıldırım and Esra Uysal.

Finally, many thanks to my family, without whom almost nothing could be possible.

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CHAPTER 1

INTRODUCTION

I have always had problems with time since childhood. At one point, it became apparent to me that I had never been able to live without remembering past time. Thus, I imagined I was never living in the present but always in the past, and the future I was about to experience would never come, since what I experienced seemed always to be of the past. At first, these thoughts led me to investigate the nature of time. Being a highly complicated issue, the analysis of time had to wait until some future time, leaving in its place the problem of the persistence of objects. Focusing on human persons as central, as I have always implicitly done, I decided to investigate the current issue: the persistence of human beings in time.

In Chapter 2, I discuss physicalism, and defend a redescriptive conception of it. Physicalism may appear unattractive to some readers at first glance, since most people have a reductive form of physicalism in mind when they think of it. However, redescriptive physicalism —although sometimes considered close to supervenience physicalism— is non-reductive in character. In Section 2.1, I summarize some general facets of physicalism that come to terms with the most general definition: "Everything is physical." In Section 2.2, I talk about different kinds of physicalisms, such as supervenience physicalism, token physicalism, type physicalism, reductive physicalism, non-reductive physicalism, a priori physicalism, a posteriori physicalism, etc. In Section 2.3, I move to redescriptive physicalism, which, in general terms, states that there are some non-physical entities, or facts, which can be redescribed in relation to certain holistic facts, and logic and semantics. Such redescriptions involve facts that are logico-conceptually entailed by physical facts, which in turn flow from some complete physics (l-c entailment thesis). In Section 2.4, I review the 'That's all' assertion, which eliminates dualistic worldviews from the picture. Section 2.5 outlines the originality of the l-c entailment thesis, namely its difference from a priori entailment, metaphysical necessity, and conceivability.

Section 2.6 deals with two famous anti-physicalist arguments: namely, the knowledge argument and the zombie argument. It is argued that redescriptive physicalism can function as a response to both of these arguments. In Section 2.7, the reason for raising the issue of physicalism and the need for redescriptive physicalism is discussed briefly.

Chapter 3 deals principally with the historical debate surrounding four-dimensionalism, and its plausibility according to some current physics. The main thesis of the chapter is that, given special relativity theory, four-dimensionalism is inevitable. In Section 3.1, I provide a historical background for both the discussions between three-dimensionalism and four-dimensionalism, and between presentism and eternalism. In that context, I review the influential article by McTaggart, "The Unreality of Time." As the title suggests, McTaggart defends the claim that time is unreal. In Section 3.2, I discuss the debate between the A-theory and the B-theory: the former principally asserting that time is composed of tensed facts, and that presentism and three-dimensionalism are plausible views; the latter principally asserting that time is composed of tenseless facts, and that eternalism and four-dimensionalism are plausible views. In the later sub-sections of Section 3.2, I go on to review a debate between three-dimensionalism and four-dimensionalism, given the special theory of relativity. I propose that four-dimensionalism is the view that should be defended, if one is to take into account at least some scientific perspectives. Hence, I favour Minkowski space-time over Lorentzian space-time.

Chapter 4 begins with a discussion of synchronic composition. In Section 4.1 and its sub-sections, the necessary and sufficient conditions for parthood and composition are discussed. In Section 4.2, Van Inwagen's answer to the special composition question is discussed. After a quick note on "criss-crossing," in Section 4.4, a modification to Van Inwagen's interpretation based on "functioning" is presented. It is mainly said that the things that constitute or sustain the life of a specific human being can be considered parts of her. In Section 4.5, various ideas about vagueness are discussed, and it is asserted that human existence is a vague one. In the sub-

sections, it is made clear that not every functioning thing is a part, but some proximate causes as functions can be considered as criterion for being a part. However, since vagueness is involved, there needs to be an analysis of this. Such an analysis, it is proposed, can be made through ordinal degreeing, since wherever there is vagueness, there will most naturally be degrees. The proximate causation criterion can be loosened or redefined when cognitive parts are in question, since there can be some relatively distant objects which may count as parts of a human's cognitive system. These issues are extensively discussed in the sub-sections of Section 4.5. In Section 4.6, the similarities between time and space are discussed, and it is asserted that there are enough crucial similarities to suppose that time is like space. The importance of such an assertion is the fact that it opens the way to four-dimensionalism. In Section 4.7, we move to a discussion of diachronic composition and mainly discuss three relevant ideas, before continuing with the original analysis. Perdurantism accepts a four-dimensional framework in which one has temporal parts respectively. Exdurantism suggests a counter-part relation among instantaneous stages, which are all objects and sustain persistence by constructing certain relationships that fulfil corresponding sortal predicates. Endurantism claims that there is a three-dimensionalist existence, and that objects are wholly present at all times. What we are dealing with in Section 4.7 is perdurantism. It is proposed that a temporal part analysis is the best thing we can do. When we are dealing with change, we need to ask, "Change in what respect?" Thus, changes within functioning parts of human body are the key to analysing temporal parts. There are numerous temporal parts of human persons, and each are constructed as four-dimensional space-time worms. So, considering one change at a time, one can talk about multiple real frameworks in which temporal division occurs. One point to make here is that these frameworks must be physical or redescriptively physical, and that they should be interesting in the sense of being both intuitive and scientifically acceptable. In the final sub-sections of the concluding section, possible objections are considered and responded to.

CHAPTER 2

PHYSICALISM OR NOT?

2.1. Physicalism

I think that, before going into the discussion of personal persistence, there are some points that need to be cleared up, one of which is physicalism. In this chapter, I will —sort of— defend a particular physicalist position: 'redescriptive physicalism.' I have always been critical of the views that reduce metaphysics to language, and remain so; however, it is apparent that some interpretive accounts of language should be included in any metaphysical theory. While redescriptive physicalism might seem in part to be a language-based theory, its metaphysical basis should not be overlooked.

Physicalism, as a notion, is difficult to define, yet we are in a position to cope with such a problem, if not to resolve it completely.[1] Physicalism, in its broadest sense, "is the thesis ... that whatever exists or occurs is ultimately constituted out of physical entities."[2] This traditional definition seems to suggest a picture of physicalism, but we will see that this picture contains problems.

Let us begin with some historical facts about physicalim, and its comrade, materialism. The origin of the term 'physicalism' dates back to the 1930s, when it was first coined by Otto Neurath and Rudolf Carnap. According to them, physicalism is something that is related to language, being a thesis that states that every particular statement can be defined in terms of a physical language, namely, that "physicalism … is the linguistic thesis that every statement is synonymous with … some physical

[1] The method Daniel Stoljar uses in his book *Physicalism*, (UK: Routledge, 2010), when dealing with the issue of physicalism is an influential one, and it would be beneficial to refer to Stoljar for a historical and definitional basis of physicalism.

[2] Audi, R. (ed.), *The Cambridge Dictionary of Philosophy* (New York: Cambridge University Press, 1995), 617.

statement."[3] On the other hand, they claim that materialism refers to a metaphysical conception, that is to say, the way things exist, although this is not the only way to differentiate between physicalism and materialism. Physicalism, nowadays, is taken as a metaphysical thesis, and what distinguishes it from materialism is the presence of some non-material properties or conceptions that are regarded as physical, such as those in the physical sciences.[4] In this regard, if physicalism is (even to only a limited extent) regarded as related to physics, then it is more or less possible to say that physics talks about some non-material properties or entities, such as energy, magnetic fields, geodesics, momentum, spin, etc.

2.2. The Many Physicalisms

At this point it would be useful to take a quick look at the various types of physicalism, although pinning down the meaning of the term 'physical' still raises some problems. For instance, as a general approach, supervenience physicalism suggests that every single fact supervenes on physical facts. That is to say, if M (mental) supervenes on P (physical), then M does not exist in the absence of P. For example, saying that the mental supervenes on the physical means that no mental entity or property exists without there being a physical entity or property to ensure its existence. A deeper issue may arise here in terms of objects and properties that is examined by Stoljar within supervenience physicalism, and this may be helpful for our purposes. He says that the basic assertion that "Physicalism is true if[f] … absolutely everything … is physical"[5] is flawed, since there may be some entities that are not physical in the sense of being material, such as the number "7," the "US Supreme Court"[6] or, as we said, energy, momentum, etc. He suggests narrowing down the above proposition, as "Physicalism is true if[f] … every concrete particular

[3] Stoljar, op.cit., 10.

[4] Ibid.

[5] Ibid., 29.

[6] Ibid., 30.

is physical."[7] However, this proposition leaves open the door to dualist pictures that assert that some concrete particulars are not physical, such as the soul. Moreover, it is compatible with property dualism. A further modification yields the following proposition, turning away from concrete particulars to properties, "Physicalism is true if[f] … every property is physical."[8] However, this runs us into the problem of "uninstantiated properties." An uninstantiated property is a property of which we cannot find any referent. For instance, being the Turkish director of an Oscar-winning movie in 2014 is an uninstantiated property; it would have been instantiated if "Once upon a time in Anatolia" by Nuri Bilge Ceylan had won the Oscar, but it did not. The issue of whether such properties are real is a matter of dispute, but it would seem to be a counter-example to the above proposition which makes physicalism's truth depend upon properties.[9] If this is the case, one can offer the following: "Physicalism is true if[f] … every instantiated property is physical." The US Supreme Court is not physical — supposedly — just as some of its functions, which can be regarded as its properties, are not physical either. However, if the above consideration is kept in mind, then such properties should also be physical (like "prescribe[ing] rules … [to] lower courts"), which is a problem.[10] What should we do then? The following formulation can account for some fundamental properties, saying that "[p]hysicalism is true if[f] … every instantiated fundamental property is physical."[11] But this Lewisean approach comes with its own problems, in that it can be opposed by stating that, taking Lewis' physicalism-related approach into account, physics may not tell us about the fundamentalities at all. Following Lewis, one might speculate that every single "contingent" truth is necessitated to be true by "the

[7] Ibid., 31.

[8] Ibid., 32.

[9] Ibid., 33.

[10] Ibid., 33, 34.

[11] Ibid., 35.

pattern of coinstantiation of fundamental properties and relations,"[12] although the speculative character of this statement is not open to question at all, being rather obvious. Stoljar raises the question by asking "why should I believe in such fundamental properties?"[13] while the Lewisean approach may be summarized by the proposition, "Physicalism is true if[f] every instantiated property is either physical or else is necessitated by some instantiated physical property." [14] Although this definition seems feasible, it still does not assert just what kind of a position physicalism is or to what the term 'physical' refers. The dispute over the definitions goes on and on. What I take to be the best form of physicalism is 'redescriptive physicalism' (which can be regarded as *a kind of* supervenience thesis), which I will discuss in detail after making brief mention some alternatives to physicalism.

What is referred to as "token physicalism" is widely defined in the following form: "For every actual particular *x* ..., there is some physical particular *y* such that *x=y*."[15] Token physicalism seems to lack any relation to supervenience physicalism (which may be thought of as a "minimal thesis"), but still it is successful in accounting for "upper level scientific claims ... [that] require ... physical mechanisms." That said, this thesis is not very easy to defend, in that it refers to each individual case differently. 'Type physicalism,' on the other hand, can be summarized as follows: "For every actually instantiated mental property *F*, there is some physical property *G* such that *F=G*."[16] But a weakness becomes apparent when one considers some mental properties that are actually instantiated as given in the definition.[17] Or does this definition include the answer of the following: If such and such physical events

[12] Ibid.

[13] Ibid., 36.

[14] Ibid., 37.

[15] Stoljar, Daniel, "Physicalism", *The Stanford Encyclopedia of Philosophy* (Spring 2015 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2015/entries/physicalism/>

[16] Ibid.

[17] Ibid.

occur in the brain, like c-fibres firing, can we call it pain? It would seem that, according to type physicalism, when we detect the mental instantiation, we refer to the physical, not the other way around, and this does seem to be a problem.

Some other types of physicalism worth mentioning include reductive and non-reductive physicalism. As the names imply, reductive physicalist accounts assert some level of reductionism concerning the mental phenomena, suggesting that mental phenomena are actually reducible to physical ones. Non-reductive physicalisms, on the other hand, avoid reduction, seeing it as problematic. Such physicalisms may take different forms, and redescriptive physicalism may sometimes be reductive in some sense. What concerns us within the framework of this work is the reductivism of redescriptive physicalism, and so, for now, these general definitions of 'reductive' and 'non-reductive' will suffice.

At this point, it would seem appropriate to conclude our brief exposition of the types of physicalism with a priori and a posteriori physicalism, and then move on to redescriptive physicalism. A priori physicalism defends the view that "the ... physical nature of the world ... entails ... the entire nature of the world" and this statement is necessarily true and therefore a priori. A posteriori physicalism, on the other hand, referring to the Kripkean idea of a posteriori necessity, says that this statement is necessary but a posteriori.[18] A priori physicalism would appear to resemble a traditional view, whereas a posteriori physicalism avoids the non-experiential truth of a priori physicalism, and as such allows experiential knowledge.

2.3. Redescriptive Physicalism

Robert Kirk, in his book *The Conceptual Link from Physical to Mental*, describes a kind of physicalism that can be named as "redescriptive physicalism." He suggests that his redescriptive physicalism is at least tenable for the following reasons:

[18] Ibid.

> It offers a reasonably clear account of the necessary connection from the physical to the mental. It is not committed to a priori physicalism. … Nor is it committed to the usual kind of 'a posteriori physicalism' inspired by Kripke. ... It avoids commitment to psycho-physical identities. It is 'non-reductive' in ways that allow it to deal effectively with worries about mental causation.[19]

But how does Kirk evaluate his redescriptive physicalism, and does it succeed in doing what it promises above? It must be noted that Kirk uses an *imaginary physics* that is complete, and it may seem very odd to do so at the very beginning, but we will see that, at the conceptual level, it works well without possible tautologies. I need to say that I am, as many others would be, disturbed by the idea of complete physics. However, the reader will see that I *do not* assume one, yet, adopting Kirk's general strategy, I will be saying that we hope to achieve complete physics when we do physics, but that we need to be content with what is in our hands, also when thinking of a further physics, what we have in mind is not a make-believe sort of physics, but a modification of the current physics.

To return to Kirk, suppose the following statement is a narrowly physical description, in which 'narrowly physical' means in "the vocabulary … of physics,"[20] where 'physics' in general means the complete and "true imagined physics"[21]: (1) "There are black pixels at: (123, 456), (124, 456), … ," where 'black pixels' refer to the pixels produced by a camera, and number pairs like (123, 456) refer to the location of a certain pixel in the form of (x, y), and (1) can also be referred to as a "base description." Considering the redescriptions of such a base description, one can state: (i) "The pixels form the image of a reclining cat" or (ii) "The pixels form the image of our cat Zoé." Kirk says that (i) is a "pure redescription" and (ii) is not pure (but can still be true based on other factors than what the base description supplies).[22]

[19] Robert Kirk, *The Conceptual Link from Physical to Mental*, (UK: Oxford University Press, 2013), 4.

[20] Ibid., 6.

[21] Ibid.

[22] Ibid., 10.

It can easily be seen that the truth of (i) does not analytically follow from (1); but Kirk says that (i) follows from (1) through a "non-nomological" necessity.[23] This happens by way of a so-called "logico-conceptual link," which can be understood from the following: There are two directions when language is considered, the "world to words" direction and the "words to world" direction. In the above example we can see that the direction is from words to world. Since (i) says nothing except what (1) provides, it is impossible for (1) to be true and (i) to be false. In saying that this brand of necessity is non-nomological, Kirk is suggesting that the logico-conceptual link does not necessarily include nomological necessity and analyticity.[24] What Kirk has in mind is the following: To say that "A logico-conceptually entails B" is to say that "'A and not-B' involves a contradiction for broadly logical or conceptual reasons."[25] So, in our case (1) logico-conceptually entails (i). The first question that may come to mind is whether somebody who is unfamiliar with cats can see the point in such entailments. Kirk replies that the fact that he cannot make the entailment is a problem of application rather than a problem of language-based semantics. (1) still entails (i), and thus (i) is still a pure redescription.[26] But what about the cases like duck/rabbit? The duck/rabbit case is a case in which you can see and designate a single picture as if it resembles two different things. In the classical example, you cannot be sure whether you see a rabbit or a duck in a single representation, and in such a case I believe there can be two different pure redescriptions of a pure redescription. The easy way to solve such a problem is to say that such a base description would logico-conceptually entail a disjunction: either a duck representation or a rabbit re-presentation.

[23] Ibid., 11.

[24] Ibid., 12, 13.

[25] Ibid., 14.

[26] Ibid., 13.

It must be stated here that logico-conceptual entailment and pure redescription are different notions. You may think of a mathematical system in which some axioms l-c entail some conclusions, but the conclusions are not redescriptions of the axioms.[27] As mentioned above, l-c entailment is not necessarily analytic; but how can one account for such an entailment without analytical links? I believe that this is one of the essential points about l-c entailment thesis. There may be gaps between base description and pure redescription, such as in the example of pixels-and-cat-image, but such gaps can be bridged by "logical and conceptual links." There is a "holistic logical and conceptual connection" from the base description to the pure redescription. Consider another base description that says "[t]here are black pixels at: (345,567), (346,568),...," these black pixels can be said to be seen as a curved line together and from a certain angle. If such redescriptions can be numerous, and the ones like this can easily be considered as pure redescriptions, then why not the cat image? There is no reason why not, since the connection cannot be said to be analytic; it is logico-conceptual. "Words-to-world semantic rules plus logic" makes possible the given pixel arrangement and "world-to-words semantic rules and logic" ensures the pixels can be redescribed as a cat-image.[28] Kirk describes the gap between base description and pure redescription as "huge," but as we said earlier, this gap is bridged by holistic bricks.[29] He further says:

> [I]n place of an analytic verbal bridge, what we can call a notional and non-verbal bridge is provided by the possible world, state of affairs, or other portion of reality which the base description purports to specify (in the cat-image case, this is the distribution of black pixels). Because the base description specifies this intermediate item, which by itself qualifies for the redescription, there is no need for what are still conceptual connections to be encapsulated in analytic sentences. These conceptual —and l-c necessary—

[27] Ibid., 15.

[28] Ibid., 17

[29] Ibid., 17, 18.

> connections consist simply of the two sets of links: from the base to this intermediate item, and from it to redescription.[30]

He clarifies this with an analogy. Consider a statue representing Socrates' head. It has been structured using tools, but there is no indication of the tools that were used in the sculpting. There is no use to know *how* it is produced and with what tools to describe it. You can say "It's the head of a man with beard." The "sculptor's use of tools" is analogous with "the use of descriptions in the base description, and descriptions of the finished sculpture" is analogous with "pure redescriptions."[31] One can infer that the concepts within the base description lack the analytic power to imply pure redescription, just as the sculptor's tools or activities' have no detectable effect on the product. However, the sculpture "itself forms a link between the sculptor's activities and our descriptions," and analogously "the item specified by a base description forms a logico-conceptual connection ... to its pure redescriptions."[32]

One of the key remarks made by Kirk relates to the nature of l-c entailments. He states that the necessity of such entailments comes from "logical and conceptual relations," although neither these relations nor any other semantic rules determine l-c entailments. Then what determines them? Kirk says "nothing,"[33] yet, the most natural approach to be taken is to say that "reference to the semantic rules" is the best way towards justification of l-c entailment's necessity.[34]

As a summary of the above introduction to the ideas of Kirk, it can be said that physicalism leads to the l-c entailment thesis that states "P ... (the totality of ordinary truths about our world in the narrow vocabulary of physics) ... logico-conceptually

[30] Ibid., 18.

[31] Ibid.

[32] Ibid.

[33] Ibid., 19.

[34] Ibid.

entails Q [(physical or non-physical truths)]"[35] for the following reasons: Firstly, the semantic rules that are said to be governing P correspond to the world in case the world has a related characteristic. Secondly, the semantic rules that are outside of P's vocabulary, namely those that manage so-called "other truths" must comply with redescriptions flowing from P. Thirdly, these two vocabularies interact, so that "for logical and conceptual reasons" there will be no case in which P is true and the "other" descriptions are false. Finally, due to the relationship between these two vocabularies it should be impossible to confirm P and defer from the pure redescription.[36]

2.4. The That's All Assertion

Till now, we have not yet seen any suggestive argument for mental states and their position in redescriptive physicalism. From now on, some assertions and suggestions will be presented on this matter. Kirk defends the thesis that if the redescription strategy holds then there are no such two distinct entities as mental and physical, but there is just one, describable in different ways. So, physicalism, as it is, will not need any "glue" for sticking the mental to the physical. But, the l-c entailment thesis hasn't yet told us that all mental phenomena are somehow physical.[37] We will focus on it through this and the following sections. But what about the modality concerning the l-c entailment thesis? What is l-c possible and what is l-c necessary? The straightforward definition is this: "one lot of facts *logico-conceptually necessitates* another just in case statements of the first lot l-c entail statements of the second." And "[a] world or [an] item [is] *l-c possible* if and only if their descriptions are l-c possible."[38] As an example of l-c necessity, it can be said that the fact that the eyes of

[35] Ibid., 21, 22.

[36] Ibid., 22, 23.

[37] Ibid., 25.

[38] Ibid., 26.

my beloved one are brown l-c necessiates the fact that her eyes are colored, but does not necessitate the fact that, let us say, they occupy space.[39]

Talking of possibilities and necessities, Kirk attempts to assert a "That's all" criterion based on the assumption that a priori physicalism is sometimes too weak to rely on although there is a posteriori evidence that the world is physical; and so, there is a *possibility* of there being a non-physical, even supernatural phenomenon.[40]

Some things need to be clarified at this point to avoid any misunderstanding: "[R]edescriptive physicalism [is] contingent. Yet the l-c entailment thesis itself (if true at all) is true by l-c necessity."[41] According to Kirk, the part "if true at all" will provide some of the answer. Remember that "truths in Q" are pure redescriptions of P. That said, it is evident that physicalism itself is contingent. So, it might not be sufficient to explain some phenomena and *causally closed*. If physicalism is not causally closed, then some cartesian events might intervene.[42] In its current form, l-c entailment thesis does not entail physicalism. We need something more, which is:

That's All: Nothing exists but what P logico-conceptually entails.[43]

This might be thought of as too extensive for mental phenomena and also some might argue that this might make l-c entailment thesis unnecessary. This kind of a counter-argument suggests that in such a case P and not-Q will conjunct. However, Kirk *does not* support an eliminativism about consciousness, thoughts and emotions, so that will not constitute a problem for him. Therefore, it can be said that "if physicalism is true, then the l-c entailment thesis itself is not contingent but

[39] Ibid., 25.

[40] Ibid., 29.

[41] Ibid.

[42] Ibid.

[43] Ibid., 30.

necessary: true in every l-c possible world."[44] L-c possible worlds are the worlds where P is true, so in that case, a completely non-physical world is l-c possible, since l-c entailment suggests that P l-c entails Q, and where there is no P, l-c entailment still seems to hold. But a (Cartesian) dualistic world is not l-c possible since where there is P, Q is entailed by P.[45]

Take the following example: "Napoleon has a headache on the 1st of April 1800." Consider it as Q. So, can there be a P from which Q is l-c derivable. Some may say that this is possible, yet this possibility is not an analytical possibility. There could be a P from which Q follows as a pure redescription, with P thus l-c entailing Q. But there can be no purely analytical connection from P to Q, since P includes no mental assertions.[46]

2.5. The Originality of the L-C Entailment Thesis

The logico-conceptual (l-c) entailment thesis can be easily confused with several others. In this section, we will review various approaches that are close to the l-c entailment thesis but not quite the same.

Firstly, l-c entailment is not *a priori entailment*. To refer to Kripke, "'[a]n a priori entailment is just an a priori material conditional,' a conditional which holds 'when it is possible to know that P entails Q with justification independent of experience.'"[47] Some may say that there are similarities between l-c entailment and a priori entailment.[48] Indeed, there are similarities, but to focus on what differentiates them would be wiser in the present context. There seems to be a clear distinction between the two: l-c entailment, regardless of the type of redescription (whether it is

[44] Ibid., 31.

[45] Ibid.

[46] Ibid., 33, 34.

[47] Ibid., 35.

[48] For instance Chalmers and Jackson.

analytical or pure, as in the example of the pixels and cat image), is solely based upon the contradiction obtained when we negate the implication. There seems to be no link to any epistemic facts. In contrast, a priori entailment is built upon both epistemic facts (within a specific implication) and logico-conceptual ones. So, it seems that a priori entailment only sometimes includes logico-conceptual facts. [49]

One facet of the above distinction is that you sometimes need more than a priori reasoning for l-c entailment. You may need to have certain experiential phenomena in order to regard something as l-c entailing something else. In this sense, where some phenomenal facts are concerned (like qualia or certain intentional states), a priori entailment does not work, since there is a gap between P and Q. However, this gap can be closed by referring to some aspect of the semantic context of the experience that cannot be present in a priori reasoning. Thus, there are cases where l-c entailment holds but a priori entailment does not.[50]

Secondly, l-c entailment is not *metaphysical necessity*. Bearing in mind the a posteriori necessity that is invoked by Kripke's famous example of H_2O, many physicalists hold that mental states supervene upon physical ones. Some go further to state that the mental and the physical are identical by metaphysical necessity, since there is no possible world in which there is mental but not corresponding physical. For those, no *zombies* are possible.[51] Kirk says that those physicalists, who accept the metaphysical supervenience of the mental upon the physical, seem also sometimes to accept mental-physical identity. Considered in l-c entailment framework, this is unnecessary, since there cannot be one-to-one identity between such terms; there will always be a holistically closed metaphysical and semantic gap. In that sense, l-c entailment is different from metaphysical necessity. Furthermore, the "conceptions of

[49] Ibid., 36.

[50] Ibid., 36, 37.

[51] Ibid., 36, 37.

metaphysical necessity on which it glues propositional items together are surplus to the requirements of redescriptive physicalism."[52]

Thirdly and finally, l-c entailment is unlike conceivability. The famous conceivability thesis against physicalism can be summarized as follows:

(1) If physicalism is true, transposed and absent qualia are impossible.

(2) Transposed and absent qualia are possible.

(3) Therefore physicalism is false.[53]

The relation between conceivability and l-c entailment hinges on the fact that an implicit premise of the above argument could be "whatever conceivable is possible." If one is to believe a conceptual possibility (like Carruthers does[54]) then by taking conceptual possibility into account, l-c entailment may make, let us say, zombies possible, and refute a priori physicalism since a priori physicalism is necessary, i.e. true in all possible worlds. However, l-c possibility is not mere conceivability. Conceivability would seem to reduce physicalism to the a priori entailment thesis, relating to a priori conceivability; as described above, a priori entailment is different from l-c entailment, and therefore l-c entailment is unlike conceivability.[55] There are approaches that can try to bring l-c entailment closer to one view or the other; however, it seems that the main quality that makes l-c entailment thesis different is its allowance for the gap between base description and pure redescriptions that are not analytic in character. In this sense, it is different, although some approaches may seem similar to it in one way or another.

[52] Ibid., 38.

[53] Ibid.

[54] Ibid., 38. Also see Peter Carruthers, *Consciousness: Essays from a Higher-Order Perspective*, (Oxford: Clarendon Press, 2005).

[55] Ibid., 39, 40.

2.6. Two Anti-Physicalist Arguments

In this section I will briefly present two famous anti-physicalist arguments and possible redescriptive replies to these arguments.[56]

A famous and widely discussed argument against physicalism is Frank Jackson's knowledge argument. It can be summarized as follows: Mary is a colour scientist and she "knows *everything there is to know* about colour vision." She has the complete physical information about colours. However, she is in an unfortunate situation, because she is confined to a place where everything has the shades of only black and white. One day, the front door opens and she is able to go outside. She looks at the sky and exclaims, "So that's how blue looks like!" It seems that she has learnt something new, something in extra to the physical information she had. The qualitative character of her colour experience can be referred to by using the general term 'quale,' or its plural, 'qualia.' How is it, then, that physicalism can be true, given that Mary has learnt something new? Jackson, among others, concludes that it cannot.[57] The argument, more specifically, is as follows:

> (1) Mary has all the physical information concerning human color vision before her release,
>
> (2) But there is some information about human color vision that she does not have before her release,
>
> Therefore,
>
> (3) Not all information is physical information.[58]

[56] Kirk presents the replies in rather a complicated way; I will try to re-interpret his replies in this section.

[57] Frank Jackson, 'Epiphenomenal Qualia', *Philosophical Quarterly,* 32 (1982): 127–136.

[58] Nida-Rümelin, Martine, "Qualia: The Knowledge Argument", The Stanford Encyclopedia of Philosophy (Summer 2015 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/sum2015/entries/qualia-knowledge/>.

Hence, this explanatory gap, namely the failure of physicalism's explanatory resources to explain such phenomena, suggests that physicalism is wrong. There is a huge literature on this argument, but what we are going to focus on is how redescriptive physicalism approaches the argument.

The approach of redescriptive physicalism, I believe, is more than apparent. Although Kirk draws the picture in a manner that is a little bit more finely-tuned and well-shaped, the general idea behind redescriptive physicalism can be explained in the following terms:[59] (i) it should be kept in mind that redescription is not a reduction in this case; (ii) the physical information Mary possesses can be taken as a base description; and (iii) the phenomenal knowledge, if there is any, can be taken as a pure redescription that is obviously not analytic. So the physical knowledge that Mary has l-c entails her phenomenal knowledge. However, some may oppose the idea by saying that this does not mean l-c entailment holds, since there are no metaphysical facets of the derivation. Even though such counter-arguments are flawed when we consider l-c entailment; let us take a look at the metaphysical side too. One version of the knowledge argument could be given as follows:

> (1) Mary knows all the *physical facts* concerning human color vision before her release
>
> (2) But there are *some facts* about human color vision that Mary does not know before her release
>
> Therefore,
>
> (3) There are *non-physical facts* concerning human color vision.[60]

This argumentation represents the metaphysical side of the knowledge argument. In this case, following redescription, it can be said that 'non-physical facts' can be redescribed in terms of 'physical facts.' Regardless of speculations about their

[59] The reader should keep in mind that there might be certain negligible gaps in the argumentation, which can be filled using Robert Kirk's original argument; yet the general idea is preserved in this account.

[60] Ibid.

distinct metaphysical existence, 'physical facts' l-c entail 'non-physical facts.' However, non-physical facts are not necessarily reduced to physical facts. If such a reduction is attempted to be made, one should keep in mind the gap that is holistically and semantically to be filled between the base description and the non-analytic pure redescription. In all likelihood, this gap prevents any easy reductions.

Another famous argument is the zombie argument. Before exposing the argument, it would be worthwhile to introduce the concept of philosophical zombies. Your zombie twin would be an exact twin of you, except lacking phenomenal states and consciousness; it is only physically identical to you. If Doctor G were to cut into it, she would see that you and your zombie twin were qualitatively identical. In addition, one can say that the zombie world is a physical duplicate of our world, but without containing any consciousness and phenomenal states. One can further speculate that all human beings except you are zombies. The fact that they behave like — and are physically indistinguishable from — conscious beings does not necessitate that they are conscious. A physicalist would not agree with this assertion because it has some important consequences, like the fact that the mental could not then supervene upon the physical, nor be identical with it. The possibility of zombies is therefore a threat to physicalism.[61] This is mainly argued through the concept of conceivability:

(1) Zombies are conceivable

(2) Whatever is conceivable is possible

(3) Therefore zombies are possible[62]

[61] For a very neat discussion of zombies, see Philip Goff, 'The Zombie Threat to a Science of Mind,' *Philosophy Now*, (2013: 96).

[62] Robert Kirk, "Zombies", The Stanford Encyclopedia of Philosophy (Summer 2015 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/sum2015/entries/zombies/>. See David Chalmers, 'Does Conceivability Entail Possibility?' in T. S. Gendler and J. Hawthorne (eds.), *Conceivability and Possibility*, (Oxford: Clarendon Press, 2002).

This argument has been widely discussed across the literature.[63] While there are many counter-arguments to this, what we are interested in is a redescription-related analysis. The claim that there is at least one possible world containing zombies threatens the idea that the popular version of physicalism, a priori physicalism, is a necessary thesis, thereby suggesting that it is false. Yet through redescription, one can say that this conceivability and possibility flows from the fact that redescription is mainly ignored (not to defend a priori physicalism but for the sake of giving a reply to an anti-physicalist thesis). Conscious or phenomenal states, although treated differently, can be redescriptions of physical states. Thus physical states can l-c entail conscious states.

The place of consciousness and phenomenal states within the framework of physicalism is a very problematic issue. Although redescriptive physicalism and the l-c entailment thesis tries to capture these notions by way of redescription, it may not mean that the problem is resolved, since there are more aspects to this problem than those represented here. The l-c entailment thesis and redescription can only be thought of as attempts to capture mental and hard-to-define physical states, concepts, etc. In the following sub-section, I will state why this thesis is essential in terms of the current work.

2.7. Why Do We Need Redescriptive Physicalism?

The main idea behind setting aside a chapter for physicalism was to build a general framework for further discussion. The choice of redescriptive physicalism as a way to approach physicalism was based on the fact that it is not eliminative in the broadest sense, and also that it somehow allows us to maintain existence of mental phenomena, despite asserting that they are redescriptively physical. Although I do not attempt to give an account of the mind-body problem or try to solve it here, the assumption of a redescriptive thesis makes it easier to discuss the issues of our interest. We will be talking about composition and parthood. I choose not to talk

[63] The most discussed premise is premise 2.

about any problematic issues such as qualia and intentionality, but if I were to do so, I would say that they are redescriptively physical but cannot be reduced to the physical. So, given a complete physics framework, we can talk about qualia as redescriptively physical (although there can still be problems there). If one were to ask about our "mental parts," I would call them redescriptively physical (as I do when talking about the extended mind as merely extended cognition). At the same time, if one were to ask about mental frameworks when dividing human temporal parts, I would propose redescriptively physical frameworks.

Although certain mysteries remain concerning both redescriptive physicalism and mental entities, it would seem to me that redescriptive physicalism offers the best intuitive basis available for a physical outlook. Therefore, I will assume that such a physicalism is suitable for my purposes in this work.[64]

[64] I am aware that there is a huge literature on physicalism and its rivals, but this chapter was intended to give an idea of how certain problems can be solved using redescription; therefore, to dwell on discussions of qualia, intentionality and consciousness would seems further related for my purposes.

CHAPTER 3

TIME AND B-THEORY

It seems crucial for my purposes in this work that I defend a view of time generally. It will become apparent that for the next chapter, the view I choose as more tenable will play an important role.

There is an ongoing debate between the supporters of what are referred to as the A-theory and the B-theory. Let us take a quick look at the root of these two theories, referring to the influential work of J. Ellis McTaggart, who, in his essay "The Unreality of Time,"[65] opens the discussion by saying that it is very hard to claim the unreality of time; yet he states explicitly his belief in "the unreality of time."[66] This is of course more than a belief, and we will see as we go on that his view is based on a mostly analytical approach.

3.1. The Root of the Debate: The Unreality of Time Argument

McTaggart firstly makes a distinction, stating that "[p]ositions in time … are distinguished in two ways. [(i)] Each position is both Earlier and Later than some of the other positions; and [(ii)] each position is either Past, Present or Future."[67] In regard to (i), time cannot change and it is "permanent," yet with regard to (ii) time is not permanent.[68] He says that if one event is earlier than another, it is always earlier (although Einstein showed later that this is not necessarily so), and if it is later than another, it is always later (again, Einstein showed later that it is not); however, it can

[65] J. Ellis McTaggart, 'The Unreality of Time,' *Mind* 17 (1908), 457.

[66] Ibid., 457.

[67] Ibid., 458.

[68] Ibid.

be said that a "present" event "… was future and will be past,"[69] i.e., my writing this work is a present event, but it was future yesterday and will be past tomorrow.

McTaggart states that (i) could be claimed to be more essential than (ii), but he takes up a position against this interpretation and claims that (ii) is at least as "*fundamental*" as (i).[70] He refers to (ii) as the "A series," and (i) as the "B series,"[71] but adds some more definitions for further discussions. He says: "The contents of a position in time are called *events*. The contents of a single position are called a *plurality of events*. … A position in time is called a *moment*."[72] In the light of these definitions he raises some questions and argues for some essential points, arriving at the conclusion that "time is unreal."

He asks whether time consists of both series, of A and of B, and his answer is a qualified "Yes." He says that *we observe* events directly in the present and think that there are some past events that are earlier than the present ones —by our "memory"— and there will be some events that are later than the present events —by "inference." It can thus be understood that the A series and B series coexist in time. Thus, "… [T]he events of time, as observed by us, form an A series as well as a B series."[73] McTaggart says that one objection to this may be that time is a convention; however, he believes that it is not.[74] Another factor is the possibility of conceiving "change" without the A series. We seem to assert change in terms of the "relations of earlier and later," but it is not possible as we might think, says McTaggart.[75] If time forms only the B series, then it can be said that "… the change consisted in the fact

[69] Ibid.

[70] Ibid.

[71] Ibid.

[72] Ibid. [emphasis mine]

[73] Ibid.

[74] Ibid., 458, 459.

[75] Ibid., 459.

that an event ceased to be an event, while another event began to be an event."[76] Yet we can never say that an event loses its quality as an event. It should be the case that it never leaves the "time series" in which it was previously located.[77] Suppose before I began to write this part of the work I had a cookie, and after I finished writing, I will have tea. To say that I had had tea, in the time series, is to say that my writing this paper never disappears or comes to be an event. No event can become another event, according to McTaggart, for the same reason; that is, no event ceases to be itself.[78] Accordingly, McTaggart says that the term 'change' cannot be applied in the sense of ceasing or appearing of events-themselves.[79] "Each such moment would have its own place in the B series," and thus the "permanent" place of the moment never changes.[80] So how can a change be conceived in another way than this? McTaggart says: "Since, therefore, what occurs in time never begins or ceases to be, or to be itself, and since, again, if there is to be change it must be the change of what occurs in time …, I submit that only one alternative remains."[81] And this, he says, is that some characteristics of an event can change, but the event itself should stay "numerically" the same. It is only done through the A series, by which he means: I am at a moment of the event of "writing a part of the work." This present event was future when I ate the cookie and eating the cookie was present then; but when I drink tea presently, my writing a paper is a past event. Thus writing this paper was in the future, is in the present and will be in the past. Change, McTaggart says, is just this; and nothing else. So the A series makes change possible.[82] The B series, itself cannot

[76] Ibid.

[77] Ibid.

[78] Ibid., 460.

[79] Ibid.

[80] Ibid.

[81] Ibid.

[82] Ibid., 461.

form time; the A series is needed, since change is needed.[83] The B series can be said to be bounded by time too, and so the A series is also essential for the B series to exist.[84]

McTaggart says that there can also be another series – the C series – which implies only the "order" without time. The fact that there is an order among events can be grasped without time, according to McTaggart.[85] He says that the "C series … is not temporal. They are, let us say, in the order M, N, O, P. And they are therefore *not* in the order M, O, N, P, or O, N, M, P, or in any other possible order."[86] If we add change, or add the A series, then the C series becomes the B series, with the earlier and later relations. The C series does not assert the direction, only the order. The A series also has no direction of its own. He gives the example of natural numbers, saying that we can put the numbers 25, 41, 59 like this, but we also have the ability to put them backwards – 59, 41, 25. We cannot put 25 between 59 and 41, since it would not serve us as a series.[87] Similarly, when we think of some series without their temporal order, we can go either way. When I contemplate on the events of eating a cookie, writing a part of the work and having some tea, I can think of it either in the "cookie, writing, tea" order, or the "tea, writing, cookie" order. But when I think of "change" within this series, "writing" always comes after "having a cookie." So, McTaggart says, in order to sustain change, the A series is needed, then with a composition of the A series (to assign change to its elements as present, future and past), a C series has a definite and permanent direction.[88] In this regard it can be said that "no other elements are required to constitute a time-series except an A

[83] Ibid.

[84] Ibid.

[85] Ibid., 461, 462.

[86] Ibid., 462.

[87] Ibid.

[88] Ibid., 463.

series and a C series."[89] Thus, he declares, the A series and B series "are equally essential to time" but not "equally fundamental," since we can set up time with the A series together with the C series as well as with the A series and the B series. Accordingly, the A series is the most fundamental; and in terms of the "distinctions of series," "distinctions of the A series are ultimate." The past, the present and the future have no meaning by themselves.[90] I can say *now* that my act of writing is present, having a cookie is past and my having the tea is future. The "B series," McTaggart says "is not ultimate," since earlier/later relations always need a series, otherwise they have no meaning at all. That said, a permanently put C series is ultimate, since the relations within this series are permanent, and this is "essential to time" too.[91] So he suggests, "It is only when the A series, which gives change and direction, is combined with the C series, which gives permanence, that the B series arises."[92] At this point, the following quotation is of utmost importance in ensuring that we do not lose McTaggart's train of thought. He says:

> I am endeavoring to base the unreality of time, not on the fact that the A series is more *fundamental* than the B series, but on the fact that it is as *essential* as the B series —that the distinctions of past, present and future are essential to time, and that, if the distinctions are never true of reality, then no reality is in time.[93]

It is evident that there is a sharp distinction made here between what is "fundamental" and what is "essential." This distinction is *intuitively* evident, yet we shall see its importance within McTaggart's reasoning more clearly as the argument gains pace. At this point we can say that the A series is necessary or *fundamental* (and also essential) to form time with the C series (which is also fundamental and

[89] Ibid.

[90] Ibid.

[91] Ibid.

[92] Ibid., 464.

[93] Ibid.

essential) (of permanent within-relations). On the other hand, the B series is not necessary, but rather a by-product if given A and B (only essential). Many philosophers, says McTaggart, believe truly that the A series is essential to form time.[94] The critical view that says past, present and future "cannot be true of reality," also holds that in order to say that time is real we must eliminate the claim that the A series is essential to time. But, McTaggart says, this is "only a presumption," and also claims that he will show that the elimination of the A series would eliminate time as well.[95] That said, his conclusion would be a little different than the mere presumption he exemplifies above. Here, he talks about two criticisms of his view.

The first criticism raises a question about stories. A critic may say that Don Quixote is not in the A series, since it is nowhere in the past, present or future; yet it exists. It has the quality of a B series, having earlier and later relations within it, but not an A series. McTaggart replies that it is not existent; but is imaginary. As an imaginary object, it takes place in time when we think of it or when we refer to it. It is thought in the past, we are thinking about it now and it will most probably be thought in the future.[96] In this regard, the answer to the objection is that just as a thing is in time, it is in the A series. If it is really in time, it is really in the A series. If it is believed to be in time, it is believed to be in the A series. If it is imagined as in time, it is imagined as in the A series.[97]

The second criticism is by Bradley, who claims that a time-series can be real but cannot be *ultimate,* since different time series have different pasts, presents and futures. It can be said that the present of a series cannot be comparable with that of another; and they should not be successive either. "And different presents, unless

[94] Ibid.

[95] Ibid., 464, 465.

[96] Ibid., 465.

[97] Ibid., 465, 466.

they are successive, cannot be real."[98] They are not successive; therefore they are not real. So among the different time series, we cannot grasp successiveness. This shows, according to Bradley, that A series is not meaningful.[99] This criticism, according to McTaggart is flawed. Although his "main thesis is that the existence of *any* A series involves contradiction," he does not say that an A series is not essential to time; but quite the opposite. McTaggart, answering Bradley, says that there can be different A series that are distinct from one another,[100] and this involves no contradiction. In this regard, according to him, if we *believe* that there is plurality of A series that are distinct from one another, and this is only a hypothesis, then there is no incompatibility between them; and as of the "essentiality of A series" there is no contradiction. That said, we may not believe the plurality of the time series either, and if there is something to be rejected, it is the plurality of the time hypothesis, according to McTaggart.[101]

Up to this point, McTaggart has argued that "there is … positive evidence for believing that an A series is *essential* to time."[102] McTaggart continues by presenting his arguments for why the A series is contradictory, saying that there are some "characteristics of events," and that these events fall within a series that is an A series. Then, "the terms of the A series are characteristics of events,"[103] and so the events in the A series must be past, present or future, and their being so contains a contradiction. McTaggart argues for a contradiction in terms of characterization,

[98] Ibid., 466.

[99] Ibid.

[100] Ibid.

[101] Ibid., 467.

[102] Ibid.

[103] Ibid.

saying that there can only be two kinds of characteristic; "[(i)] relation or [(ii)] quality."[104]

(i) If characteristics are relations then, within time, "only one term can be an event or moment."[105] As I understand it, there can be three alternatives within this assertion that two terms cannot be an event or moment or both. (1) A moment-moment relation: in this sense there should be a third principle to differentiate between two moments, let's say in the past, present or future, otherwise they would be the same moments. (2) Event-event relation: in this kind of a relationship there can be two events, as McTaggart illustrates, that happen at the same time a million years ago, so there can be no discernible relationship between them.[106] (3) Moment-event relation: about this, McTaggart says: "if the moments of time are to be distinguished as separate realities from the events which happen in them, the relation between an event and a moment is unvarying." Therefore, "[e]ach event is in the same moment in the future, in the present, and in the past."[107] In this regard, McTaggart says it is obvious that there should be some outsider point to maintain the relationship, but adds that he does not know the nature of this outsider point.[108] It seems only a refutation at this point. Another problem that is more important than those mentioned so far is, for McTaggart, the following: "Past, present and future are incompatible determinations." [109] If something is an event, then *only one* of the above characteristics can be assigned to it. It can be past, present or future. These three characteristics are seemingly "incompatible," yet an event has them all.[110] How is

[104] Ibid.

[105] Ibid.

[106] Ibid.

[107] Ibid.

[108] Ibid., 467, 468.

[109] Ibid., 468.

[110] Ibid.

this so? Any event occurring now was future in the past, is present now and will be past in the future. So, "all the three incompatible terms are predicable for each event."[111] It can be said that language has the faculty to discern the characteristics that are earned by the events with relations. Language has no common tense applied to all characteristics of the past, present and future. Each term successively has the characteristic, so nothing contradicts. But this view is circular, in that tense is a feature of time and there is no time before the A series. The A series forms time, not vice versa.[112] So let's return again to the example we gave earlier: I am writing now, I had a cookie in the past and will have some tea in the future; so my writing is "present in the present, future in the past, past in the future." There is evidently a contradiction. An alternative explanation would be this: there can be another A series within which the current A series is placed, thus the contradiction can be avoided. That said, it is more than clear that that an A series too would have the same difficulty concerning what it includes, no matter when they happen within that series other than simultaneously, which is impossible since the events would change characteristics in this way arbitrarily.[113] Therefore, characteristics being relations is not an option to save A series from involving contradictions.

(ii) If the characteristics are qualities, then an event M should have the qualities of past, present and future, and according to McTaggart, the same conditions are applicable to this alternative. Event M would have the three qualities at once, which are incompatible with one another.[114]

McTaggart, then, considers a broad objection: "Our ground for rejecting time, it may be said, is that time cannot be explained without assuming time. But does this not

[111] Ibid.

[112] Ibid.

[113] Ibid., 469.

[114] Ibid., 469, 470.

prove, not that time is invalid, but rather that time is ultimate?"[115] Against this possible objection, McTaggart says that it is not the case that time is a necessity for time itself, as we are talking about a contradiction in the forming of time itself. In this regard it cannot be asserted that time is ultimate but contradictory if formed by an A series, and it is.[116]

He further states that what he has said until now is adequate for rejecting the reality of time, but he provides a further account. We certainly have some perceptions of events, and these perceptions may seem to be subjective. Actually we have seemingly three kinds of perceptions: "perceptions" (present), "anticipations" (future) and "memories of perceptions" (past).[117] McTaggart articulates by saying that "the direct perceptions which I now have are those which now fall within my 'specious present'."[118] He provides the following illustration: let's say that there is an event M, agent X perceives event M as being at specious present Q; agent Y perceives M as specious present R. At a time Q may lose its part within X's specious present. Therefore, for X, M is then a past event. But still R can be a part of Y, therefore M is still present in that case. There is, then, a problem, unless the A series were to be "merely subjective."[119] But as a subjective entity, time cannot be real as it is. It must be independent, and in itself. Therefore an event cannot be both present and past.[120] There are further difficulties in arranging the duration of the presentness. It can be a moment in time that has no dimension, or it can last for centuries.[121] Generally, McTaggart sees time as a distinct entity that does not depend upon our

[115] Ibid., 470.

[116] Ibid.

[117] Ibid., 471.

[118] Ibid., 471, 472.

[119] Ibid., 472.

[120] Ibid.

[121] Ibid.

perception, may be not at all. Thus, he says, after all, time's being paradoxical is not so unfamiliar to philosophy due these problems, but may be unfamiliar to us since we take it for granted for certain practical purposes.[122]

In conclusion, he says, "[o]ur conclusion … is that neither time as a whole, nor the A series and B series, really exist."[123]

3.2. A-Theory, B-Theory and Achievements through Science

Although we do not believe that time is unreal for various reasons, both common-sensical and physical, McTaggart's argument is important in the sense that it gave rise to the A-theory/B-theory debate, as I said earlier. This refers mostly to the differing approaches of the presentists and eternalists. I can say that I find B-theory and eternalism, more tenable than A-theory and presentism.

The above discussion of McTaggart's theory of unreality of time suggests that C-series when implemented in A-series composes the B-series. A-theory, taking its ideas from the A-series, maintains that time should essentially be thought of as tensed; and presentism, taking the view that only the present is real, is a feasible cosmologically. B-theory, taking its general idea from the B-series, maintains that time should be understood as tenseless and eternal, in that every point in time is as real as the others, which is the most plausible view cosmologically.

There is but a distinction between old-B-theories and new-B-theories. Old-B-theories insist that there is a logical way to translate and thus eliminate the tensed sentences into tenseless ones, A-theorists say the translation is possible, but elimination is untenable. However, the new-B-theorists say that tensed sentences can be structured to signify some points, yet there are no tensed *facts*. Nathan Oaklander makes this point as follows:

[122] Ibid., 473.

[123] Ibid.

> Tensed discourse is indeed necessary for timely action, but tensed facts are not, since the truth conditions of tensed sentences can be expressed in a tenseless metalanguage that describes unchanging temporal relations between and among events.[124]

The A-theory/B-theory debate is ongoing, yet I believe that the format of the discussion must conform mainly to metaphysics rather than the philosophy of language. The two reasons that incline me towards the B-theory are, first (i) I believe one can account for a four-dimensional discussion much easier within B-theory (since it both favours a tenseless talk and entails a kind of eternalism); second (ii) B-theory is compatible with the theory of special relativity. These two reasons are actually interconnected, and the reader will see that once one accepts (ii), s/he can accept (i).

Now I will review a couple of articles in favour of B-theory in the framework of reason (ii).

3.2.1. Putnam's View

Hilary Putnam, in his influential work "Time and Physical Geometry,"[125] argues against the A-theory, and seems to defend a tenseless view of the world.

Putnam summarizes the folk psychological view of time as "All (and only) things that exist *now* are real."[126] According to this kind of view, the future and the past are unreal, and three more points must be made clear according to Putnam:

> (I) I-now am real. … (II) At least one other observer is real [possibly in motion relative to me]. … (III) If it is the case that all and only the things that stand in a certain relation *R* to me-now are real, and you-now are also real,

[124] L. Nathan Oaklander, 'A Defence of the New Tenseless Theory of Time,' *Philosophical Quarterly*, 41 (1991), 27.

[125] Hilary Putnam, 'Time and Physical Geometry,' *Journal of Philosophy*, 64 (1967).

[126] Ibid., 240.

then it is also the case that all and only the things that stand in the relation *R* to you-now are real.[127] [128]

Putnam suggests that if you take *R* as a relation of simultaneity then according to the special theory of relativity it can be said that whence you are in a relative motion with a speed comparable to the speed of light with respect to me, I and you are simultaneous at some point and at every instance in a spatio-temporalistic framework, but it is also true that you hold the relation *R* to some events that are in my so-called future. So if we assume transitivity in *R,* it will also be true that in some frameworks Me-now is as real as an event that falls in Me-now's so-called future.[129] [130]

But how can we assign a truth value to the occurrence of such a future event? Putnam agrees with Aristotle, saying that future events, although already determined, should be considered as contingent, and so no truth value can be given to a future event. Some may refer to the idea of absolute futurity or absolute past (by referring to lightcones), relying on an Aristotelian view of truth values, but since no observer is privileged whatsoever, there is no sense in doing that. Accordingly, it is perfectly acceptable to talk about the truth values of future events as well.[131]

This view of Putnam strongly suggests a kind of eternalism, and rejects presentism. In this regard it offers a tenseless account rather than one that is tensed.

[127] Ibid., 240.

[128] This third proposition is often called as "No Privileged Observers Principle."

[129] Ibid., 241-243.

[130] This is generally called the triangle argument.

[131] Ibid., 244, 245.

3.2.2. Saunders' Further Assertion

Simon Saunders[132] improvising on Putnam's position, draws attention to some of its missing points, and suggests that the way Putnam puts assertion (III) is somewhat flawed. It suggests transitivity, but does not say anything explicitly about symmetry. However, one could infer that the relation *R* needs to be symmetric. Actually, there would be no problem if the following assertion were made, according to Saunders: "*R* is definable in special relativity."[133] Accordingly, the following can be suggested:

$$R = \{<x,y>; \exists t \text{ such that } x \in M_t \text{ and } y \in M_t\},^{134}$$

where *R* is the co-membership relation in time-slices in Minkowski space, namely, M_t. In this case, it would seem that the relationship is one of "equivalence," definable in Minkowski space-time. One can still ask the method by which the slices are cut through the four dimensional universe. Saunders says that it is through III, whatever the method is.[135]

3.2.3. Minkowski Space-time vs. Lorentz Space-time

There is a general tendency among philosophers of persistence to accept Minkowskian space-time rather than Lorentzian space and time. This tendency has legitimate grounds, as we will see in a short while, but before that, it is worth mentioning some general properties of the Lorentzian, Einsteinian and Minkowskian views of special theory of relativity in terms of space-time in William Lane Craig's work[136] and see why it is that he supports Lorentzian grounds for space and time.

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[132] Simon Saunders in Craig Callender (ed.) *Time Reality and Experience*, Cambridge: Cambridge University Press, 2002.

[133] Ibid., 282.

[134] Ibid., 283.

[135] Ibid.

[136] William Lane Craig 'The Metaphysics of Special Relativity,' in W. L. Craig and Quentin Smith (eds.) *Einstein, Relativity and Absolute Simultaneity*, London: Routledge, 2007, 11.

Einstein's interpretation of the special theory of relativity suggests a world consisting of three dimensions of space plus one dimension of time and in which there are no privileged reference frames. Each frame of reference is said to be as real as the others. Objects and reference frames endure in time.

Minkowski's interpretation of special relativity suggests a four-dimensional space-time in which one needs to consider time and space together. And there is also no privileged frame of reference. Minkowski himself says, "Henceforth, space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality."[137] He goes on to say: "A point of space at a point of time, that is, a system of values *x, y, z, t,* I will call a *world-point*. The Multiplicity of all thinkable *x, y, z, t* systems of values we will christen the world."[138]

A Lorentzian interpretation of the special theory of relativity, on the other hand, suggests that there are physical (spatial) objects that endure (in time). The Lorentzian thus believes in the distinction of space from time; but what is interesting is that she believes in a privileged frame of reference that is absolute. She says that the same results can be easily achieved with Einsteinian or Minkowskian frameworks, once one accepts the existence of (dematerialized) aether, which constitutes an absolute reference frame for all other frames of reference.[139]

Craig says that the Lorentzian interpretation is more tenable; but what are his grounds for rejecting the Einsteinian, or more importantly, Minkowskian interpretations and accepting a Lorentzian one? At first, it must be said that Craig approaches Newtonian physics very sympathically, (maybe more than it deserves) and the idea of absolute time seems to fascinate Craig. He refers to Newton's passages about God and its position in the universe. Craig seems to believe in a

[137] Ibid., 13.

[138] Ibid.

[139] Ibid., 15, 16.

deistic God that acts causally upon the world, and seems to hold that in an A-theoretical world, a causally active God is a very plausible option to be defended.[140] As for the Einsteinian approach to the special theory of relativity, Craig says it is flawed, in that it is "implausible and explanatorily deficient."[141] It would seem that one of the things that bothers Craig is the implication that frames of reference that are moving relatively do not share the same simultaneity between events. For, if you are moving relative to my frame of reference, then what is future for me can be past or present for you; and if you come to a motionless position with respect to me, then we share the simultaneity and actuality. These, according to Craig, are the things that pop in and out of existence.[142] Craig favors Minkowski space-time over Einsteinian space and time, if only slightly, and says that for the Einsteinians, "reality literally falls apart, and there is no one way the world is."[143] This is why Einsteinian interpretation is implausible. So why is it explanatorily deficient? Craig states that some properties of objects are extrinsic to objects in the Einsteinian interpretation. Shape, for example, can be shrunk in some frames of reference, and duration can be dilated, and these phenomena are not explained at all. Also it is stated in the Einsteinian interpretation that these relativistic phenomena are actual and real, not mere appearances. However, it is not explicitly discussed in Einstein's account whether there are any causal explanations for these phenomena, while a Lorentzian interpretation can account for these.[144] Craig quotes Arthur Miller in this point:

> The principle of relativity of Bucherer, Lorentz, and Poincaré resulted from the careful study of a large number of experiments, and it was on the basis of a theory in which empirical data could be explained to have been *caused* by

[140] Ibid., 20, 21.

[141] Ibid., 23.

[142] Ibid.

[143] Ibid.

[144] Ibid., 24.

> electrons interacting with an ether. Einstein's principle of relativity excluded the ether of electromagnetic theory and did not explain anything.[145]

The Einsteinian interpretation, then, offers no causal explanation for the deformations of three dimensional objects. In Minkowskian space-time, on the other hand, since there exist no three-dimensional objects, no such problem arises, according to Craig.[146] Minkowskian space-time, on the other hand, has a counter-intuitive feature, namely its limitation or rather prohibition on the "temporal becoming and tensed existence."[147] On this point, there are three important counter arguments that seem to be put forward by Craig: (i) In Minkowskian space-time there are no such objective features as past, present and future, (ii) contrary to what our subjective sense of temporal becoming suggests, no temporal becoming takes place in the Minkowskian account, and (iii) the Minkowskian account gives rise to perdurantism, which Craig takes as counter-intuitive.[148]

It is easy to see the tension here between my position and Craig's account. Firstly, I personally think that pastness, presentness and futurity have place in folk psychology, and one may speak about these properties in relation to frames of reference; but other than these, I do not see how badly one needs to use them in philosophical or scientific accounts. Secondly, our consciousnesses do not always tell us the truth about the world. Thirdly, and maybe most importantly, I do not think that the temporal parts theory is counter-intuitive at all; on the contrary, I think it is one of the most intuitive things one encounters. We will return to these issues in chapter three, but now let us move on to the Lorentzian account that Craig praises so much.

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[145] Ibid., 25.

[146] Ibid.

[147] Ibid., 27.

[148] Ibid., 28.

According to Craig, the most feasible interpretation of the special theory of relativity is the Lorentzian one, for which his reasons seem to be twofold: (i) It has a classical space and time, having the temporal becoming and the properties of past, present and future, and (ii) it suggests a privileged frame of reference, i.e., aether, which is at absolute rest and is temporally non-fragmented.[149]

Craig states further that there is some evidence to suggest a privileged frame of reference and absolute simultaneity. The first of these is "the cosmological fluid," which is an idea that comes from the Robertson-Walker metric, and supposes that each and every single "fundamental particle" has its own place in space, or more specifically, each has "a fixed set of coordinates." This "fluid" or distribution of fundamental particles can be thought of as the Lorentzian aether since these coordinates do not change in time and are "at rest with respect to space."[150]

The second one is "the microwave background radiation." Craig says that the "cosmic microwave background radiation" exists in space homogenously and is at rest with respect to space. Actually it is also found out that when an observer is in motion, the background radiation becomes heterogeneous for her, and so one can easily deduce that the radiation acts like the Lorentzian aether. Craig suggests further that Michelson and Morley could not detect aether while trying to detect "visible light radiation," but the cosmic microwave background radiation fills its space.[151] Craig, as we have seen so far, seems to believe in a materialized aether as opposed to a dematerialized one.

The third one is "the quantum mechanical vacuum," which Craig defines as the base structure in which there are particles, or "fluctuations in the energy field."[152] He also states that some quantum phenomena affirm a "modern equivalent of the aether," for

[149] Ibid., 29.

[150] Ibid., 30.

[151] Ibid., 30.

[152] Ibid.

which he provides two examples: (a) "quantum electrodynamics" and (b) "the EPR experiment and Bell's inequalities."[153]

(a) On quantum electrodynamics, he refers to the aether of Dirac, who proposed a quantum vacuum that is both "empty" and is "the seat of fluctuating electromagnetic fields." Dirac's so-called aether is somewhat different from the classical one, in that it "is not amenable to mechanical description," yet Craig says that it can still function like a classical aether, having no motion and being a privileged reference frame.[154]

(b) On the EPR experiment and Bell's inequalities, Craig refers mainly to non-locality, which is a quantum phenomenon that seems to entail existence of absolute simultaneity in the following way. Take any two paired particles, draw them apart and measure, let us say, the spin of one of them. At the time of measuring the spin of, let us say, the electron on the left, you determine simultaneously the spin of the one on the right. This phenomenon, Craig says, implies an absolute and privileged frame of reference, since the simultaneity in such an experiment is absolute rather than relative.[155]

If we are talking about causality, when one particle's spin determination influences the other, then we face a serious problem whether or not we believe in the absolute reference frame: superluminal information transfer. Craig directs his view from causality to a kind of correlation,[156] but non-locality and superluminal influence are very problematic in special relativity, and the fact that Craig offers it as evidence of the Lorentzian interpretation of special theory of relativity does not make it less problematic. It would seem that the Minkowskian account may *in part* deal with non-locality, as Maudlin explains:

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[153] Ibid.

[154] Ibid., 30, 31.

[155] Ibid., 31-33.

[156] Ibid., 33.

> In Minkowski spacetime this theory of wave collapse no longer makes sense. The collapse can be instantaneous in at most one reference frame, leading to two possibilities: either some feature of the situation picks out a preferred reference frame, with respect to which the collapse is instantaneous, or the collapse is not instantaneous at all.[157]

One other point Craig makes is that the falsehood of the view that states Minkowski interpretation is simpler; and thus truer. He states that truth has nothing to do with simplicity (with which I quite agree) and if one seeks simplicity, the Lorentzian account is also too simple. He bases his views on H. E. Ives, and on Martin Ruderfer's views on Ives' suggestions.[158] Although the discussion of simplicity is important on one level, I want to point out that, rather than simplicity, we need to look for intuitiveness and scientific plausibility.[159]

Craig raises the issue suggested by Earman, who proposes two principles for dealing with the kind of theories like the special relativity:

> SP1: Any dynamical symmetry of a theory *T* is a space-time symmetry of *T*.
> SP2: Any space-time symmetry of a theory *T* is a dynamical symmetry of *T*.[160]

The main idea behind these two criteria is that some "space-time structure" is needed to be mentioned in connection with motion, and vice versa; Earman also uses Occam's razor for theoretical compatibility.[161]

> The motivation for (SP1) derives from combining a particular conception of the main function of laws of motion with an argument that makes use of Occam's razor. ... The theory that fails (SP1) is thus using more space-time

[157] Ibid.

[158] Ibid., 35.

[159] I do not want to speculate any further on the issue. The reader will see that I base my Minkowskian view on Balashov's incisive remarks.

[160] Ibid., 37.

[161] Ibid., 37, 38.

> structure than is needed to support the laws, and slicing away this superfluous structure serves to restore (SP1).[162]

It would seem that Lorentzian space and time can be eliminated through the above principles, since it posits more than required by the special relativity. Yet Craig thinks that these criteria are too restrictive, but still, some of the metaphysical considerations made through the Minkowskian understanding of space-time, for Craig, can be regarded as qualified to be in Earman's considerations. Also, processing Earman's criteria and his views on Newton, Craig states that Earman presupposes space-time realism, and is thus led to believe that Minkowski's interpretation is correct.

So what about Newtonian space-time? Can't it be thought of analogously? What makes Newtonian space-time less real than Minkowski's space-time? Newton's is regarded as "fiction," yet Minkowski's is not. If the reason is the metric used, Craig claims, then it is because of the "preclusion of relations of absolute simultaneity" set by the Minkowskian account.[163] However, Costa de Beauregard, and Lucas and Hodgson suggest that in the case where "$c \to \infty$, the 'absolute elsewhere' region in space-time is squeezed out, and the Newtonian dichotomy between a universal, absolute past and future is recovered."[164] In this regard, the Newtonian metric depends upon absolute simultaneity, whereas the Minkowskian interpretation of special theory of relativity depends on the lack of such simultaneity. According to Craig, it is very hard to separate on metric terms the Newtonian space-time and the Minkowskian one, but if one has to do so, this seperation does not say anything about the ontological status differentiating the two. The Newtonian account can thus be as real as the Minkowskian one.[165]

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[162] Ibid.

[163] Ibid., 41.

[164] Ibid.

[165] Ibid.

Another point worth mentioning is that both Earman and Friedman defend ignoring space-time, saying that it is not real, and the notion of space-time may lead to some "philosophical errors and oversights."[166] Craig, in contrast, relativizes the issue, stating that "one man's insights are another man's oversights." He might be right, but there may also be some philosophical errors, and we will touch upon them when discussing Balashov and Janssen's debate with Craig below.

Craig also talks about the position in time of mental events and consciousness, referring partly to Kant, and saying that the Minkowskian account is also lacking in this way.[167]

Balashov and Janssen, in their work "Critical Notice: Presentism and Relativity" in which they oppose Craig and provide some essential insights into the nature of Minkowskian space-time, begin by demarcating between "theories of principle" and "constructive theories."[168] Their demarcation is as follows:

> In a theory of principle, one starts from some general, well-confirmed empirical regularities that are raised to the status of postulates (e.g., the impossibility of perpetual motion of the first and the second kind, which became the first and second laws of thermodynamics). With such a theory, one explains the phenomena by showing that they necessarily occur in a world in accordance with the postulates. Whereas theories of principle are about the *phenomena*, constructive theories aim to get at the underlying *reality*. In a constructive theory one proposes a (set of) model(s) for some part of physical reality (e.g., the kinetic theory modeling a gas as a swarm of tiny billiard balls bouncing around in a box). One explains the phenomena by showing that the theory provides a model that gives an empirically adequate description of the salient features of reality.[169]

[166] Ibid.

[167] Ibid., 41, 42.

[168] Yuri Balashov, Michel Jansen, 'Critical Notice: Presentism and Relativity,' *British Journal for the Philosophy of* Science, 54 (2003), 330.

[169] Ibid.

Balashov and Janssen provide examples from the Theory of Special Relativity, which explains away the "general, well-confirmed empirical regularity" of, let us say, length contraction with its two postulates, but it does not say anything about the structural existence of such phenomena. On the other hand, a constructive version of the theory explains the underlying facts of the world by referring to its two postulates.[170] The Minkowskian and Lorentzian interpretations are constructive. The Minkowskian model explains the length contraction by referring to reference frames in motion relative to one another, and shows how these reference frames coincide in four-dimensional space-time and how the length contraction occurs in this way. It offers a structural base for how the reality behind the phenomena is, while Lorentzian accounts do the same thing, but by referring to the "dynamical effects and artefacts of measurement." [171] The Special Theory of Relativity, according to Balashov and Janssen, is a theory of principle, although Einstein's account is not purely a theory of principle, since his 1905 paper includes the "Kinematical Part" in which resides a space-time interpretation of the length contraction phenomena.[172]

Balashov and Janssen hold that Craig's views of the Einsteinian interpretation are wrong. They claim that it gives rise to the Minkowskian one in many aspects, and so is very important. Balashov and Janssen oppose two of the views asserted by Craig: (1) that the Einsteinian account is "explanatorily deficient," and (2) that it is "ontologically fragmented."[173]

About (1), Balashov and Janssen say that the Einsteinian interpretation is not explanatorily deficient, stating that the issue has two aspects: (i) the Special Theory of Relativity of 1905 lacks a "theory-of-principle explanation"; and (ii) "Theory-of-

[170] Ibid., 331.

[171] Ibid.

[172] Ibid.

[173] Ibid.

principle explanations in general are deficient."[174] Starting from (ii), they claim that thermodynamics, like the Special Theory of Relativity, is a theory of principle. Einstein, referring to thermodynamics, seems to consider both his theory and thermodynamics as being lower theories than the constructive ones. As a theory of principle, Einstein's theory is based on Einstein's intuition that a quantum mechanics "revolution" is approaching.[175] However, aside from these, Craig accuses Einstein of having no empirical data at all, although this accusation, according to Balashov and Janssen, is groundless. One can think of centuries of failed attempts to try and find aether as empirical data on the relativity postulate. Although Einstein himself published no reference to the light postulate, it can be said that he considered the postulate based in electrodynamics, and so every piece of empirical data that counts as data for electrodynamics can be counted also as data for the light postulate.[176] As for (i), Craig raises the question in terms of simultaneity claims. One must see, however, that the postulates of the Special Theory of Relativity do not lead to length contraction and time dilation, in that "appropriate assumptions about the homogeneity and isotropy of space and time ... and the Einstein-Poincaré convention for synchronizing distant clocks" are needed. However, "the homogeneity and isotropy of space and time" was mentioned in the 1905 paper and was later defended;[177] and it can be stated further that although Einsteinian interpretation is a theory of principle interpretation (Craig sometimes seems to lose the point, referring to the Minkowskian approach as if they are in the same grounds), it accounts for simultaneity if evaluated under the assumption of homogeneity and isotropy, and achieves the following point: "equal distances travelled at the same velocity should take equal times."[178]

[174] Ibid.

[175] Ibid., 332.

[176] Ibid.

[177] Ibid.

[178] Ibid., 333.

It would seem that Craig's point on the explanatory deficiency lacks ground. But what about being ontologically fragmented?

This further accusation by Craig suggests that Einstein sets up an ontology with three dimensional physical objects in time, but that these physical objects are subjected to, for example, length contraction. In this regard, Craig suggests that the ontology of the Einsteinian interpretation leads to a fragmentation. But the situation is not quite like that. Einstein tries to show that ordinary objects as we know them are not like what we think they are like. Their properties, such as length, are relative.[179] So "[r]ather than endorsing an ontology of three-dimensional objects, Einstein actually strips such objects of many of their classical properties."[180] This, according to Balashov and Janssen, demonstrates how close the Einsteinian interpretation is to the Minkowskian interpretation.[181]

Craig, according to Balashov and Janssen, apparently bases his Lorentzian view on a "doubly-amended theory," which includes the necessary and sufficient parts of Lorentz's theory, which are Newtonian mechanics and Maxwellian electrodynamics.[182] Besides these two, the doubly-amended theory contains "the contraction hypothesis and the clock retardation hypothesis."[183] These two later hypotheses can fit the Lorentz's theory without distorting it, but for Craig's purposes, according to Balashov and Janssen, the doubly-amended theory is too weak. This is because one needs much more than the doubly-amended theory to make the Lorentzian interpretation conform to the postulates of the special theory of relativity. This calls for an "Einstein-Poincaré synchronization" at a minimum, and the synchronization must be made using light. This, however, seems absurd, since the

[179] Ibid., 334.

[180] Ibid.

[181] Ibid.

[182] Ibid., 335.

[183] Ibid.

doubly amended theory says that rather than light signals, one can use bullets, and this seems plausible for the theory itself.[184] But the main point is the Lorentzian interpretation's compatibility with special relativity's postulates; if one can accept that, what is the point in using bullets rather than light? Craig would have nothing to say on it.[185] If one must add more amendments to the so-called doubly amended theory, they would be ad-hoc, which makes the theory a little more complicated than it should be, I believe.

Balashov and Janssen think that the original Lorentz theory is somewhat different from how it is presented by Craig, yet the theory still has deficiencies (which Craig most probably saw and tried to resolve through doubly amended theory).

What is more is that Craig states that, with respect to their explanatory powers, the Lorentzian and Minkowskian interpretations are close.[186] Yet, this is evidently a false claim for some, who may say (I believe, quite rightly) something like the following concerning, let us say, the length contraction:

> There is no *a priori* reason to think that space and time will be Newtonian. In fact, the universality of the behaviour of ... any physical system whatsoever ... [that] exhibit ... [length] contraction suggests that space and time are Minkowskian. Length contraction is part of the normal spatio-temporal behavior of systems in Minkowski space-time. There is nothing further to explain.[187]

Balashov and Janssen ask us to compare the Lorentz invariance in the following cases: (i) The space-time formation ensured by the theory matches with Lorentz invariance; (ii) just by chance, Lorentz invariance seems to be like a "property" that has a part in "all laws effectively governing systems in Newtonian space and

[184] Since the Lorentz invariance is to be preserved (ibid., 336).

[185] Ibid., 336.

[186] Ibid., 338.

[187] Ibid.

time."[188] In this case, the Lorentz interpretation posited by Craig opposes Earman's symmetry principles SP1 and SP2 (discussed above), respectively.[189] For Balashov and Janssen, another argument needs to be made. The accidental conformity of the Lorentz invariance to some laws that govern various phenomena, based on a bizarre point "of the laws governing electromagnetic fields," can in fact be explained by the Minkowskian interpretation referring to space-time structure —which is a very ontological fact. Balashov and Janssen say that a similar point is made by Einstein (although the form of the argument does not matter at all). The Minkowskian interpretation explains more by referring to space-time. They say:

> No matter how the argument is made, the point is that there are brute facts in the … Lorentzian interpretation [as put forward by Craig] ... that are explained in the space-time interpretation, [namely, the Minkowskian interpretation]. As Craig writes ... : 'if what is simply a brute fact in one theory can be given an explanation in another theory, then we have an increase in intelligibility that counts in favour of the second theory.'[190]

In the light of this, we can say that the special theory of relativity suggests the Minkowskian interpretation, which is itself enough evidence to support a tenseless theory of time together with four dimensional space-time. However, besides these, as I said before, the four-dimensional picture, and within it perdurantism, appears to me to be the most plausible theory to be defended as far as the persistence of human beings are concerned.

[188] Ibid., 339.

[189] Ibid.

[190] Ibid., 340.

CHAPTER 4

PERDURING HUMAN PERSONS

In the previous chapter, we saw that space-time realism is a *tenable* alternative. We can say that, following space-time realism, one needs to defend four-dimensionalism rather than endurantism. In this chapter, an account of perdurantism will be defended. Before going into the definition and discussion of perdurantism, it will be beneficial to look at the synchronic composition question and some possible answers to it.

4.1. Synchronic Composition

In this section, I will consider synchronic composition, which means composition at a time. In sub-section 3.2.1, I will review some of the responses given to the special composition question and then go on with an account which stresses the importance of causation in general and the notion of functioning. One should also note that, although this part of my work focuses on the so-called synchronic composition, there is a close relationship between diachronic and synchronic composition, and some references to the subsequent sections about diachronic composition will take place in the current section. Furthermore, let me also note that the discussions in this chapter will serve to clarify the notion of persistence of human persons.

4.1.1. Special Composition Question (SCQ)

We can see some objects in our surroundings. Moreover, we can see that they have parts. The special composition question mainly refers to the problem of distinctness and togetherness. Peter van Inwagen's style of formulating it is thusly:

> *x overlaps y* $=_{df}$ there is a *z* such that *z* is a part of *x* and *z* is a part of *y*.
>
> The *x*s compose *y* $=_{df}$ (i) the *x*s are all parts of *y*, (ii) no two of the *x*s overlap, and (iii) every part of *y* overlaps at least one of the *x*s.

> The Special Composition Question (SCQ): What necessary and jointly sufficient conditions must any *x*s satisfy in order for it to be the case that there is an object composed of those *x*s?[191]

One more thing should be clarified as follows:

> *Y* is a *sum* (or *fusion*) of the *x*s = $_{df}$ every one of the *x*s is a part of *y* and every part of *y* overlaps at least one of the *x*s.[192]

Sum is necessary in this case since a person can say that she is the sum of her particles and she can also say that she is a sum of her particles plus her hair. As such, it can easily be seen that some overlapping occurs. To account for such overlapping, insertion of 'sum' in the above formula is needed.[193]

Now, let us review some of the answers given to the SCQ. An answer would be 'unrestricted composition,' which posits that any composition composes an object. It can be formulated as:

> Unrestricted Composition (UC): Necessarily, for any non-overlapping *x*s, there is a *y* such that *y* is composed of the *x*s.[194]

This view, although it accounts for SCQ, is, I believe, untenable because of the very suggestion that it is unrestricted. Although there are some who propose such an answer, I am not inclined toward those kinds of answers since they, I believe, trivialize the main problem.

Another answer to the SCQ is nihilism, which states:

> Nihilism: Necessarily, for any non-overlapping *x*s, there is an object composed of the *x*s iff there is only one of the *x*s.[195]

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[191] Ned Markosian., in Sider, T., Hawthorne J., Zimmerman D. W. (eds.) *Contemporary Debates in Metaphysics* (USA: Blackwell, 2008), 342.

[192] Ibid.

[193] Ibid.

[194] Ibid., 343.

This kind of nihilism asserts that "there are no objects composed of two or more parts."[196] This view has various problems, such as asserting that there are no composite objects (sometimes even no objects at all) such as persons, pens and books, and no compositions.

One other approach can be called 'contact,' which is analogous with 'fastenation.' These approaches state:

> Contact: Necessarily, for any non-overlapping *x*s, there is an object composed of the *x*s iff the *x*s are in contact with one another.
>
> Fastenation: Necessarily, for any non-overlapping *x*s, there is an object composed of the *x*s iff the *x*s are fastened together.[197]

'Contact' seems risky to rely upon: whenever I make contact with my pen, the pen becomes my part. What about the things that touch my pen? Are they also my parts? Think about the air or dust particles that touch my skin right now – are they my parts too, just because they are touching me?

'Fastenation' is a little bit more plausible than 'contact.' Suppose (for the sake of supposition) that a bug has laid eggs on my scalp. Now that they are fastened to me, are the eggs parts of me? The answer seems to be "No."

Peter van Inwagen has an interesting answer to the SCQ. He states that there are two kinds of things in the world: "simples and living organisms."[198] Van Inwagen's approach to the SCQ is worth close consideration since it might be useful for my purposes in this work to partially adopt the strategy he uses for the composition of human persons.

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[195] Ibid., 347.

[196] Ibid., 346.

[197] Ibid., 348, 349.

[198] Ibid., 350.

4.2. Van Inwagen's Organicism

Van Inwagen, too, thinks that causation is a necessary element when considering composition. However, one must be specific when talking about causation, since many things cause many others without there being any object being involved at all. Inwagen interprets composition in the following way:

> ∃*y* the *x*s compose *y* if and only if
> the activity of the *x*s constitutes a life (or there is only one of the *x*s).[199]

Two things must be explicit to make sense of the above assertion by Van Inwagen: (i) what is an activity that constitutes an event, and (ii) what is it for an activity to form a life?[200]

The first question might be a tough one, and I am not sure whether one really has to answer that question. Indeed, Van Inwagen, too, argues accordingly, saying: "I haven't too much to say about what it is for the activities of objects to constitute an event. I must leave this notion at a more [or] less intuitive level …."[201] However, he does give some examples relating to the formation of activities: the activities of voters and parties 'constitute' an election; the activities of soldiers (marching) constitute a parade;[202] and the activities of a number of pixels constitute a cat image flashing on an LED screen. For Van Inwagen, there seems to be three points to make about activities constituting events. First, there can be events without there being activities on the part of objects (Van Inwagen does not give any example of such events, but although the nature of it is dubious, the Big Bang can perhaps be considered such an event). Second, one and the same activity of an object may constitute more than one event (consider a spinning disc: its rotational motion and change of its temperature can both belong to the same activity). And third, two

[199] Peter van Inwagen, *Material Beings*, (London: Cornell University Press, 1990), 82.

[200] Ibid.

[201] Ibid.

[202] Ibid.

distinct activities may take place in the same object that is a part of an event and only one of these activities may be relevant (e.g. an inner process in a blood cell may not be relevant to the event of blood circulation directly).[203] What should there be, then, to constitute a life? Van Inwagen states that "the word 'life' … denote[s] the individual life of a concrete biological organism."[204] 'Life,' in this sense, should not be understood in general terms. What Van Inwagen talks about when he talks about life is, e.g. the life of Abrek or of Erdinç, or of Cem, etc. Or rather, it would be more accurate to say that $\text{Life}_{\text{Abrek}}$ is equal to Abrek, or $\text{Life}_{\text{Erdinç}}$ is equal to Erdinç, etc. What is this thing called 'life'?

Van Inwagen, despite clearly stating that defining life is the work of biologists,[205] tries to make intuitive sense of the notion. He gives the analogy of a club. Say there is a club whose members are constantly changing: a few gang members, let's say, are forcing players or staff to work for the club. Although the club hires by force, the new members are (almost) always happy with their status. No member stays forever, though; all of them are dismissed from their responsibilities after a certain time, and they are replaced by new members. So, although the members change, there is still continuity. Van Inwagen thinks that one of the static properties of the club is "internal causation," which holds among the members of the club, with no external maintenance taking place.[206]

A further analogy could be of a jail. The population of the jail might stay the same, even though the particular prisoners change. This accounts for the "dynamic stability" of the jail.[207]

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[203] Ibid., 82, 83.

[204] Ibid., 83. Life is always a life of something according to Van Inwagen. Consider the phrase "Life is horrible." It is not meant in this phrase that my life is horrible but that this general structure of things called life is horrible. This is what Van Inwagen does not refer to as 'life.'

[205] Ibid., 84.

[206] Ibid.

[207] Ibid., 84, 85.

To get back to the club: the members of the club are individual persons inevitably, yet (remembering the analogy) our body (most probably) does not have conscious proper parts (unless panpsychism is true). Leaving aside the consciousness and intentionality problems, suppose that the parts of the club are just automata: they do not have features of a person in anyway. So, in addition to this, the gang we talked about takes some partition of the external world into the club, the club breaks it apart, and uses the necessary components to continuously constitute the club.[208] Van Inwagen gives an example of an intellect that does not know anything about organisms, but knows about physics and chemistry. How would such an intellect describe a living organism, such as an individual human life? The answer would be as follows:

> What I am observing is an unimaginably complex self-maintaining storm of atoms. This storm moves across the surface of the world, drawing swirls and clots of atoms into it and expelling others, always maintaining its overall structure. One might call it a homeo-dynamic event.[209]

Lives, according to Van Inwagen are "self-maintaining events." If such an event can be observed by a disembodied intellect, then it is a life. And there exist events like these.[210] Although Van Inwagen makes it clear that what a life is an issue of biology, offers some intuitive accounts, some of which I do not quite agree with and I will state my points and modification proposals after the exposure of the main points of the Inwagen's theory.

Firstly, Inwagen says that "life is a reasonably well-individuated event."[211] There is a "continuous path" that represents the life of a single organism from the past to the present, according to him.

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[208] Ibid., 86.

[209] Ibid., 87

[210] Ibid.

[211] Ibid.

Secondly, a life is a "self-maintaining … [or a] self-regulating event."[212] There are some so-called self-regulating events according to Van Inwagen, one of which may be a flame. A flame, although seems to be self-regulating once lit, there is no way to discriminate between, let us say, a flame of the single match from the others if we put several together. Hence, flames, although said to be self-regulated, are not well-individuated. Some other things might also be called lives such as tumors. Spreading of tumors can be said to be self-regulating but is not well-individualized. There are other events which are self-maintaining and well-individuated but are not lives; such as waves.[213] The important point here according to Van Inwagen is that making analogies to make the notion of lives is commonsensical. So the point is, life, as an event, is an intuitively physical event, and is distinct in its own way. Still a further claim is needed to modify the proposed answer. Van Inwagen suggests the following inevitable modification:

> Suppose that something is such that certain objects compose it in virtue of their activity's constituting a life. Let us call such a composite object an *organism*.
>
> The *x*s compose *y* if and only if
>
> *y* is an organism and the activity of the *x*s constitutes the life of *y*.[214]

According to Van Inwagen, no one except nihilists would disagree that there are living organisms in the world; and the activities of certain *x*s constitute those organisms (or rather, those organisms *possess* these *x*s). Van Inwagen refers to a biologist and a neurophysiologist to make sense of his picture, although it is doubtful that he succeeds. He first quotes J. Z. Young, who claims that there is a distinct entity that is the carrier of life and s/he imposes life as an activity on the substance

[212] Ibid., 87, 88.

[213] Ibid., 89, 90.

[214] Ibid., 90, 91.

that is within the activity.[215] The second figure is Jonathan Miller, who makes a good analogy between a living organism and a fountain. He says

> The persistence of a living organism is an achievement of the same order as that of a fountain. The material from which such an object is made is constitutionally unstable; it can maintain its configuration only by flowing through a system which is capable of reorganizing and renewing the configuration from one moment to the next.[216]

According to Van Inwagen, Young's analysis may lead to the conclusion that a simple, i.e., an atom, may come to be a part of a living thing only spontaneously or for a temporal interval. So, Van Inwagen offers the following modification where possible:

> *x* is a proper part of *y* if and only if
>
> *y* is an organism and *x* is caught up in the life of *y*.[217]

An example might be helpful to understand the definition above. Say I consumed a cup of coffee and some water molecules in the coffee are caught up in the life of me and get used by my cells and organs and become part of me. Or when I breathe, some oxygen molecules get into my cellular respiration mechanism and are used while others do not. The ones that get used are my parts since they are caught up in the life of me as a person.

In the following sections I will propose some modifications to Van Inwagen's theses.

4.3. A Quick Note on Causation and Criss-crossing

In this work, I do not attempt to give an account to causation, nor do I solve any problems of causation. However, it must be noted that causation plays a crucial role

[215] Ibid., 92.

[216] Ibid., 93. See Jonathan Miller, *The Body in Question* (New York: Random House, 1978) esp. 140,141 for more information.

[217] Peter van Inwagen, op.cit., 94.

at one point or another in the issues I discuss. In order for a human person to persist, some causal chains are needed among its parts. Moreover, since causation takes time, we need to consider temporally-thick four-dimensional slices through space-time to account for its so-called 'instantaneous' parts. As such, synchronic composition *most of the time* just means a temporal interval rather than temporally non-extended instantaneous points.

In this sense, an account of causal criss-crossing would be relevant to what is discussed in this work. Causal criss-crossing means, roughly, the following: consider your left hand and your right leg, such that they co-exist and are parts of you as a person.[218] However, if your left hand is causally affecting your right leg, this will take some time and vice versa. As such, a causal signal starts at an earlier time than the affected part of you. Yet it does not matter whether that particular signal comes temporally earlier, since it is still real according to eternalism and space-time realism that I defend. Accordingly, a criss-crossing takes place —some parts affect the others, while the others affect them back, or else affect some other parts and are affected. *Causal links are important when establishing and sustaining functionality*.

4.4. A Modification Based on Functioning

Van Inwagen's theory so far (we will see that Van Inwagen originally defends a vague existence) proposes that the activities of certain simples constitute a life. What one should also state, if she is to make sense of such activities, is that these activities are functions. Ned Markosian, for instance, when analysing Van Inwagen's proposed answer, states that "if some simples *function together* in such a way that their activities constitute a life, then there is a composite object —a living thing— that they compose"[219] (though he does not stress on the functions in question in this analysis). Although in the current analysis we will consider functionality *on an*

[218] I do not want to get into the issue of whether a hand or a leg are essential parts of a human. They can be intuitively considered as physical parts of a person and nothing else.

[219] Ned Markosian, op.cit., 342. Emphasis mine.

intuitive level which will be modified in the following sections, it might be beneficial to remind the reader that there is a wide area especially in biology on what kind of functional roles biological parts have or in what terms a function of a part is to be understood. Before modifying Van Inwagen's theses with the term *functioning*, it might be helpful to say a few words about functions.

4.4.1. Functions

The debate on functions has been significantly extended in the last few years, mainly in relation to philosophy of mind issues.[220] Yet, here, I would like to emphasize its significance in terms of biology—mainly following the influential review paper by Arno Wouters, 'The Function Debate in Philosophy'—since the modification of Van Inwagen's argument seems to necessitate such a discussion (although my main thesis will not take a solely organismic position).

Although Wouters's position relies upon the actual practice of biology, rather than the intuitive use of functions, I take his position to be a valuable position to consider since actual scientific practice does sometimes help to improve the intuitions.

In function talk, it is generally taken to be the case that certain functions are to be attributed to objects, but not to certain systems that are intrinsically physical. Some major points can be highlighted here. Part-whole talk is quite appropriate to include in the function debates, as is the "functional roles of organizations", functions as "means to ends", metaphysical talk, etc.[221] Can there then be a unified theory of functions? Wright, Boorse, Millikan, Kitcher and Dennett have all tried to give a full account of functions.[222] What interests us here is that function talk can be considered

[220] Arno Wouters, 'The Function Debate in Philosophy,' *Acta Biotheoretica*, (2005): 53, 123.

[221] Ibid., 126.

[222] Ibid. See the following for more information: Larry Wright, 'Functions,' *Philosophical Review*, 82, 1973: 139-168. Larry Wright, *Teleological Explanations: An Etiological Analysis of Goals and Functions*, (Berkeley: University of California Press, 1976). Cristopher Boorse, *A Rebuttal on Functions* in: Ariew, A., R. Cummins and M. Perlman (eds) *Functions*, (Oxford: Oxford University Press, 2002), 63–112. Ruth Garrett Millikan, *Language, Thought, and Other Biological Categories*, (Cambridge: MIT Press, 1984). Philip Kitcher, *Function and Design* in French, P.A., T.E. Uehling

appropriate in relation to parts (even though degree talk in relation to functioning would most probably be considered inappropriate by many, as we will see).

What about normativity? Wouters says that "[I]ntuitively, a function is something that an organ is supposed to do and an organ has that function even if it fails to do what it is supposed to do. In that case it is said to malfunction."[223] The problem here concerns how much of a function, let us say, of a heart should fulfil in order to be considered functioning? What is the norm in such terms? There are three positions that can be taken here: first, one can consider the norm to be statistically relevant;[224] second, one can consider it through teleology (an issue that I am not going to discuss); and third, one can reject the normativity of functions.[225]

Another issue related to normativity concerns the categories that biologists use to contribute to organ specification. For instance, you carry a heart that is similar to mine, while certain other species also carry hearts that are functionally similar to ours. So in that sense, it can be said that "a function is not something a thing actually does or is capable of doing, but rather something a thing is supposed or designed to do."[226] However, this view has appeared flawed to some, since this categorization debate might necessarily depend upon an evolutionary basis.[227]

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and H.K. Wettstein (eds), *Philosophy of Science*, (Notre Dame: University of Notre Dame Press, 1993) 379–397. Daniel Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life*, (New York: Simon & Schuster, 1995).

[223] Arno Wouters, op. cit., 126,127.

[224] Ibid., 127. See, Ruth Garrett Millikan, 'In Defense of Proper Functions,' *Philosophy of Science* (1989) 56: esp. 295. Or see, Karen Neander, 'Function as Selected Effects: The Conceptual Analyst's Defense,' *Philosophy of Science*, (1991) 58: esp. 182.

[225] Arno Wouters, op. cit., 127.

[226] Ibid.

[227] Ibid., 127, 128. Also see Ron Amundson, George Lauder, 'Function without Purpose: The Uses of Causal Role Function in Evolutionary Biology,' *Biology and Philosophy*, (1994) 9: 443–469.

One other issue related to normativity is the demarcation between "'having a function' and 'performing a function.'"[228] In this work, what I am dealing with is very close to 'performing a function.' Although there is a huge literature on this, a particularly neat analysis could be that of Boorse, which discriminates between weak functions and strong functions: the former is to be performed 'occasionally', whereas the latter 'typically.'[229] (In this case, what I will be dealing with is both of these functions when constituting (or continuously constituting or sustaining) life, as we will see.)[230]

There are some approaches to function debate which deserves quick mentioning before closing our main exposition about the functions.

4.4.1.1. The Systemic Approach

The first related approach could be 'the systemic approach.' We can see two central figures taking this kind of an approach: von Wahlert[231] and Cummins.[232] This approach primarily suggests that "the function of an item is the role of that item in bringing about a chosen activity or capacity of a complex system of which it is a part."[233] Wahlert, in this sense, proposes that such functions refer to 'biological roles'; Cummins, on the other hand, suggests that an 'analytical' explanation must be used to analyse the capacities.[234] This 'functional analysis' is the correct way to

[228] Arno Wouters, op. cit., 127.

[229] Ibid., 128.

[230] A very intuitive suggestion would be not every cause-effect is a function.

[231] Ibid., 135. See Walter Bock, G. von Wahlert, 'Adaptation and the Form-function Complex' *Evolution*, (1965) 19: 269–299.

[232] See Robert Cummins, 'Functional analysis,' *Journal of Philosophy*, (1975) 72: 741–765. And Robert Cummins, 'The Nature of Psychological Explanation,' (Cambridge: MIT Press, 1983) esp. chp. 2.

[233] Arno Wouters, op. cit., 135.

[234] Ibid.

establishing biological attributions. The systemic approach treats the parts of the system as having quite different functions to the system as a whole; the whole system has functions and so do its parts.

> Such [analytical] explanations explain a capacity of a system by analysing that system into a number of components, the organized activity of which results in the capacity to be explained. The power of this strategy of explanation depends on the extent to which the capacities of the parts are simpler than and different from the capacity to be explained, and on the relative complexity of the organization attributed to the system.[235]

There seems to be two counter-arguments to the systemic approach; the first of these is to say that the approach is "too liberal."[236] It might be understood from this approach that a function of a tumour might be to press upon a certain part of an organ and to produce, let us say, some kind of side effect, or a function of a heart to be 500 grams, etc. A reply to this comes from Craver.[237] He suggests the function of an organ can be defined with reference to its "regular activity." The heart, for example, is "organized" to pump blood, rather than to be 500 grams or some other trait. Being 500 grams does not depend on its structure per se.[238]

The second of the counter-arguments says that the approach lacks the normativity it promises to give. If there exists a "malformed heart," the systemic approach cannot account for it; thus to pump is not a function of the malformed heart.[239] Against this, Prior[240] has provided an answer by giving a sub-set of functions called "s-functions," which "standardly contribute to the survival and/or reproduction of the

[235] Ibid.

[236] Ibid.

[237] Ibid., 136. See Carl, F. Craver, 'Role Functions, Mechanisms, and Hierarchy,' *Philosophy of Science*, (2001) 68: 53–74.

[238] Arno Wouters, op. cit., 136.

[239] Ibid.

[240] Ibid. See E. W. Prior, 'What is Wrong with Etiological Accounts of Biological Function?' *Pacific Philosophical Quarterly*, (1985) 66: 310–328.

organisms."[241] So, when a heart malfunctions it does not s-function.[242] Another response to this counter-argument states that the term 'malfunction' is not scientific.[243] The very idea of this non-scientificness comes from the fact that it is not the part that does not work accordingly: it is the way in which the organism is organized. Additionally, no one can assert that an organism malfunctions, since it is not in naturalistic terms.[244]

Another alleged problem with the systemic approach is that it fails to demarcate between a so-called "appropriate function" and an "accident." Say a heart pumps blood as its appropriate function, and it emits a sound while pumping blood; can this sound-making be considered a function of the heart or is it just a so-called accident? Against this, it can be said that the activity of pumping blood "explain[s] the capacity to circulate the blood," whereas the sound does not signify any capacity that is essential.[245] [246] Yet, if one is to assign any activity the role of an "important capacity," then various so-called "background" activities might also be seen to contribute to these important capacities, such as gravity. One may feel that the important capacities can be limited by bodily boundaries; however, in this case, one still has to discriminate between accidents and function.[247] (I will propose a rather broad notion of function, which might include some so-called accidents, in cases in which they constitute or reconstitute life. Indeed, certain background conditions

[241] Arno Wouters, op. cit., 136, 137.

[242] Ibid., 137.

[243] Ibid., 137. Also see Arno Wouters, *Explanation Without a Cause*. (Utrecht University. Ph.D. Thesis, 1999). And see, Paul Sheldon Davies, *Norms of Nature: Naturalism and the Nature of Functions*, (Cambridge: MIT Press, 2001).

[244] Arno Wouters, op. cit., 137.

[245] Ibid.

[246] One may argue that the whole world might be thought of as a song. In this case, heart's sound may correspond to some essential function. However, naturalistic approaches will not count such an objection as appropriate.

[247] Ibid.

might also be seen as functioning to constitute life, as we will discuss and evaluate later on.)

4.4.1.2. The Goal Contribution Approach

The second approach to be considered is "the goal contribution approach." As can be understood from the name, the goal contribution approach takes functions as the mechanisms required to achieve a goal. The function of the heart can be said to be pumping blood, since this function helps organism to "survive and reproduce."[248] One problem might be that the goal contribution approach cannot account for "traits, items or behaviours" which do not contribute to survival or reproduction as functions.[249] Another point is that, in some cases, extended material might contribute to survival and reproduction; for Boorse and Adams,[250] "a thing can only have a function if it is part of a goal directed system."[251] However, consider a bird's nest. Is it not the case that the bird's nest contributes to the survival of a singular bird in the nest? The answer is clearly yes. Then either the nest is part of the bird, or it isn't but still contributes to the survival.

What about malfunctions? Boorse makes the defence that there are no malfunctions, unlike Wouters and Davies.[252] Boorse argues that the very idea of malfunctioning comes from a confusion in the type-token distinction. A singular token might be said to malfunction when compared to the type, yet each particular token should be treated in its own respect. He says

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[248] Ibid., 138.

[249] However, how can one be sure of what counts for survival or reproduction? If we take a sole biological perspective, this might be a problem, but as we will see, we do not need to have a sole biological approach when considering functions.

[250] Ibid., 139. See Frederick R. Adams, 'A Goal-state Theory of Function Attributions,' *Canadian Journal of Philosophy*, (1979), 9: 493–518.

[251] Arno Wouters, op. cit., 139.

[252] Remember they defend a naturalist position.

> If Carla's heart cannot pump blood, then pumping blood is not, in fact, the function of her heart; it has no function. Since blood-pumping is the normal [i.e. species typical] function of a human heart, it would be the function of Carla's heart if Carla's heart pumped blood normally; but it does not, so it is not.[253]

We are now in a point to see another approach related to function talk, "the life chances approach."

4.4.1.3. The Life Chances Approach

The life chances approach mainly states that functions are to be demonstrated through reference to hypothetical situations, and are explained thusly. Consider the heart again; say there is a person whose heart is pumping blood and they have a hypothetical twin whose heart does not perform this pumping activity. Since the hypothetical twin's chance of survival is obviously lower than that of the real case, pumping blood is a function of the heart.[254]

The main defenders of this approach are Canfield,[255] Ruse,[256] Wimsatt,[257] Bigelow and Pargetter,[258] and Horan.[259] Bigelow and Pargetter claim that this approach has many pluses when compared to other approaches—especially the etiological approach—since it accounts for future potentials. The etiological approach, as we

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[253] Ibid.

[254] Ibid., 139, 140.

[255] See, John Canfield, 'Teleological Explanation in Biology,' *British Journal for the Philosophy of Science,* (1964), 14: 285–295. And, John Canfield, (1965). 'Teleological explanation in biology: A reply,' *British Journal for the Philosophy of Science,* (1965), 15: 327–331.

[256] See, Michael Ruse, 'Functional Statements in Biology,' *Philosophy of Science*, (1971), 38: 87–95. And Michael Ruse, *The Philosophy of Biology*, (London: Hutchinson, 1973).

[257] See William C. Wimsatt, 'Teleology and the Logical Structure of Function Statements,' *Studies in History and Philosophy of Science*, (1972), 3: 1–80.

[258] See, John Bigelow, Robert Pargetter, 'Functions,' *Journal of Philosophy*, (1987) 84: 181–196.

[259] See B. L. Horan, 'Functional Explanations in Sociobiology,' *Biology and Philosophy*, (1989) 4: 131–158, 205–228.

will see, defines functions in relation to their "past selection." It can be said, following the etiological approach, that if there is an effect that has never occurred before, this effect is not a function; however, an effect that ceases to be practical can still be a function.[260] Also, according to etiological approach, "[p]arts and behaviours of instant organisms lack functions."[261] The life chances approach acknowledges the functions of such organisms when they contribute to their survival chance; in the case that a trait becomes fruitful for the organism, again they acquire a function, whatever its past attributions were.[262]

Besides some general problems that come into terms with the other approaches, one additional problem is that we cannot know how the agent would fit, given such-and-such conditions. For instance, a lack of function might mean that the agent in question fits more efficiently.[263]

Another influential viewpoint of biological functions is "the etiological approach."

4.4.1.4. The Etiological Approach

The etiological approach explains functions with reference to their past occurrences. To put it more bluntly: "it is the function of the heart to pump blood because pumping blood is what hearts did in the past, [which] explains their current presence."[264] There are two central figures; Wright and Williams[265] (although Williams' work is generally underestimated). Wright's formulation of etiological approach is as follows:

[260] Arno Wouters, op. cit., 140.

[261] Ibid.

[262] Ibid., 141.

[263] Ibid.

[264] Ibid.

[265] See, George C. Williams, *Adaptation and Natural Selection*, (Princeton University Press, 1966).

The function of *X* is *Z* if and only if:
(1) *Z* is a consequence (result) of *X*'s being there
(2) *X* is there because it does (results in) *Z*[266]

It seems quite evident that the second proposition lacks the historical assertions that an etiological approach necessitates. Hence, it is proposed that the second proposition should be more like the following:

(2') *X* is there because it did *Z* (in the past)[267]

Underestimating the problems that come with tensed sentences, it can be said that (1) + (2') seem to be the best candidates for the formulation of the etiological approach.

However, one problem with such a formulation can be that it lacks account for the demarcation between token and type. Is it the fact that my heart pumps blood or that my ancestors' hearts pumped blood that ensures the function? There is no distinction.[268]

Neander, when describing an etiological approach, makes reference to natural selection in terms of past occurrences. She states that past occurrences exist since they are the result of natural selection; the fact that past occurrences are essential to characterizing current occurrences leads natural selection to take up its role as a function determinate. Therefore no problem concerning type-token arises.[269] However, the naturally selected effects in no sense require current performance. That is to say, an effect might be naturally selected, but this does not necessitate that its performance, even by a member of that species. Therefore the selected effect theory, as it is, remains a "normative" one.[270]

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[266] Arno Wouters, op. cit., 142.

[267] Ibid.

[268] Ibid.

[269] Ibid., 142.

[270] Ibid., 143.

Godfrey-Smith, as another interpreter,[271] considers the supposed tendency to demarcate evolution from functions to be a mistake. However, since evolution needs a history back one must hold into recent history ("modern history theory") when making function talk with evolution.[272]

Schwarts[273] shows that there is a problem with Godfrey-Smith's approach. He argues that not every functional role carried by traits is the result of modern selection. There may be other causes, such as a "lack of variation or…selection by other effects." There must be a persistent "usefulness" when function talk is needed.[274]

Wouters suggests that etiological theories within biology are not yet complete or working as desired, yet they are still provocative and beneficial for further studies on function talk.[275]

Another approach regards function using selection but in a non-historical sense.

4.4.1.5. Non-Historical Selection Approaches

The main figures in non-historical selection approaches are Kitcher and Walsh.[276] They have argued that functions are not necessarily past–oriented, neither do they need to explain current phenomena in causal terms. According to Kitcher, "functions are relative to time,"[277] while according to Walsh, "functions are relative to a

[271] See P. Godfrey-Smith, 'A Modern History Theory of Functions,' Nous (1994), 28: 344–362.

[272] Arno Wouters, op. cit., 143.

[273] See, Peter H. Schwartz, 'Proper Function and Recent Selection,' *Philosophy of Science*, (1999), 66: 210–222.

[274] Arno Wouters, op. cit., 143.

[275] Ibid., 144.

[276] See, D. M. Walsh, A. Ariew, 'A Taxonomy of Functions,' *Canadian Journal of Philosophy* (1996), 26: 493–514.

[277] Arno Wouters, op. cit., 144.

selection regime."[278] Namely, "[c]urrent functions are … relative to the present / the present selection regime; historical functions are … relative to a certain past / a past selection regime."[279]

The difference between non-historical selection approaches and the life chances approach are twofold: (i) the life chances approach takes cases individually, thus talking about the life chances of individual organisms, whereas non-historical selection approaches tend to understand the issue on a population-based level; and (ii) the life chances approach compares actual cases with hypothetical cases, whereas non-historical selection approaches compare actual cases with other actual cases.[280]

Non-historical selection approaches consider "utility" on a relative level, so "indeterminateness of reference" is no longer an objection, nor are function side effects an issue. A further point about non-historical selection approaches is that they take the actual existing function, rather than any supposed or expected functions, into the debate. In addition, they don't have anything to do with normativity.[281] However, one major challenge concerning non-historical approach might be to sort out the present selection:

> There are many well-documented cases of selection … but these cases do not suffice to determine the selection forces currently affecting the evolution of hearts, lungs, livers etc. To attribute current non-historical selection functions to these organs would be highly speculative.[282]

As one can easily see, the function talk, although needed, is not well determined by the philosophers. However, its being a difficult notion should not discourage us in

[278] Ibid.

[279] Ibid., 144, 145.

[280] Ibid., 145.

[281] Ibid., 145, 146.

[282] Ibid., 146

this context, since an intuitive talk about functioning would seem to fit with our context of parthood.

But why function talk? I guess the intuitive side of function talk comes from its relation to folk psychology. Schaffer and Rose[283] claim that functions play a huge role where folk mereology is concerned.[284] Is it so bad to conform to the folk mereological idea? I think it seems that although some folk psychological ideas are evidently false, this approach to mereology is close to being true, or at least intuitive. In this work, as one can easily see, I am using both a scientifically based and an intuitive approach.[285]

How then can we employ the word 'functioning' within the debate Van Inwagen put forward? The following might be the way:

> The *x*s compose the living human being *y* if and only if
>
> *x*s function to constitute the life of *y*.[286]

As one can easily see, the above considerations do not involve anything about the nature of functions. And, I believe they do not need to. The reader will see that, as the chapter progresses and the examples multiply, the intuitive sense of functioning will make sense in a consistent way. Besides, no function talk, as one can see above, is appropriate in and of itself.

One more thing needs to be said before continuing with the analysis: the parts —or *x*s—in question should not be simples per se, when we talk about functions. Of

[283] David Rose, Jonathan Schaffer, 'Folk Mereology is Teleological,' forthcoming in *Nous*.

[284] Ibid., 1-7.

[285] It is said in ibid., 8. that following such a folk mereological idea, Ned Markosian is working on a book that contains a mereological account that stresses upon collective function of the parts.

[286] It must be said that this modification does not structure an answer to the special composition question itself. But just deals with the composition of human beings.

course, the simples (as atoms or cells) are functioning to constitute the life of a human person; however, certain organs or collections of organs might also be of issue. My heart, although constituted by a number of cells and atoms, functions both bounded by and on top of the cells it is composed of. The cells of the heart do not pump blood, the heart does; yet this pumping is only possible when the cells function in harmony. So, instead of only mentioning simples, one could just as easily refer to organs or systems as the functioning parts of a human person.

We will multiply the examples and consider the problems with the theory as the account proceeds. However, at this point it is very crucial to point out that I will be defending a theory that supports metaphysical vagueness in terms of human composition, and thus human persistence.

4.5. Vagueness

When talking about metaphysical vagueness, people have a tendency to draw it into the realm of semantic or epistemic vagueness (which I will talk about in a little while). I strongly disagree; it can be that we lack some of the requirements to sort out existence of something as a whole, but we do not lack all of them. While I agree that there can be semantic vagueness, there is also a metaphysical kind, and this metaphysical vagueness is partly responsible for the confusion we fall into when analysing certain philosophical issues.

In this section, I will review the ideas of some central figures in relation to metaphysical vagueness.

4.5.1. Sorting Vagueness Out

It would make sense to start with a quote from Katherine Hawley. She poses a number of questions related to vagueness:

> Are those curtains red or orange? Is Fred, whose hair is thinning, bald yet? Is this molecule part of me right now? We do not know how to answer these questions, and it does not seem that further information about the curtains,

> Fred, or this molecule would help us answer the questions. This situation arises because our concepts seem to have borderline cases: we do not know where to draw the line between the red things and the orange things, between the bald men and non-bald men, or between those things which are my parts and those which are not.[287]

Hawley further categorizes the theories of vagueness into three groups. Firstly, there is epistemic vagueness which states that when we talk about a vague issue—let us say about parthood—we can, for instance, say that a specific oxygen molecule is a part of me; however, this assertion does not indicate whether it is a part of me or not, since we do not know this. We may seem to talk accurately but in fact we do not know whether the boundaries of the body in question extends to include that oxygen molecule as its part.[288] Secondly, there is semantic vagueness, which results from "loose talk". This means we have not made clear what we are talking about.[289] A quote from David Lewis explicitly shows the negative attitude towards metaphysical vagueness among philosophers. He says,

> The only intelligible account of vagueness locates it in our thought and language. The reason it's vague where the outback begins is not that there's this thing, the outback, with imprecise borders; rather there are many things, with different borders, and nobody has been fool enough to try to enforce a choice of one of them as the official referent of the word 'outback'. Vagueness is semantic indecision.[290]

Thus it is said that we could be more specific when referring to the oxygen molecule and its relation to us linguistically; in this way, there would be no loose talk and thus no vagueness to be sorted out. However, linguistics sometimes makes it impossible

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[287] Katherine Hawley, *How Things Persist*, (Oxford: Oxford University Press, 2001), 100.

[288] Ibid., 102. See Timothy Williamson, *Vagueness*, (London: Routledge, 1994), for more.

[289] Ibid., See David Lewis 'Many, but Almost One,' in J. Bacon, K. Campbell, and L. Reinhardt (eds.), *Ontology, Causality and Mind*, (Cambridge: Cambridge University Press, 1993), 23–38.

[290] David Lewis in Peter Tan, 'A Criticism of the Argument from Vagueness for Unrestricted Composition,' *Res Cogitans*, (2010) 1: 15. See, David Lewis, *On the Plurality of Worlds*, (Oxford: Basil Blackwell, 1986).

to refer to such phenomena. Thirdly, there is metaphysical vagueness. This approach regards vagueness as something that the world has. It is not that the world is obvious in terms of, let us say, parthood, and that we fail to grasp it for either semantic or epistemic reasons, but instead it is because parthood is vague *simpliciter*.

Theodore Sider, in his book *Four Dimensionalism*, claims that vagueness cannot be defended. His argument is generally called the argument from vagueness, and devotes itself mainly to four-dimensionalism and unrestricted composition. The argument is as follows:

> P1: If not every class has a fusion, then there must be a pair of cases connected by a continuous series such that in one, composition occurs, but in the other, composition does not occur.
>
> P2: In no continuous series is there a sharp cut-off in whether composition occurs.
>
> P3: In any case of composition, either composition definitely occurs, or composition definitely does not occur.
>
> [C]: … [F]or every class there is … a fusion —an object composed of the objects in that class.[291]

Unrestricted composition —which, I think, is untenable— aside Sider contends that there is either composition or not; there cannot be a vague composition. As I said earlier, the vagueness of composition is often disputed. I, on the other hand, will contend that composition is vague and that there are degrees of parthood where the composition of human beings is considered. I will now take a look at a number of accounts that hold composition to be vague, beginning with, again, van Inwagen. Following that, I will propose an account according to the modification I offered above concerning functioning, and by taking the notions of *degrees of parthood* and *non-organismic parts* into account.

[291] Theodore Sider in Peter Tan op. cit., 14, 15.

4.5.2. Accounts on Vagueness

As we said before, Van Inwagen's proposed answer to the composition problem is as follows:

> (∃*y* the *x*s compose *y*) if and only if
> the activity of the *x*s constitutes a life.[292]

Van Inwagen claims that, although this account seems rigid, it is not, since composition itself is a vague notion. He refers to and opposes Peter Unger in order to explain his thought more broadly. Unger's original argument is designed as a reductio argument. It goes like this: Let us say that you, as a human being, do exist. Then, referring to van Inwagen's argument, let us also say that there are "certain simples that compose" you. Let the totality of those simples be 'M.' One can always find a "negligible" part in M. Let us call this negligible part x. It would then be ridiculous to deny that M-x is a man. Now consider another negligible part y; M-y is evidently a human being too. But what about addition? A negligible part, maybe a single oxygen molecule, might be added to M: surely then M+z (taking z to be the oxygen molecule) can be counted as a human being too. So what? It can be said that there are numerous (but not infinite) simples that can be counted or not counted as parts; thus there are many "man-candidates," let us say, in your room when you think you are alone. Some of these candidates might be "indistinguishable" from the others, while some may be quite different (say lacking a whole limb). Peter Unger uses this argument to say that there is no you in the room. While this might seem absurd, to say that there is a you in the room would necessitate positing a selection principle. Van Inwagen concludes that Peter Unger's argument is as follows:

> (1) In every situation of which we should ordinarily say that it contained just one man, there are many sets of simples whose members are as suitably arranged to compose men as any simples could be. (2) The members of each

[292] Peter van Inwagen op. cit., 213.

> of these sets compose something. (3) Each of these "somethings" is a man, provided there are any men at all. (4) If I exist, there is a man.[293]

Yet it is somehow hard to conclude with (4). Perhaps the abstract objects can help: Van Inwagen suggests that we seem to count on sets in this sense. Consider that you exist, and that you are a set, composed of *x*s, *y*s and *z*s. Then consider slightly different sets with negligible additional or lacking elements. Now that you get the picture, assume that you observe the sets from a point outside: you now have many sets in front of you. What should then be asked is whether you can determine which of the sets have the necessary members to compose an object. Or an analogous analysis can be given as follows: consider a possible world where an atomic particle *j* is your part unlike in the actual world, let us call this possible world w_1. And now consider another possible world where you have a very small atomic negligible part *h* and call this world w_2. Let another possible world be w_3 where you lack a negligible part *g*. The worlds can be multiplied in this way, but let us ask which of the possible worlds mentioned above is closer to the actual world in terms of overall similarity? Van Inwagen would say that the answer is "none is closer than the other." Now that the issue is clear we do not need possible worlds to discuss actual vagueness. Now try to apply a selection criterion in terms of membership among the above mentioned actual sets. You most probably cannot do such a thing, because there are no such members, concretely and specifically. For van Inwagen, "this is because parthood and composition are vague notions."[294] I totally agree that they are vague notions; however, in the following analysis, I do not agree with some other aspects of Van Inwagen's account, which the reader will recognize as the chapter progresses.

Van Inwagen claims that a given atom or simple can't exactly be considered as a part very easily, and that it is indeterminate whether a given oxygen atom is a part of me at time *t*. He goes on to say that, if one is analysing the issue well enough, there

[293] Ibid., 216.

[294] Ibid., 217.

cannot be a concrete point in an organism's life in terms of composition. It is always vague and "a matter of degree."[295]

Yet how is that so? It is easy to say that composition is a matter of degree, but hard to account for it so easily. Considering a single simple that may or may not go into the composition of an organism, together with the other simples as parts, there is evidently a vagueness. But (if one has to talk about sets) sets, in their traditional set-theoretic sense, are not vague. Taking *x* as a possible member of a set *y*, where *y* corresponds to a human being, you can either say *x* is a member or it is not. In that sense, Van Inwagen protests that he cannot be criticized for not having determined a selection principle capable of picking out a set, or a man-candidate in the above example.[296] However, we can take this assertion as a step in Van Inwagen's argument for vague existence. Given Van Inwagen's intuition that composition is vague, one needs another tool and Van Inwagen proposes that such a tool might be fuzzy sets.[297] In classical set theory, as mentioned above, set memberships are not vague; however, in fuzzy sets, we do have degrees of membership.[298] For example, consider "'the class of all real numbers which are much greater than 1,' or 'the class of beautiful women,' or 'the class of tall men.'"[299] Although I will not be dealing with the fuzzy set theory, it is a way to approach degree-based membership. In fuzzy sets there are three components: the set, the object, and the degree. So, for example, in fuzzy set theory, *x* can be said to be a member of *y* by some degree: let us say, *z*.[300] A three-termed membership might also be possible: member, not-a-member, and borderline case (member-at-a-degree). There could also be two borderline cases in

[295] Ibid.

[296] Ibid., 217, 218.

[297] Ibid., 221.

[298] For the first discussion in literature concerning fuzzy sets see, L. A. Zadeh, 'Fuzzy Sets,' *Information and Control*, (1965), 8: 338-353.

[299] Ibid., 338.

[300] Peter van Inwagen, op. cit., 221.

which one member's degree of membership could be greater than the other (i.e., it is "closer" to membership status than the other).[301] Hence one may want to assign degrees to such memberships between 0 and 1: 0 for a non-member, 1 for a definite member, and between 0 and 1 (noninclusive) for borderline memberships.[302] Van Inwagen modifies his proposed answer using the concept of fuzzy sets accordingly. He says:

> (∃*y* the members of the f[uzzy] set of simples *x* compose *y*) if and only if the activity of the members of *x* constitutes a life.[303]

Van Inwagen further claims it would be a mistake to suppose that there are no fuzzy sets where organisms are concerned. He further emphasizes and reformulates his analysis as follows:

> If *x* is one of these f[uzzy] sets, it is neither definitely true nor definitely false that there is a life *z* such that a given simple is a member of *x* to just the degree to which it is caught up in *z*.[304]

It can be said, in relation to the above discussion, that even if we try to limit the existence of human beings to organismic parts and simples, it is still vague. In the following sections, I will try to show that there are non-organismic parts of human beings, and that these constitute parts at certain degrees. I am not going to give a formal fuzzy set account; rather my account will mainly be based on intuition and common sense. Before doing that, let us briefly see what other approaches there are which defend the notion of vague existence, and, thus, parthood.

Polkowski and Skowron, in their article 'Rough Mereology,'[305] purport to show that there is a roughly designed mereology concerning parthood and they simply concern

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[301] Ibid., 221, 222.

[302] Ibid., 222, 223.

[303] Ibid., 224.

[304] Ibid., 237.

information systems and intelligent cooperating agents. The authors modify set theory using Lesniewski's alternative approach to set theory, in order to account for this notion of rough existence.[306] Their approach is only important for us to the extent that they try to give a complete logical account of parthood in degrees. However, since I am taking the issues of interest to us on a more intuitive level, such logical accounts do not really work for my purposes.

Nicholas J. J. Smith on the other hand —in his article 'A Plea for Things That are not Quite All There…'[307]— contends that certain things come into and go out of existence with certain degrees. The idea is roughly as follows: consider the Eiffel Tower and Big Ben. It is commonly supposed that they do not themselves compose a further object, called, let us say, 'Eiffel Ben.' However, if someone were to move the clock tower (since the clock tower as a whole is commonly called Big Ben, not just the bell in the tower) to the Eiffel Tower and stick them together, the following process would most probably occur: by fastening just one single part of Big Ben, which would not resemble Big Ben on its own, people would say (and the situation would be metaphysically likely) that the Eiffel Tower now has a new part on it. Yet gradually, as you fastened on more parts, 'Eiffel Ben' would begin to appear in degrees. Taking this Theseus's-ship-like example into account, the situation is as follows: as you replace the planks one by one, another ship will gradually appear.[308]

Now let us see what we mean by degrees and vague existence in the light of above considerations.[309]

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[305] L. Polkowski, A. Skowron, 'Rough Mereology: A New Paradigm for Approximate Reasoning,' *International Journal of Approximate Reasoning*, (1996) 15: 333-365.

[306] Ibid., 333, 334.

[307] Nicholas J. J. Smith, 'A Plea for Things That Are Not Quite All There: Or, Is There a Problem about Vague Composition and Vague Existence?' *The Journal of Philosophy*, (2005) 102 8: 381-421.

[308] Ibid., 382-390 , 406, 407.

[309] The aboce considerations about vagueness are just for the sake of exposition. However, one must infer some relations between those considerations and mine while the work progresses.

4.5.3. Ordinal Degrees with Functioning

Earlier, I offered a modification via the concept of functioning which is actually not an answer to the special composition question itself but an answer to the composition ofhuman beings. It went as follows:

> The *x*s compose the living human being *y* if and only if
>
> *x*s function to constitute the life of *y*.

Since *x*s are not (only) simples, it can be said that some overlapping can occur. Both my left kidney and the cells it is composed of are parts of me. Let us go through some more examples: Consider, for instance, my left arm. Both my arm itself, and the atoms or cells of which it is composed, are parts of me. However, one can easily see that my left arm, and the cells/atoms of which it is composed, not only constitute life but also help me sustain that life, i.e., they repeatedly constitute my life. Let us then add the word 'sustain' into the definition (even though some may say it is implicit in the word 'constitute') to get:

> The *x*s compose the living human being *y* if and only if
>
> *x*s function to constitute or sustain the life of *y*.

As I said earlier, the word 'function' has an intuitive meaning here. We went through many approaches to functioning and none of them *wholly* fit the intuitive sense in which 'function' is used here. However, as this chapter progresses, one will see that the function talk here has a specific meaning, despite remaining intuitive.

Are we merely composed of organismic parts in that sense? I can say that we are not, and degrees will now play a role in this regard, as will become clear in a little while. The above definition will also be helpful in understanding the notion of degrees to a certain extent in this context.

It is possible that I lose my left hand and get it replaced with an artificial one, or get my heart replaced with an artificial one[310] and it is inevitable that there may be some counter-examples to the assertion in the previous sentence above, which makes reference to my non-organismic parts. It could also be said that the sun functions to sustain my life. Is the sun then a part of me? It might seem easy to talk about eyeglasses being my part, but not celestial bodies. My money could also be thought of as an object that sustains my particular life. Is it a part of me too? The answer is that neither the sun nor my money can be accepted as a part of me, since neither of them has *proximate functioning*.

4.5.3.1. Proximate Causes at Work as Functions

Not every single cause can be regarded as a function. *In many cases*[311] relating to our discussion of human existence, it is proximate causes that are essential, rather than distant or mediating causes, and only these proximate causes can be regarded as functions.

For instance, one might consider the sun as functioning to sustain my individual life, yet what are actually doing the functioning are individual photons impinging on my body. Certain photons (easily replaceable by any others, in that sense), interacting with my skin, may function to help sustain my life by providing me with my organic needs, such as vitamin D. In this way, these photons are parts of me (to a degree, as we shall see) as long as they function to add to my life as a human being.

You might also think of air as functioning to help me sustain and constitute my life, but the fact is that it is the specific air atoms and molecules that function when I inhale, and it is these specific molecules and atoms that become parts of me when they function to constitute or sustain my life.

[310] Or my brain given that there is a complete physics as we talked about in the first chapter that would grasp the very core of consciousness or other phenomena that might be of importance. I will talk about some counter-examples concerning such extreme cases later on.

[311] However, this is not the case in cognitive functioning, it would seem.

Indeed, money cannot have any function beyond what I buy with the money, the specific components of which may have some functions. Say I spend my money on some edible material that includes lipids. Before I eat the material, the lipids are not yet part of me; it is only when those molecules are functioning to sustain my life that they become my parts.

Say, I buy a house (i.e., a shelter) with my money instead. Is this shelter a proximate cause of sustenance or constitution of me? Again, it is not. A shelter may help certain conditions to be fulfilled—for example, a shelter ensures that certain molecules and photons can interact with me in a proximate fashion. Yet, like the sun, the house is not part of me, for they are mediating causes and not proximate causes.

What about if I go out and buy alcohol to drink, or a pack of cigarette to smoke? Will the alcohol molecules or nicotine become parts of me after I consume them? I would say that, after certain interactions, both the nicotine and alcohol can become my parts being themselves carried in constitutive parts. Although it is generally accepted that both of these are hazardous to the health of human persons, this is just a statistical fact, which does not concern sustainability or their constitutive effects. Indeed, their role in functioning as constitutive of life for a human being or her existence might be of importance, yet the more important thing is this: a certain alcohol molecule can become part of me, and even help sustain my life, or take position amongst its constitutive parts. Consuming alcohol regularly is a mediate habit, and I do not address such issues in this work. One should also keep in mind that the alcohol molecules always change over time, and that habits and their effects may only concern their ideal structure and this structure's mediate effects on human life sustainability.[312]

I believe the proximity issue to be quite clear in this regard. However, one could still ask whether proximity is not also vague. I should point out that I argue for a vague existence, and that there are evidently some cases concerning proximity which are

[312] I will mention this facet of the theory at the end of this work in the possible objections part.

vague. I will deal with these after the introduction of the concept of degrees, later in this chapter.

One can still argue for the fact that there are non-proximate causes that function to sustain or constitute life. I will analyse such a case in the next section.

4.5.3.2. The Extended Mind Hypothesis

Andy Clark and David Chalmers, in their famous work 'The Extended Mind,'[313] suggest an 'active externalism' and emphasize the so-called 'extended cognition.' In this section of this paper, I will take a closer look first at the extended mind hypothesis.

Let us consider the main examples given by Clark and Chalmers (from now on C&C). C&C propose that we consider three situations: (i) You are asked to fit the given 2D shapes on a computer screen to their corresponding positions by mentally rotating them. (ii) You are asked to fit the given 2D shapes on a computer screen either by mentally rotating them or pushing a 'rotate' button. (iii) You are asked, in a given future, to do the same thing, but you now have a brain implant that can do whatever is asked if you want it to.[314]

According to C&C, each of these three cases is the same as far as cognition is concerned.[315] They say that the boundary assigned by the skull can now be the difference between these cases but since the argument would suggest the contrary, there is no problem.[316] They even provide some physical data which ensure that brain processes alone need much more time than physical plus mental processes, as in the cases of rotation scenarios (i) and (ii).[317] Accordingly, and referring to Kirsch and

[313] Andy Clark, David Chalmers, 'The Extended Mind,' *Analysis* (58:1, 1998).

[314] Ibid., 7.

[315] Ibid.

[316] Ibid., 7, 8.

[317] Ibid.

Maglio,[318] they make a distinction between "epistemic action" and "pragmatic action." Following Kirsch and Maglio, they say that physical rotation process helps in clarifying the issue of whether a given slot and the thing to fill it are compatible (think about the game *Tetris*).[319] So, this is an example of 'epistemic action.' According to C&C, "[*e*]*pistemic* actions alter the world so as to aid and augment cognitive processes such as recognition and search."[320] Taking this into account, they posit that this kind of action begs for a "spread of *epistemic credit*." So, if such kinds of processes are understood to be in the head, we would not hesitate to name them as cognitive processes. Yet, seeing that they are not in our heads *fully*, we do hesitate. However, we need not, since "cognitive processes ain't (all) in the head."[321] In such instances "the human organism is linked with an external entity in a two-way interaction, creating a *coupled system* that can be seen as a cognitive system in its own right."[322] According to C&C "all the components of the [coupled] system play an active causal role."[323]

For C&C, in this kind of coupled system, the organism and the so-called external entity co-act, so it is a kind of active externalism rather than Putnam's or Burge's passive forms of externalism.[324] [325] They also defend their position with the assertion that they have some experimental evidence that supports the extended mind

[318] See. David Kirsh, Paul Maglio, 'On Distinguishing Epistemic from Pragmatic Action,' Cognitive Science (18, 1994) for more information.

[319] Andy Clark, David Chalmers, 1998 op.cit., 8.

[320] Ibid.

[321] Ibid.

[322] Ibid.

[323] Ibid.

[324] Ibid., 9.

[325] Clark says "[O]n active version [of externalism] were we (say, in some organismic twin) to retrain the in-head structure but alter or remove the extended structure, the gross behaviour of the agent would change." (Andy Clark, 'Spreading the Joy? Why the Machinery of Consciousness is (Probably) Still in the Head,' Mind (118: October, 2009), 967.

hypothesis.[326] They say that this kind of an approach could drastically change scientific investigation.

C&C give a famous example in which they contrast two cases: the case of Inga and the case of Otto. Inga is a healthy person and she is informed by someone that an exhibition will take place "at the Modern Art Museum." She thinks to herself and "recalls" the place where the art museum is located. Yet, we also have Otto who has Alzheimer's disease. He has a notebook in which he writes everything in order not to forget. He is also told that there is an exhibition at the Modern Art Museum and he looks it up in his notebook and sees it and "recalls" where the place is located.[327] According to C&C, "the notebook plays for Otto the same role that memory plays for Inga."[328] So the whereabouts of the information referred to are not that important; it is now evident that Otto's mind, in this respect, extends beyond the limits of his skull constituting a coupled system which includes his notebook. There might be some concern in terms of reliability and C&C suggest that such concern is not yet strong enough to refute the evident example of Otto. Moreover, it could be said that Otto's access to the notebook is not permanent —but, then, is Inga's? Does she never sleep, is she never unconscious?[329] One more argument against C&C posits that there is a difference between the "perception" of Otto and the "introspection" of Inga. C&C say that Otto and the notebook are a "single," coupled system like Inga's brain. So there is evidently a very slight difference.[330] Against such counter-arguments, C&C defend themselves and say that there may be "various differences" between Otto and Inga concerning the given example and in terms of cognition but these "are all

[326] Andy Clark, David Chalmers, 1998, op.cit., 10.

[327] Ibid., 12, 13.

[328] Ibid., 13.

[329] Ibid., 15.

[330] Ibid., 16.

shallow differences."[331] Furthermore, it seems that C&C refrain from telling us how far the extended mind extends. (Can we count the Internet as among our extended minds, for example? Or the Sun, or radio signals, or other persons, etc.?). They only say that the content-carrying vehicle is the thing the mind extends to.[332]

So, the position can be summed up as follows:

> [T]he argument … [is] that for the normally ecologically situated brain it often does not matter whether information is stored in the head or left out in the world, just so long as the right information is retrieved or reconstructed at the right time, so as to govern actions in much the way we normally associate with antecedently holding the standing belief in question.

Thinking of my cell phone as a content-carrying vehicle, I can easily say that it is one of my cognitive parts since it exhibits certain functioning. I do not memorize, let us say, any phone numbers, I do not make any hard calculations, I do not even need to memorize some information that is essential to my career just because I have access through my cell phone. As such, the cell phone I am now looking at is a part of me, much like a part of my brain.

4.5.3.2.1. Some Points on the Extended Mind Hypothesis

The first point to be made concerns the kind of active externalism that C&C defend. They claim that their externalism is different from the traditional kind, since "it concerns *the active role of environment in driving cognitive processes*."[333] Yet, this assertion could be understood in two distinct ways: firstly, it can be inferred that certain external or environmental factors causally affect/influence the cognitive system, and thus the brain; and secondly, it can be understood from active externalism that environment is a constitutive part of the cognitive system. This

[331] Ibid.

[332] Ibid., 17, 18.

[333] Richard Menary, 'Introduction: The Extended Mind in Focus,' in Richard Menary (ed.) *The Extended Mind*, (Cambridge: MIT Press, 2010), 1.

second understanding is what C&C refer to when describing their active externalism. The externalist approach must then be understood in constitutive terms, rather than solely causal terms.[334] As said above, the organism becomes linked with its environment to comprise a coupled system. This coupled system is a cognitive system, some of whose elements exist outside the skull of the agent concerned.

One other significant point concerns what kind of a coupling we have at hand, in terms of cognitive extension? Although it seems extremely general, C&C give an account:

> 1. All the components in the system play an active causal role.
>
> 2. They jointly govern behaviour in the same sort of way that cognition usually does.
>
> 3. If we remove the external component, the system's behavioural competence will drop, just as it would if we removed part of its brain.
>
> 4. Therefore, this sort of coupled process counts equally well as a cognitive process, whether or not it is wholly in the head.[335]

This argument again has a twofold interpretation. Firstly, the influence can be understood as asymmetrical; if this is the case, then the external factors exert a causal power upon the internal factors. Thus, one may wish to determine the external factors in order to change the behavioural aspect of the agent. It is possible that my notebook, which includes crucial information, might be taken away. This does not mean that my memory is taken; just because the notebook contains information does not mean that it is my memory. Simple causal connection does not ensure such a thesis. Secondly, the influence could be symmetrical. The condition in this sense is this: neither the notebook nor the brain does something exclusively, in terms of, let us say, the remembrance of a certain item. Rather, they mutually govern the behaviour and constitute the cognition. It is not a one-way relationship but a two-way

[334] Ibid., 2.

[335] Ibid., 3.

one. The process itself unfolds certain information whose elements are the brain and the notebook in question.[336] This is called "cognitive integration" by Menary,[337] and it is stressed by Clark thus:

> Continuous reciprocal causation (CRC) occurs when some system S is both continuously affecting and simultaneously being affected by, activity in some other system O. Internally, we may well confront such causal complexity in the brain since many neural areas are linked by both feedback and feedforward pathways.... On a larger canvass, we often find processes of CRC that criss-cross brain, body and local environment. Think of a dancer, whose bodily orientation is continuously affecting and being affected by her neural states, and whose movements are also influencing those of her partner, to whom she is continuously responding![338]

It is still dubious that any such system constitutes a cognitive system, since there may be cases where the above coupling occurs and CRC holds, yet cognitive reference does not exist at all. Thus, another principle may be needed: "the parity principle."[339] This principle is, basically, as follows:

> If, as we confront some task, a part of the world functions as a process which *were it done in the head*, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world *is* (so we claim) part of the cognitive process.[340]

This principle has two facets: i) it refers to the intuitive basis of the extended mind hypothesis; and ii) it refers to the functional basis of the hypothesis.[341] [342] However,

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[336] Ibid., 3, 4.

[337] See Richard Menary, 'Cognitive Integration and the Extended Mind,' in ibid., 227-243.

[338] Richard Menary, op. cit., 4. See, Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*, (Oxford: Oxford University Press, 2008) for more information on the issue.

[339] Richard Menary, op. cit., 4, 5.

[340] Ibid., 5.

[341] Ibid.

[342] The reader most probably recall our stress on functioning too.

some critics have argued against this principle, suggesting that it sometimes neglects causal coupling and active externalism. They claim that the principle cannot draw a distinction between outside and inside. Most of these criticisms arise from the argument that internal aspects are cognitive, while some external aspects act as if they are cognitive, and therefore are cognitive. The problem is that C&C seem to focus on internality-externality issue, rather than functionality in principle. If one is to focus on the aspect of functionality at first glance then there isn't a problem, since it is the functionality in play which determines whether or not a process in question is cognitive.[343] However, this internal-external debate may not be so easy to get rid of. Rupert, Adams and Aizawa [344] argue that the internal memory and the so-called external memory are cognitively very different in kind. They point out that memories kept in the brain are "subject to a variety of effects, such as recency, interference,…and chunking."[345] External memories do not experience such effects and are thus in a different category. So, according to them, there must be something wrong with extended mind hypothesis. However, other interpreters—such as Sutton, Rowlands, Wilson and Menary[346] —consider the cognitive system to be "hybrid," containing both internal and external elements. The proposition that the external must be like the internal is fallacious. According to Menary,

> …the virtue of external memories is that they have different properties from internal ones; they allow us to do things that we cannot achieve with internal

[343] Ibid., 6.

[344] Ibid. See F. Adams, K. Aizawa, 'The Bounds of Cognition,' *Philosophical Psychology*, (2001) 14: 43-64.

[345] Richard Menary op. cit., 7.

[346] See, John Sutton, 'Exograms and Interdisciplinarity: History, the Extended Mind, and the Civilizing Process,' in ibid., 189-226. M. Rowlands, *The Body in Mind: Understanding Cognitive Processes*, (Cambridge: Cambridge University Press, 1999). R. A. Wilson, *Boundaries of the Mind: The Individual in the Fragile Sciences: Cognition*, (New York: Cambridge University Press, 2004). Richard Menary, *Cognitive Integration: Mind and Cognition Unbounded*, (Basingstoke: Palgrave Macmillan, 2007).

> memory alone. However, it is clear that internal and external memories complement one another and coordinate in completing cognitive tasks.[347]

After putting forward some other points, I will end this section with various counter-arguments to the extended mind hypothesis, to complement the notion of degrees in the composition of human beings.

The last point to be made before the counter-arguments is that there can be a problem with portability and reliability when the extended mind hypothesis, in general, is taken into account. This portability claim refers to the fact that the external component of the cognition can be removed from the internal component so easily that it might be a problem. C&C respond to this argument by saying that portability does not constitute a problem as such, since the essential aspect is reliability. If the coupling is reliable then there is no problem. Internal systems, too, may be subject to certain problems—such as loss or malfunctioning—so portability is therefore not a problem. In terms of what is core to us, whether it is the external systems or the internal ones (i.e., the brain), C&C go on to say that "external coupling is part of our core cognitive resources." This is because "the biological brain has in fact evolved and matured in ways which factor in the reliable presence of a manipulable external environment." [348] Our vision, for instance, may somehow distort (or rather manipulate) the external environment, or our motion.[349]

But what of the mind? Where does this mind talk come from? As the reader may recall from the first chapter, I generally take a position which states that mental facts are redescribable, as well as being redescriptively physical. C&C suggest that this reference to belief shows that cognition is intrinsically related to the mind (I say that beliefs are redescriptively physical). As C&C posit, "*beliefs* can be constituted partly by features of the environment, when those features play the right sort of role in

[347] Richard Menary, op. cit., 7.

[348] Ibid., 8.

[349] Ibid.

driving cognitive processes. If so the mind extends into the world."[350] Remembering the Otto-Inga case, it can be said, following C&C, that information causes a belief, or more accurately, that information functions so as to compose beliefs. As the functional consequence of the information, the belief thus has a functional role too. However, one should keep in mind the physical redescription of the belief and thus the physical constitution of such a cognitive system.[351] In the following sub-section, I will review some of the counter-arguments to the extended mind hypothesis.

4.5.3.2.2. Counter Arguments

One major assertion by Andy Clark is as follows: "Mental states, including states of believing, could be grounded in physical traces that [remain] firmly outside the head."[352] According to Clark, the notebook can be said to possess "the same functional poise" when compared to Inga's organismic memory. The first objection is related to this: although Otto needs to remember that there is information in his notebook, Inga does not need to remember that there is information in her head. She just remembers. John Preston takes the issue and speculates further upon it. He argues that we have an authority over our beliefs and memories, but we do not have the same authority over the external sources. While Inga knows what she knows, Otto discovers and then believes or knows. Another related point Preston draws our attention to is as follows: say you need strong glasses in order to see something. Is it you who sees the item in question, or you plus the glasses?[353] [354] The natural answer is, according to Preston, "you." Yet, Otto takes a look at his notebook and comes to know the places to which he tends to go. Now that his notebook has become his extended mind/cognition, is he the one who remembers? The answer (opposing

[350] Ibid.

[351] Ibid., 9.

[352] Ibid., 9, 10.

[353] Ibid., 10, 11.

[354] My point here can hardly be missed here, I would say the glasses are your parts to a degree.

Preston, I believe) is Otto plus the notebook or Otto who possesses a part (to a degree) called the notebook. While it might not be possible to say that beliefs are in notebooks or in cell phones, etc., it seems fair to say the following:

> …we do retrieve the contents of our beliefs to be able to make accurate and authoritative avowals about what we are committed to. There is a clear sense in which the vehicles and their contents stored in the notebook and our accessing those vehicles for a cognitive purpose are part of our completion of a cognitive task: they enable the cognitive achievement.[355]

The second objection concerns a fallacy called coupling-constitution fallacy. According to Adams and Aizawa, the defenders of the extended mind hypothesis have jumped to the conclusion that whatever object or process is coupled to a cognitive system is necessarily a part of it. They state that causal links do not necessarily lead an object all the way to parthood. They claim that the limits of cognition are the limits of the body. Their argument goes like this: "Neuronal (and therefore cognitive) processes have property *X*; non-neuronal processes do not have property *X*; therefore non-neuronal properties are not cognitive." [356] Menary considers this approach to distort the core of the extended mind hypothesis. The real formulation should be something like this: "*X* is the manipulation of the notebook reciprocally coupled to *Y*—bodily processes, including neural ones—which together constitute *Z*, the process of remembering."[357] Thus the picture is such that the external objects don't count as parts of the core cognitive system just because they causally interact, but in order to explain the further phenomena that can only be constituted by their functioning together. Another problem with Adams and Aizawa's point is that parts do not have to exhibit the same properties as wholes. So, the lid of the pen does not have the property of writing that the pen as a whole has,

[355] Ibid., 11.

[356] Ibid., 12.

[357] Ibid.

just as the notebook may not possess some of the properties that a complete cognitive system has.[358]

The third objection, I think, is an objection that does not function so much to refute the extended mind hypothesis, but rather helps us understand our own position concerning the hypothesis. In this sense, I take the third objection not to be an objection to the core of the hypothesis, but rather a slight modification of it. The objection is generally called "fleeting versus persistent cognitive systems." The main problem is that, taking Otto again into account, he does not permanently constitute a coupled system with the notebook. It seems temporary. Yet this is almost no problem at all for me, since I've said that the notebook is a part of Otto whenever it functions to contribute to his cognitive system. Hence, persistence in that sense is not stable, and the achronal limits are, as I generally posit, vague and depend upon degrees. Thus, the cognitive system of Otto fleets, but there is no problem in that.

Among other possible objections, the fourth selected concerns the scientific aspect of the extended mind hypothesis. The objection is, mainly, that the processes and regularities found in the brain as cognitive do not exist in the external environment. These critics seek certain regularities in extended mind cases. Although some claim that there is a "complementarity and integration" where such extended cases concerned, a scientific approach would need further regularities. However, it can be said that the science of the extended mind is progressing through experiments, although it has developed some theoretical variations.[359] I would recommend that the scientific critic give time to the hypothesis, as it is a promising one.

4.5.3.3. Ordinal Degrees and Questions Concerning Functioning

Attempting to give an account in terms of degrees between spatial parts of human beings is quite a hard job, and I am aware of this fact. Although it might seem that

[358] Ibid.

[359] Ibid., 18. See, R. Rupert, 'Challenges to the Hypothesis of Extended Cognition,' *Journal of Philosophy*, (2004) 101: 389-428.

such a degree-based account is ambitious, I will offer one through the concept of possible worlds.

As we said before, composition is vague, and this vagueness must also be addressed at some level. I think, an ordinal degree approach could intuitively account for the notion of parthood for human beings.

Talking about possible worlds, we need to refer to one well-known philosopher's work and my analysis is inspired by his. David Lewis, when he talks about the counterfactual analysis of causation, offers a possible world schema in which there are closer and farther possible worlds to the actual world. He says:

> I take as primitive a relation of *comparative over-all* similarity among possible worlds. We may say that one world is *closer to actuality* than another if the first resembles our actual world more than the second does, taking account of all the respects of similarity and difference and balancing them off one against another.[360]

I will not utilize Lewis' counterfactual analysis as such; but my analysis will barrow from him the notion of comparative closeness of possible worlds to the actual. I will use this notion in my account of degree of parthood (with reference to the earlier function talk we employed).

One possible formulation is as follows:

> Possible world A: Human person *X* does not have *z* as a part.[361]
>
> Possible world B: Human person *X* does not have *y* as a part.
>
> *y* is part of *X* with a higher degree than is *z* if and only if there is a B-world which is farther away from the actual world in overall similarity than all A-worlds.[362]

[360] David Lewis, 'Causation,' *The Journal of Philosophy*, (1973) 70: 559,560.

[361] This means that *z* is not functioning to sustain or constitute life.

There are a few points that need to be stressed:

(1) One needs to keep in mind the criterion of functioning when talking about degrees. However, there are some borderline points and some crucial stops that should be highlighted, as the following examples will reveal.

(2) Proximate functioning causes are essential. Keep in mind that I hold some non-proximate causes as functioning too (in terms of cognitive functioning), which we will also stress in this section.

(3) Intuition plays a major role in judgements of degrees.

(4) Contextuality also plays a crucial role in terms of degreeing.

Let us go through some examples to clarify these issues. A general example would be that of eyeglasses: are they part of us? If they are, are they part of us to the same degree as our eyes?

Possible World A: I do not have this particular eyeglasses as parts.

Possible World B: I do not have eyes as parts.

It is evident that B is farther away from the actual world than is A. I could go and find another set of glasses, or I may not be able to find them, but whether I find them or not does rather depend upon my eyes and their functioning. So if medical science progresses to the extent that my eyes can be replaced with other possible eyes, and that they function biologically just like the old ones, then we would have to think quite differently. However, the contextual reality must come into play. Today's context makes it impossible to replace my eyes, but possible to replace my eyeglasses. In this way, my eyes are part of me to a higher degree than my eyeglasses today (or in the three dimensional slice cut through four-dimensional space-time worm across temporal dimension to talk atemporally).

[362] These possible worlds should necessarily be thought as nomologically possible worlds.

As we have mentioned, we can talk about proximate causes of things that are functioning. So let us consider a specific oxygen molecule when functioning, compared with my left index finger.

Possible World A: I do not have this particular oxygen molecule as a part.

Possible World B: I do not have my left index finger as a part.

It seems that a specific oxygen molecule can be replaced by another one even though it is functioning, while my left index finger cannot. Although it might be replicable, one would say by intuition that my left index finger is more a part of me than the specific oxygen molecule.

Sometimes it may not be possible to employ ordinal degreeing among parts. Compare the specific oxygen molecule with a carbon atom, both functioning. Which is more a part of me? The answer is neither of them: they both are my parts to the same degree. Or can we talk of degrees when considering my right arm and my left arm, or my hand and my heart? This would seem impossible. It might seem that most of the organismic parts cannot be subject to ordinal degreeing among themselves. How do we determine whether a part is functioning or not? As we saw earlier in this chapter it is not so easy to determine. What we can determine (again, only to some extent) is whether something functions to sustain or constitute the life of a specific human being. We tend to talk about our organs not by referring to whether they function or not, but instead by referring to our habits. This might be one of those commonsensical situations regarding which we may need to change our intuitions over time. Consider my left kidney, which doesn't function to sustain my life (or even malfunctions, and therefore doesn't sustain my life), nor does it constitute it. Do I have it as a part of me? One thing to say is that by not functioning to sustain or constitute life, it can be said to *malfunction*.

The comparison between the following two sentences seems helpful: "I have two kidneys, one is malfunctioning," and "I have one kidney, the other is malfunctioning." However, although we need to say, following the functionality

principle, that the no-longer-functioning kidney is not a part of me, some of its cells might still function to sustain or constitute my life. So, there are at least two senses in which a non-functioning kidney can still be considered as a part of me: the first is that it still includes some cellular activity that sustains life; and the second is that the kidney was once a part of me, so *psychologically* I might still *feel* that it is a part of me. Let us start with the first sense. Some cells or atoms of the kidney may still be functioning, so their functioning might add to life; yet their failure to *function together* makes the kidney fail to work, so they lack a certain function that they once had when they worked together. So, actually, it does not so much matter whether they function in a particular way; it matters instead whether they function to constitute or sustain the particular life in question. The second sense involves the feeling that I still have my non-functioning kidney as a part of me. This is because the kidney and I have co-existed (whether it is a part of me or not) longer than is usual. This aspect is important since it might be considered related to certain functions, as we will see next.

4.5.3.3.1. More-than-Usual Co-Existence and Some Misinterpretations Concerning Parthood

There may be some misinterpretations concerning parthood. It must first be remembered that not every cause is a proximate cause, which means that it doesn't function to constitute or sustain life. Secondly, one should not ignore the effects of more-than-usual co-existence. More-than-usual co-existence might mislead us in terms of parthood. Let us begin with its first aspect.

It might be suggested that certain causes can act as psychological functions; for instance, it could be stated that a particular person's car makes her comfortable, and so it functions to sustain her life. It could also be stated that another person makes this person happy, thus also functioning to sustain her life. With reference to our earlier discussion, cars cannot act proximately in order to function by constituting or sustaining an individual life. Nor can human beings, if they are not replacing some

cognitive part that functions to sustain life (as once again we will see, by referring to the extended mind hypothesis).

It could also be suggested that some things act as sociological functions. Suppose some human being wears a wedding ring, since she is married: the ring functions to show the other members of the social group that she is married.[363] Again the ring does not have a proximate cause as a function to sustain her life. Suppose that she forgets to wear it one morning. She is likely to feel like she was lacking some part of herself. She would feel uneasy for some time, yet this does not mean that the ring has been sustaining his life proximately. She always puts it on (except that morning), and she is thus together with the ring "more-than-usual." But why do some people feel as though they are lacking a part, in the absence of a particular object or animal or person? This is because more-than-usual co-existence is a defect in understanding parthood. The same concept could be applied to, let us say, my cat Mercan. I would feel a great loss if Mercan died. However, I know that Mercan does not function proximately to sustain my life, or to constitute it; it is merely that I co-exist with her more-than-usual. What about human persons as parts? One may lose a significant other and feel devastated by the loss, yet it is still non-proximate, in the way we described. (However, there is an exception as we described above. If the object (in actuality, the temporal part of an object, as we will see later on) functions as a replacement of the cognitive system, then, I suggest, we do not seek proximity (although some cognitive replacements can be speculatively considered proximate).)

The malfunctioning kidney can be put into this category in the following sense: I know that I once had two functioning kidneys; the new information that one is now not functioning does not instantaneously make it a non-part, because I am used to the thought that I have two kidneys within me. Yet this is just a mistake that we make. Before we continue discussing cognitive parts and their degrees of parthood, let us talk about one more aspect of more-than-usual co-existence: more-than-usual co-

[363] Sometimes it may be said to function to sustain life in some underdeveloped communities too.

existence sometimes strengthens the function. The first time you wear eyeglasses, or use an arm implement, will most probably be the time when those eyeglasses or that implement function least well, compared to your co-existence with them after one year. However, this is just another vague point about degrees of parthood.

4.5.3.3.2. Cognitive Parts and Ordinal Degreeing

Cognitive parts, as we said above, might be considered an exception to proximate functioning, or they might just possess a different kind of proximity. One must also be aware of the possibility that, at some point, one might confuse the terms 'mental' and 'cognitive.' It must also be remembered that most mental states are taken to be redescriptively physical in this work.

Now, take the example of Otto, who has a malfunctioning part in his brain. This part of his brain is replaced when he carries a notebook. The notebook is a part of his cognitive system, although it is not organismic. It is therefore also a part of him. Taking the question a step further: Is the notebook a cognitive part of him when he is carrying it, or just when he looks at the information in it and grasps it? It seems that non-organismic cognitive parts only function to sustain life when they are actively used, whereas organismic cognitive parts continuously sustain and constitute life both at a cellular level and at an organic level.[364] Let us now take a healthy human being called Inga. Suppose that she uses a cell phone but does not memorize phone numbers; the cell phone as a content-carrying vehicle thereby functions as a part of her cognitive system and sustains her life, if does not constitute it. However, she might have memorized all of the numbers too; at this point, we return to the issue of degreeing. Before discussing Inga's situation further, let us first analyse Otto's situation, by giving examples, and starting by comparing an organismic cognitive part of Otto with his notebook. Consider these two possible worlds:

[364] Although this issue will be discussed in the possible objections part, it can be said that the non-active parts of my brain, let us say, can be said to be constituting my life just by being there, although the extended cognitive parts are not.

Possible World A: Otto does not have the notebook as a part of him.

Possible World B: Otto does not have a part of his brain that ensures his comprehension of the relevant information.

It seems hard to establish which possible world is farther away. But one could reasonably say that both parts of Otto exist more or less to the same degree. We cannot say which one is more a part of him than the other. Thus, some non-organismic cognitive parts of Otto are just as much a part of him as his organismic parts.

Take Inga now:

Possible World A: Inga does not have a part of her brain (*x*) that would function to remember the phone numbers.

Possible World B: Inga does not have a cell phone.

A is seemingly, and intuitively farther away than B. So, *x* is more a part of Inga than her cell phone.

Some might be uncomfortable with the notion that a cell phone comprises a cognitive part of us *when functioning*; yet these same people might be more positive if a silicon chip were to be implemented in our brains in order to improve our memory capacity. Most probably, this would not constitute life, but it would sustain it whenever it was functioning. Thus, when the particular person and the context change, the degree of parthood may also change accordingly.

Extended cognitive parts seem to constitute parts to a lesser degree, in general, than organismic parts, where the functioning of the brain to constitute or sustain life are concerned. However, if the extended cognitive part replaces an organismic part due to malfunctioning, then it would seem to constitute a part to the same degree as the organismic part. However, this depends both upon context and upon the individual concerned.

In Section 4.8, I will deal with possible objections. The more unclear parts of this account will become clearer once some possible objections to it are discussed.

4.6. Time is Like Space

In the previous chapter, I defended space-time realism by way of the special theory of relativity. Given that space-time is real, what is the relation between time ad space, if any? I can say that there are good reasons to assert that space is like time – but in what respects they are like one another? In this section, I will follow Theodore Sider's strategy in showing that space and time are quite alike.

Sider says that, topologically and metrically speaking, space and time are analogous. Moreover, the reality of time is like the reality of space. 'Here' and 'there' are as real as 'now' and 'then.' Objects seem to be extended in space and they seem to be extended in time as well.[365]

The following quotation from Sider makes it very explicit and intuitive to think that time is like space:

> Time is like space regarding the *reality of distant objects*. Spatially distant objects, such as objects on Mars, are just as real as objects here on Earth. The fact that Mars is far away doesn't make it any less real; it just makes it harder to learn facts about it (we need a telescope). Likewise … temporally distant objects, such as dinosaurs, are just as real as objects we experience now. The fact that a dinosaur is far away in time doesn't make it any less real; it just makes it harder to learn facts about it (we need to examine fossils).[366]

Another point Sider makes is the following:

> Time is like space regarding the *relativity of here and now*. When speaking to my brother in Chicago, if I say "here it is sunny" and he says "here it is raining," we do not really disagree. What is called 'here' changes depending on who is speaking: I mean New Jersey, he means Chicago. There is no true

[365] Theodore Sider, *Four Dimensionalism* (USA: Oxford University Press 2001), 87.

[366] Theodore Sider in Sider, T., Hawthorne J., Zimmerman D. W. (eds.) *Contemporary Debates in Metaphysics* (USA: Blackwell, 2008), 243.

> *here*. I think that the word 'now' works analogously. Imagine [a] dinosaur … saying "It is now the Jurassic Period." I, on the other hand, say "It is now 2006." According to the relativity of 'now,' the dinosaur and I do not really disagree. There is no one true *now*. What is called 'now' changes depending on who is speaking: I mean 2006, the dinosaur means the Jurassic Period.[367]

Nevertheless, one can say that space and time are distinct in some crucial ways. Space has three dimensions, whereas time has one.[368] The fact that time has only one dimension changes nothing of the similarity, I suppose that is because no spatial dimension is qualitatively different from any other. You can take the x dimension and make it analogous with time or you can take y or z directions; nothing changes in terms of the analogy.

One can still say that space does not have a forced direction but that time does — from past to future.[369] The importance of this assertion cannot be underestimated, but one can still argue against the claim that time has an arrow. Furthermore, if one is to accept eternalism, then the arrow of time might be of less significance, since all points in time will be equally real and the arrow of time would be just a matter of choice.[370] That choice, of course, affects many intuitive bases and just because one is inclined to believe in causation, the arrow of time from the so-called past to the so-called future seems meaningful. At this point it might be helpful to take a look at the views of Richard Taylor, who defends the notion that time is like space on a more intuitive level. Taylor examines some of the objections (two of which interest us) with which critics have opposed the concept of similarity between space and time.

The first objection concerns multi-location in space and time. An object can be said to be at two times in the same place, but cannot be said to be in two places at the

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[367] Ibid.

[368] Theodore Sider, *Four Dimensionalism*, 87.

[369] Ibid.

[370] Consider that this issue has a huge literature.

same time.[371] Also, an object can return to the same place after having moved around, but it cannot return to an earlier time after lingering for any duration.[372] According to Taylor, this could be answered by a variation of the following: Consider an object (or a temporal part of an object, if you like) that exists between t_1 and t_2. Let that object linger through the time interval between these two points, while remaining at the same location. We may analogously say that a bottle, for instance, can be at both l_1 and l_2 (as well as filling the space between them) at t_1, due to the fact that it is an extended object. One might object that it is not the same whole bottle but two different parts of the bottle that extend through space at that time, but do not two temporal parts also extend through time?[373] The other worry concerns the ability to travel between points in space but not in time. Taylor cannot give a convincing example on this, but to accept that some facets of time are different from those of space does not necessarily mean that they are not alike.

The second objection concerns the semantics of certain words, such as "motion" and "change." [374] It is commonsensically true that "motion" involves something "occupying" l_1 at t_1, and l_2 at t_2. But isn't this analogous to occupying t_1 at l_1, and t_2 at l_2? Therefore time still resembles space where the term "motion" is concerned.[375] What about "change"? It is, again, commonly thought that a "change" in a thing refers to the "interesting history" of that thing: for instance, it being yellow at t_1 and red at t_2. But can't we analogously implement this idea in terms of space? It seems

[371] I exclude quantum multi-location in this intuitive example; it is commonly known that an electron can be multilocated with a probability at a given time.

[372] Richard Taylor 'Spatial and Temporal Analogies and the Concept of Identity,' *Journal of Philosophy*, (1955) 52, 22: 601.

[373] Ibid.

[374] Ibid., 602.

[375] Ibid.

that we can. It is very possible for one of a thing's spatial parts be red and another to be yellow. Thus, just like temporal parts, spatial parts can represent change.[376]

Now that it is easier to say time is like space *in some respects*, we can move on to our central problem.

4.7. Diachronic Composition

Although I draw a distinction between diachronic and synchronic parthood, I can say that they are strongly related and that neither can be considered in isolation from the other.[377] In this sub-section, I will propose a kind of perdurantism involving functional filtering to suggest frameworks for partitioning things. But first, let us quote David Lewis about the different solutions to the persistence problem:

> Let us say that something *persists* iff, somehow or other, it exists at various times; this is the neutral word. Something *perdures* iff it persists by having different temporal parts, or stages, at different times, though no one part of it is wholly present at more than one time. Perdurance corresponds to the way a road persists through space; part of it is here and part of it is there, and no part is wholly present at two different places. Endurance corresponds to the way a universal, if there are such things, would be wholly present wherever and whenever it is instantiated. Endurance involves overlap: the content of two different times has the enduring thing as a common part. Perdurance does not.[378]

Although this may seem to be quite a good place to start, one has to take into account the many differences between perdurantism and exdurantism. Contrary to Lewis, there is a significant tendency to understand perdurantism and stage theory (exdurantism) differently. Perdurantism posits the existence of temporal parts, with the persisting thing being a sum of those temporal parts. Exdurantism, on the other

[376] Ibid.

[377] Remember the criss-crossing I discussed earlier, or the significance of causation as a temporal phenomenon.

[378] David Lewis in Beebee, H., Dodd, J., (eds.) *Reading Metaphysics*, (USA: Blackwell, 2007) 210.

hand, asserts primarily that there are stages, that each is an object and a counter-part of its neighbour stage, and that they bear certain relations to one another in exhibiting properties. Let us go through each one of these forms of persistence starting with perdurantism.

4.7.1. Perdurantism

In the above discussion of synchronic existence, we mainly talked about spatial parts across time. Perdurantism, in committing itself to temporal parts theory, primarily asserts that just as we have spatial parts (like fingers, legs, heart, etc.), we also have temporal parts. To posit parts is mainly to account for change. Let us consider black berries: a berry is white at the very beginning, in then turns a pinkish red, then red, and finally black. To account for its change, a perdurantist would say that a specific berry has various temporal parts: its white, pink, red, and black temporal parts. By adding these temporal parts together, we get a berry. The duration of the temporal parts differ; some theorists have suggested that, since change is constant, perdurantism should deal with momentary stages. Whether these are momentary stages or extended temporal parts, according to perdurantism these stages or parts are only "partially present" in their temporal interval.[379] To say that an object perdures is to say that it perdures as a sum total of its stages or temporal parts, which exist at different times. Perduring things survive change by having different temporal parts or stages having different properties, in other words, different temporal parts or stages satisfying different predicates. It might be good to take a quick look at a standard view (standard in that it preceded the others) before proceeding. Quine defines his view of perdurantism using a nice example, referring to Heracleitus. He says:

> "You cannot bathe in the same river twice, for new waters are ever flowing in upon you."

[379] Roxanne Marie Kurtz, 'Introduction to Persistence: What's the Problem?' in Sally Haslanger, Roxanne Marie Kurtz (eds.), *Persistence: Contemporary Readings*, (Cambridge: MIT Press, 2006), 3.

> The solution of Heracleitus' problem, though familiar, will afford a convenient approach to some less familiar matters. The truth is that you *can* bathe in the same river twice, but not in the same river stage. You can bathe in two river stages which are stages of the same river, and this is what constitutes bathing in the same river twice. A river is a process through time, and the river stages are its momentary parts. Identification of the river bathed in once with the river bathed in again is just what determines our subject matter to be a river process as opposed to a river stage.[380]

So, the river stages constitute the river temporally. Still, how can we bathe in the same river if that river is a process through time? Does the same river wholly exist at different times? If so, Quine would be an endurantist and would still need to account for the change, but he is not. His answer actually depends on ostension and is not so convincing. According to him, the problem exists if we refer to a momentary stage of the river as the sum of the other stages, or if we refer to the water which constitutes the river stages or any other less meaningful sum from which the river can be abstracted. The solution is to refer to the river as "this river." As Quine says, "'This river' means 'the riverish summation of momentary objects which contains this momentary object.'"[381] So, implicitly, the ostension includes and refers to certain relations between the river stages which compose the river.

The traditional view of perdurantism solves the problem of change through time as follows. Consider the bottle in front of me, and its so-called changes: the bottle is filled with beer at t_1 and it is empty at a later time t_2. The change between t_1 and t_2 can be accounted for by saying that there are two distinct stages or temporally extended temporal parts of the bottle in terms of its properties (or we could alternatively talk about predicate satisfaction): one is full, the other is empty. The bottle "survives the change in virtue of being numerically identical to the space-time worm extended through time."[382] There may be certain problems with the standard

[380] W. V. O. Quine 'Identity, Ostension, and Hypostatis,' *Journal of Philosophy*, (1950) 47, 22: 621.

[381] Ibid., 623.

[382] Roxanne Marie Kurtz, op. cit., 6.

and traditional view of perdurantism; for example, if we are to sum up the temporal parts as constitutive of the object itself, how do we add the filled bottle part to the empty bottle part? In response to this, it can be asserted that this is not a mathematical sum in which you add properties and come up with an answer. It is a mereological sum and it is therefore unavoidable to confront certain problems. If the problems seem less significant or more easily solvable than the problems which other metaphysical theories confront, it seems permissible to propose an account with certain problems.

It might also be claimed that perdurantism is not commonsensical. However, I would simply disagree with this. The argument that perdurantism is not commonsensical stems purely from the fact that it is not yet public.

Let me note that I intend to defend a kind of perdurantism which I call the pluralist version of perdurantism. After reviewing exdurantism and endurantism in brief, I will defend a pluralist perdurantism incorporating the notion of vague existence, invoking degrees and considering functionality.

Let us now take a look at exdurantism or what is sometimes called the "stage theory."

4.7.2. Exdurantism

According to exdurantism, "identity over time" is an issue to be considered with reference to the concepts of possible worlds, and namely to the "identity between possible worlds."[383] Mercan the cat, now resting on my couch, *could* be sitting on the same couch "in virtue of" the sitting position her counterpart takes in a nearby possible world. Analogously, the bottle that is filled with beer *could* be empty in virtue of the emptiness its counterpart possesses as a property. In the above two cases, "distinct objects"—Mercan and her counterpart, and the bottle and its

[383] Ibid., 7.

counterpart—"have incompatible properties."[384] So, the change can be accounted for by the exdurantist as "nothing more than an object and its temporal counter-part having incompatible properties and existing at different moments in the *actual* world."[385]

As we saw above, perdurantism holds that things have stages or temporal parts, and that things exist "partially" at those moments concerned. Exdurantism, on the other hand, states that the stages in question are objects with incompatible properties. The so-called persisting thing "changes *over time* in virtue of standing in a counterpart relation to a stage from a different time."[386] Consider a cup; one stage has the property of being filled with coffee, and its counterpart has an incompatible property: let us say, being empty. The change is accounted for by the fact that the two stages are different *objects*, while persistence is sustained between stages which "bear…the relevant counterpart relations."[387] For instance, the earlier stage can bear with the later stage the relation "being a cup" so that persistence is held. One might still worry about this "derivative" existence of ordinary objects; however, the thought that the notion of existence should be understood in an exdurantist way could, to some extent, be defended, as other theorists defend other approaches to the notion of existence.

Katherine Hawley, in her book *How Things Persist*[388], defends exdurantism broadly understood. It would be beneficial to consider her defence, both to acquire a deeper understanding of exdurantism and to compare it with perdurantism. Hawley takes both property possession and predicate satisfaction to be central. According to her, stages are, again, momentary; they are "the satisfiers of sortal predicates like 'is a

[384] Ibid.

[385] Ibid.

[386] Ibid.

[387] Ibid., 8.

[388] Katherine Hawley, op. cit.

banana' and 'is a tennis ball,'" and they "instantiate ordinary properties like *being yellow*, *being spherical*, or *being banana-shaped*."[389] Hence, according to the stage theory, each stage is an object; the filled coffee cup and the empty one are different objects (yet, they bear some relationships as we have seen). One analogy would be the following. Consider the

> front doors of the houses in a street. You'll see if you look that, although each door is different (i.e., number 8 is red, and number 10 is black), they are all front doors. They may resemble different qualities or fulfil different predicates, but they are all front doors.[390]

Although the analogy might be useful as a way of illustrating the objecthood of the different stages, the different front doors are not causally (or interestingly) connected. [391] If I were to paint a cat on one of the front doors, the others would not be affected in any interesting way; however, if I were to *mark* one of the stages of, let us say, a specific tennis ball, the other stages, as counterparts, *would* be affected interestingly.

There can be cases in which the exdurantist account would agree with the perdurantist one: notably, there can be objects which have temporally extended temporal parts, and which are constituted by the sums of those parts. However, the key assertion is that perdurantism mereologically adds parts together to compose four-dimensional objects, while exdurantism claims that there are instantaneous stages that *are* objects.[392]

Exdurantism and perdurantism are also different in some other senses. One of these concerns property instantiation. Although Hawley herself doesn't defend any kind of property-related view, whether universalism or trope theory, it might be useful to

[389] Ibid., 41.

[390] Ibid.

[391] Ibid., 41, 42.

[392] Ibid., 42.

take a look at some issues related to property instantiation (or predicate satisfaction) in order to consider some of the differences between perdurantism and exdurantism.

Let the properties be the instantiations of universals or of objects' possession of tropes. "Being a cup," as a property, is then satisfied by particular cups. Additionally, in this instance, exdurantism states that it is the stages that are themselves cups which instantiate such predicates or fulfil the predicate "is a cup." Cupness as a universal is instantiated in stages rather than sums of temporal parts, or alternatively, the trope cupness is possessed by individual stages rather than the sum of temporal parts.[393] The attribution of *some* predicates to the sum of temporal parts might be erroneous at some points, thus, although further analysis is needed, it might be said that the property instantiation can be discussed in terms of temporal parts too. Some might want to *speculate* on the property instantiation of "being human" for the temporal parts, because they might oppose any part to be human but only the sum of them; however, they might not on "having an arm," since it is evident that perdurantism works well with the non-sortal properties. On the other hand, for exdurantism, rather than a single stage, a collection of stages might also be responsible for the property instantiations.[394]

One other possible dissimilarity concerns maximality. At this point, let us remember what a proper part is: "A proper part of an object is a part that is not identical to the object itself." The issue, then, is mainly this: according to a perdurantist, a sortal predicate (like "is a cup") cannot be satisfied by any proper temporal part of the cup. However, non-sortal predicates can be satisfied in this manner: a proper part of a thing can satisfy a predicate like "is black." Therefore, "sortal predicates are *temporally maximal*" for a perdurantists.[395] Exdurantism does not require such

[393] Ibid., 44.

[394] Ibid.

[395] Ibid., 40.

maximality: "[A] stage satisfies a sortal if and only if it has the appropriate intrinsic properties and stands in suitable qualitative relations to other stages."[396]

It can be said that another demarcating point between exdurantism and perdurantism is that exdurantism is closer to endurance[397] in the sense that temporal talk is possible. In perdurantists' theories, while one might talk about a cup as being black, when considering a berry, it should be said to be multi-coloured, since it is white, pink, red, and black during its temporal career. Of course one can talk about a specific berry's colour, referring to the properties of its temporal parts. Consider yourself as well: you are also a multi-heighted, multi-weighted creature, having different heights and weights during your temporal career. Yet, it is not so weird to answer the question "What is your height?" by referring to one of your temporal parts. Exdurantism, on the other hand, allows for temporal talk, although you can, if you wish, as an exdurantist, choose to engage in atemporal talk about perduring objects. However, if you are to talk about some specific object, such as "the cup" or "Mercan," you cannot employ atemporal talk as an exdurantist, since "these terms do not refer to perduring four-dimensional things; rather they refer to different objects when used with respect to different times."[398] An exdurantist will not be able to refer to a specific object if she is to talk without temporal commitments. She can talk about a person by referring to their entire temporal career, but if she talks about a specific predication or possession of a property, she must designate which stage(s) she is talking about. The difference between endurantism and exdurantism in this respect, as we will see later in this chapter, is that endurantists hold that objects exist in "more than one time," while exdurantists on the other hand claim that objects (stages) exist momentarily.

[396] Ibid., 45.

[397] We shall talk about endurance too in this chapter.

[398] Ibid., 45, 46.

There are, of course, some problems with exdurantism too, three of the most important ones of which are the following:

Firstly, there is a problem with sameness, and this problem holds for both exdurantism and perdurantism. For exdurantism, certain specific stages today are Mercan, while certain stages tomorrow are Mercan too. Furthermore, some temporal parts are temporal parts of Mercan and others are not.[399] The sameness problem can be accounted for by referring to both spatio-temporal continuity and to causation among stages or temporal parts.

Secondly, in exdurantism, we end up having too many objects. Diachronically counting, there are too many of, let us say, *you* in the world.[400]

Thirdly, the stages concerned are "too thin," in fact, they are instantaneous. Regardless of their *three*-dimensional shapes,[401] the problem remains to account for those processes that take time, like "thinking,…digesting,…growing," *functioning*, etc.[402]

So what about the real length of the stages? We said earlier that the length of the stages are momentary, or that the stages are instantaneous. But how and why? Hawley suggests that stages are "as fine grained as change" thus "as fine grained as time." Yet, how is this change analysable? Hawley takes change to mean possible change. In these terms, she says that stages are "as fine grained as possible change." What does that actually mean? She gives a spatial analogy in order for us to understand. She asks us to think of a homogenous object and assume, at first, that this object does not have parts. How could this be? If someone comes along and

[399] Ibid., 46.

[400] Ibid., 46, 47. As we will see, there are many physical frameworks by reference to which we can divide temporal extention of a person.

[401] If stages are considered to be instantaneous their temporal dimension is an instant, then they have three dimensional shapes which vary.

[402] Ibid., 47.

paints a cat on it, would it then have parts just because it has been painted on? So, it must be said that the homogenous thing is subject to possible change and would thus have *actual* parts. But it does not have to be painted to have actual parts; the possible change itself ensures that it has actual parts. Now consider an object unchanging through time; does it have temporal parts or stages? The answer is a qualified yes. It has parts since it is subject to possible change through time and this change is as fine-grained as time; therefore the stages of such an object are as fine-grained as time and possible change.[403] Therefore we do not need an actual change in a thing for that thing to have temporal parts.[404]

The impetus behind Hawley's thinking is that some genuinely unchanging objects can exist, so the change must be thought of as possible change. However, I would think that if change has to be taken into account wherever temporal parts or stages are concerned, then we cannot talk about an unchanging thing. You would always be able to find a property that is changing in that thing over time. The important point is that we do not have to account for *any* change; as I will suggest later on, we can instead account for change *in terms of* something. Thus, temporal parts theory must be analysed in terms of certain criteria and/or properties and/or part possessions; in this way, I believe, one would find less problems with it.

Even if one has to oppose Hawley and consider change in terms of actual change, I would say that there is no problem at all. This is because, if the analysis is to be made supposing that there is a temporally extended object without any vagueness, then actual change and possible change are identical from the perspective of that so-called stable being.

Let us get back to Hawley's analysis since I find some of its facets very important. She asserts that stage theory thus formulated would seem to account for many things.

[403] One might want to see a related account in Dean W. Zimmerman 'Could Extended Objects Be Made out of Simple Parts? An Argument for "Atomless Gunk,"' *Philosophy and Phenomenological Research*, (1996) 56, 1: 1-29.

[404] Katherine Hawley, op. cit., 49, 50.

Now that the stages are as brief as time is, one problem (which is stated above) is to account for "lingering and historical predicates." Consider the predicate "is a person," or "is a cup," or "is a cat." Does the property "being a person" not necessitate having been born to become a person? Or having grown up as a person? Or is "being a cup" a momentary property that does not include its process of fabrication and other such things? Indeed, maybe even on eternalist grounds, can having the property of "being married in 2018" be a property of a single person? I think we could perceive the importance of historical properties or predicates in these terms. What about the lingering predicates like "is thinking about her," or "is planning to go to the UK"? This is actually a general problem concerning many of the predicates to be satisfied within exdurantism: there is almost no difference between the predicates "is a person" and "is thinking about her." Both require temporal extension, which stages do not have. However, stages are not isolated; although a single stage can fulfil such predicates, it does not need to do so in isolation.[405] Hawley refers to Sider's theory as follows:

> Do these considerations indicate that, contrary to stage theory, it is not instantaneous stages which satisfy sortal predicates, but rather collections, series, or sums of such stages? No. According to stage theory, what it takes for a stage to satisfy the predicate 'is a banana' is a little like what it takes for a person to satisfy the predicate 'is a sibling' on any account of persistence. I am a sibling if and only if I am suitably related to at least one other sibling. I could not be a sibling without the existence of at least one other sibling. Nevertheless, I am a sibling in the most direct way in which anything can be a sibling; neither the collection nor the sum of me and my siblings is in any sense itself a sibling. Analogously, the stage itself is a banana in the most direct way in which anything can possibly be a banana. If there is a property *being a banana*, then the stage instantiates it. The claim is simply that any such property is a relational property.[406]

[405] Ibid., 55.

[406] Ibid., 55.

Some relationships must hold between stages (or else, perhaps, between temporal parts) for one stage to fulfil certain predicates; although the stage directly possesses the property or fulfils the predicate, the fact that it is not isolated is essential for it to do so.

Before moving on to the perdurantism debate that I will present, it might be good to take a quick look at endurantism too.

4.7.3. Endurantism

According to endurantism, each object is wholly present at different times. Endurantists consider time to be a distinct phenomenon and claim that there are three-dimensional objects which endure through time. These objects are subject to change, which is perhaps the most unacceptable feature of endurantism. Although it seems very commonsensical, many of the aspects of this view have been criticized, some of which are more pressing than others. There is one famous objection that we can briefly discuss: namely, the problem of temporary intrinsics. However, the reader should remember that the choice of endurantism vs. perdurantism/exdurantism is mainly made in relation to four-dimensionalism, and I've already outlined why I chose the approach I did in Chapter 3.

4.7.3.1. The Problem of Temporary Intrinsics

The problem of temporary intrinsics is spelled out first by David Lewis. He said that endurantism suffers from exhibiting temporary intrinsics, and so is untenable. It is easy to conceive that things that exist exhibit changes concerning their so-called intrinsic properties. Let one of those properties be shape. We, as physical objects (some of whose properties like mental properties are just redescriptively physical), change in terms of shape – I am now in a sitting position, and later I will stand up,

and I may sit again. If shapes are intrinsic properties then they are temporary intrinsic properties because they change in time.[407]

According to the endurantist theorists, the so-called temporary intrinsic properties are properties with respect to times. Taking 'being in a sitting position' and 'being in a standing position' into account, it can be said that "I instantiate [*being in a sitting position*] relative to time t_1 and [*being in a standing up position*] relative to time t_2. Since I am [in a sitting position] at t_1 and straight at t_2, I undergo change."[408] According to David Lewis, this position, which asserts that change is a relation to times, contradicts the endurantist claim that "an object's change does not involve anything besides the object itself,"[409] therefore endurantism is false.

There are further debates around the issue of temporary intrinsics, but since these are hardly related to the concerns of this thesis, we will skip them over to look at the pluralist account of perdurantism.

4.7.4. The Plurality of Temporal Parts: An Analysis

In the previous sections, we talked about synchronic composition and suggested that an account that includes the concept of functioning would be a suitable one to analyse the special composition problem synchronically. However, as we said earlier, functions take time to operate, as does causation. Therefore we need to talk about diachronic composition too. Bearing this in mind, we took a look at some of the four-dimensionalist persistence theories. It is now time to suggest a method of analysis for

[407] David Lewis, *On the Plurality of the Worlds*, 211. David Lewis says that there are three ways to look at the problem of temporary intrinsics mainly: The first way is to posit that there are no intrinsic properties, shapes included. The second way is to suppose that only the present properties of things are real and that objects do not persist. Both of these solutions are untenable. The third way is that the seemingly changing properties belong to different temporal parts which, together, constitute the object. (Ibid., 211,212)

[408] M. Eddon, 'Three Arguments from Temporary Intrinsics,' *Philosophy and Phenomenological Research*, (2010) 81, 3: 606.

[409] This proposition by Lewis seems to lave open the modification by relational properties yet the intrinscality is still a problem for endurantist accounts.

temporal parts or stages. When analysing temporal parts, it is very important to keep in mind that both synchronic composition and diachronic composition involve vagueness.

We have already said that the following principle can be used for parthood for human beings:

> The *x*s compose the living human being *y* if and only if
>
> *x*s function to constitute or sustain the life of *y*.

However, there are cases where an ordinal degreeing in terms of parthood is more appropriate.

What we will therefore do when analysing the temporal parts of something is to reconsider the above principle and make the temporal part/stage division accordingly.

The reader may have noticed that I still talk about temporal parts and stages interchangeably. I would say that, although there may be some instantaneous stages that are analysable as stages per se, most generally it is the temporal parts that take the central position in our analysis, as we shall see. This is because it seems more legitimate to talk about the temporal part rather than the numerous stages that occupy the same time interval. It just seems to be a matter of convention[410] (contrary to what Hawley and others may think) to talk about either stages or temporal parts in the present context, as we shall see.

Let us go through an example first. Consider a man who loses his left arm and then has it replaced by a mechanical one.

[410] The root of this convention can most naturally be asked. And I will discuss such matters in the possible objections and discussions section at the end of this chapter.

In this situation, take the moment[411] t_1 when the organismic arm stops functioning (it might be the moment it is amputated) and take the moment t_2 when the mechanical arm starts functioning. Now our analysis suggests the following: let the temporal part between t_0 (where t_0 is the moment we become a human being, which is again quite vague) and t_1 be called Tp_1; and let the temporal part between t_1 and t_2 be called Tp_2. Finally, let the temporal part between t_2 and t_3 (where t_3 is the moment we ceased to be a human being) be called Tp_3. In this way, the specific human being *y*, when analysed through functioning, can be said to be a four-dimensional space-time worm, with *three* temporal parts in the *framework of the functioning of the left arm*.

Two questions arise here. (1) is "How are we to account for change?" The answer would go through answering another question: "Change in terms of what?" If one has to focus on change, possible or actual, one cannot talk about *any change* in human body since, I believe, the actual change in physical objects is constant and, as Hawley has said, as fine-grained as time. You hardly talk about an object or its properties and relations being constant.[412] However, when we are talking about persons, to account for *any change* is impossible. Since there will always be a temporal difference wherever identity is concerned, the stages and temporal parts within that temporal interval would be infinitely many. Therefore, we need to talk about change *in terms of* something. Taking part possession to be the key to the problem of change, one can talk about many different temporal divisions of the space-time worms called human beings. In the above example, we talked about possessing the property "having a left arm." You could equally take each and every thing that functions to constitute or sustain the specific life of a human person. However, as we saw earlier, some of these properties might be vague to a larger or smaller extent.

[411] Relative to a framework that is not in motion with respect to the agent.

[412] The reason I say hardly is because some sub-atomic particles may only be subject to change within certain possibilities.

The second question (2) is how we can account for the other parts when we establish the framework as *the framework of functioning left arm*. If we take the specific space-time worm as it is with all of the functioning parts, it will often have vague borders because of the vagueness we talked about earlier. If we take this four-dimensional object with such borders we may feel uneasy by any change it experiences through time. The only thing we can do is to take one change into account as a framework and divide the four-dimensional object into parts with reference to it (even though the other parts of it are necessary to constitute or sustain the object, albeit to different degrees). This is to say, you can always divide the same object into other parts in interesting ways; furthermore, all of these divisions are real. In addition, if you were still to take the any change in relation to the four-dimensional space-time worm, then you would have instantaneous stages (although I don't consider this an interesting division).

But what divisions count as 'interesting,' and in what sense are they 'real'? I take the interesting divisions to have at least two features: (i) they are either physical or redescriptively physical, and (ii) they are interesting on an intuitive or scientific level. In this sense, the temporal parts of a thing are many in number. For instance, for a physicalist the *framework of having a soul* does not exist, i.e. is not real, in this sense; neither does the *framework of having an eternal love*, or the *framework of functioning ectoplasm*, etc. There *might* also be some uninteresting frameworks like the *framework of functioning cell x in your left toe and functioning cognitive part x*, when there is no scientific or intuitive reference linking one to the other.

The interesting divisions can be made through the frameworks that are intuitive and acceptable, such as the *framework of functioning left arm*, the *framework of functioning cell x*, the *framework of functioning oxygen molecule x*, etc. In addition, some specific positive sciences might regard certain divisions as interesting—for instance, the *framework of functioning left arm and such and such a brain part*—that may not seem interesting to us, being not so intuitive, yet these might be interesting for neuroscience. How then do these intuitive and scientific frameworks count as

real? By considering the four-dimensional space-time worm that is called a specific human being as real, any division we make would be a real division unless we were to add something unacceptable to the human being as a part.

So, the third question (3) is the following: Having accepted that all these frameworks and divisions are real, how do the temporal parts relate to each other? It can be said that there is a collective function of the temporal parts, which constitutes and sustains a specific human life. Consider the situation where a temporal part is missing: the flow of functioning would evidently be affected and the temporal flow would be disrupted. This may mean death according to some analyses, although there are certain thought experiments that suggest the contrary.[413] It can also be said that there is a flowing stream of functioning that passes through the temporal parts: Even if we have divided the four-dimensional worm into temporal parts, the functioning still flows, regardless of the framework that is specified in terms of which the division is made. That is to say, when you set the framework as, let us say, *the framework of functioning heart*, the other functioning parts make possible the connections that are needed between the temporal parts circumscribed by *the framework of functioning heart*. Besides, the criss-crossing of causation always holds between parts, that is, there is in fact a process of causation ongoing at any given time.

The following section will deal with some possible objections to the aforementioned accounts of parthood. It will serve as an auxiliary section in which we deal with the problems of the accounts in greater detail.

[413] For example, teletransportation.

4.8. Possible Objections

In this section, we will be dealing with major possible objections to both synchronic and diachronic compositions.

The first concern might relate to the term 'constitution.' It could be said that the meaning of the term is not given so explicitly. I have two responses to this. The first is that the term 'constitution' is partly based upon the usage that Van Inwagen puts forward when talking about the constitution via the activities of simples. I am not supposing here that only simples exist; however, if one must dwell on the problem of accounting for the term 'constitution,' one thing one could do would be to refer to Van Inwagen's discussion in this chapter. The second response is that, in a similar manner to certain other thinkers, 'constitution' is mainly used here as a primitive term.

Another possible problem concerns the term 'proximate.' It could be said that the question "How proximate is *proximate*?" is a fair one. This question is really asking to what entity the part-to-be is proximate. Let us think again of a single photon: how proximate should a photon be to be counted as a part?[414] If we know the boundaries of the human being, then we can talk about proximity; yet in this case it means that we know the parts since we know the boundaries. My response to these considerations is threefold. Keeping in mind our functionality criterion, it can firstly be said that the objection relating to the supposition of boundaries is not a fair one. Say, we know that our boundaries are drawn by our skin. Do we now know all of our parts then? Evidently, the answer is no. There can still be something that does not function to sustain or constitute our life, but still exists within the limits drawn by our skin. So, saying that proximity requires a body boundary may not be fair. Secondly, if composition is vague, then it is easy to say that proximity is also vague. Thirdly, some kind of answer seems to arise when the criss-crossing of causation and spatial distance is taken into account. It can also be said that proximity is something that a

[414] Remember cognitive parts are of different proximities.

part-to-be possesses when it contributes to the *density* of the criss-crossing parts of a human being.

A possible concern might relate to the time at which we take the formerly functioning organ or cell to cease functioning. Say, for instance, my stomach is functioning to sustain and constitute my life at t_1. It starts to function only partially at t_2, and it malfunctions at t_3. Suppose, furthermore, that through medical treatment it resumes to function to sustain my life again at t_4. In this case, there seem to be a number of problems. The first question might be as follows: How much does it have to function to sustain my life in order for it to be counted as a part of me? Are there degrees in that sense? The answer could only be that it is a part of me as long as it functions to sustain or constitute my life. When it malfunctions (that is, no longer functions to sustain or constitute my life), it is no longer a part of me. It may be difficult to decide on the precise time point at which it begins to malfunction, but that may not be a problem for us since the criterion remains evident. However, it may also seem counter-intuitive to talk about a malfunctioning organ or cell, etc., whenever it malfunctions, since there may be treatments that can make it function again, or it may resume functioning to sustain my life without any treatment at all. We can suggest an ad-hoc criterion by replacing "malfunction" with "irreversibly malfunction." Utilizing the notion of degrees, we can say that an organ is no longer a part of me when it malfunctions irreversibly; it is also less of a part of me when it malfunctions reversibly, and a part of me when it functions to sustain or constitute my life. Another answer might be that, reversible or not, when it malfunctions, it is not a part of me at all; and if it starts to function again, it becomes a part of me once again.[415] Personally, I feel this second answer makes more sense than the first.

Another related concern asks whether my arm—or, say, my left eye—is functioning when I am asleep. At a first glance, one might think that it is not functioning at all.

[415] This can be analysed by relying upon *the functioning stomach* framework (if we were to talk about another part, we would replace the word "stomach" with the related name of the part) for the human in question.

However, even biologists would say that an eye functions to constitute life (along with the cells it is composed of) and to sustain it, irrespective of whether you are awake or asleep. But what about an organ or a cell that has been declared genuinely useless by medical science? Let us consider one such organ: the appendix. The appendix is said to have no function.[416] In our terms, it does not function to sustain life. But does it also not function to constitute life? One may speculate that it does. The cells of which it is composed might be thought of as contributing to the life of a human person. Yet, if such speculation falls short of truth, I don't think there is any problem in considering it as a non-part. However, I tend to believe that the cells within the appendix are functioning to constitute my life, if not sustaining it. But some may wonder whether some parts of our bodies are to be considered alive at all, like our finger nails or our hair, or the upper segments of our skin. I am inclined to say that they provide organismic proximate causes to sustain life, if not constitute it. So they are our parts. But if I get a haircut, or cut my nails, does it mean that I lost parts? I tend to believe that I do. The real issue here is that, since they grow, hence get replaced, it is no big deal to lose a part of my nail or hair. If one has to face the permanent removal of your nails or your hair, it will remind us the fact that they were definitely our parts.

Another concern might relate to the degree to which a mechanical arm might be considered a part of me. Suppose, an amputation is carried out on my left arm and it is replaced with a mechanical one. Would it matter whether it functions *quite like* my functioning ex-arm? In other words, does it function at the same level as my biological arm used to function to sustain my life? Intuitively, we tend to say that my original arm was more a part of me than the mechanical arm. But the root of such intuition might in fact be that the new mechanical arm doesn't function as the old one did. Now consider it to be exactly the same shape and structure as my ex-arm. One would still say that, intuitively, the organic one would be of a higher degree part of

[416] Some recent study shows that it has function and might function to sustain life. See http://www.abc.net.au/news/2007-10-10/scientists-discover-true-function-of-appendix-organ/693946

me than the mechanical one. One reason for such an intuition is probably the fact that the mechanical arm is easily replaceable with another. But couldn't it be the case that your arm might be replaced with a qualitatively identical arm carrying your own DNA? So, now the issue becomes clearer: *in the present context*,[417] the ex-arm that was amputated, when it was still functioning to constitute and sustain my life, is more a part of me than the mechanical one. Furthermore, you can detach your mechanical arm when you are sleeping, since it involves no cellular activity nor any other kind of activity when it is detached. Thus, in the temporal part analysis of the *framework of functioning arm*, this detachment marks a shift from one temporal part to another, as does the re-attachment (as is the case with eyeglasses). That is to say, the attachments and detachments are the exact temporal points in four-dimensional space-time manifold.

A further concern may relate to overlapping and transitivity. In general, the issue of overlapping does not constitute any sort of problem. However, it must be acknowledged, in our context, that the functioning of the cells of, let us say, a kidney is different from the functioning of the cells of the heart, yet both constitute or sustain life. Equally, it is usually thought that the constant functioning of the kidney—which may include a few pauses in the course of its career—does not affect the constant functioning of its cells or molecules, or of the atoms within it, and vice versa. The issue of transitivity can be analysed as follows. Firstly, there is a direct transitivity issue at hand: I have my eyes as parts of me, and the parts of my eyes are also parts of me. But I also have my glasses as a part of me (to a degree), so are the parts of my glasses (e.g., the little screw at the very tip of the left side) also parts of me? This is a complicated issue and the only answer I can provide is that the eyeglasses, whatever their parts are, to the extent that they function to sustain my life, are part of me. Secondly, there is yet a more complicated point that can be made. Although we have used artefacts in our examples to establish analogies with human

[417] The context that is to be thought considering a portion of the four-dimensional space-time manifold.

existence, our account is only really applicable to human beings. But in terms of transitivity, another issue arises here; I might have a notebook as my cognitive part, but I might also have a person as my cognitive part. Say, Otto has a friend instead of his notebook. This would not change much in the example; you would just need to replace the notebook with the relevant part of Otto's friend's brain. But then, there arise problems: Are the parts of Otto's friend parts of Otto? Because you can apply our criterion to Otto's friend too, the question is legitimate. The answer can be derived from the notion of proximity, even though we said that proximity might not be relevant to cognitive parts. Only direct causes can be designated as proximate in this case, namely, the functioning of Otto's friend's brain. So the part (to a degree) of Otto is the brain of Otto's friend, but not the parts that function to sustain Otto's friend's life. Thirdly, there can also be shared parts: suppose that the same part of Otto's friend's brain can be considered a cognitive extension of Charlie too. In that case, is Charlie a part of Otto? The answer is rather easier, and is a "No". Since there is no transitivity in the above sense, no part of Charlie can be thought of as functioning to sustain or constitute the life of Otto, and vice versa. However, there is a form of sharing here that could be analysed further, perhaps in terms of being social. Consider a community in which each member takes on a cognitive task of one or more of the members. For example, Philip helps Maria to recall the names of the members of the community since Maria lacks that part of her brain while Maria writes something in place of Fred since Fred lacks the corresponding part. And Maria also helps Terry do maths due to Terry's lack of that part while Terry gets help also from Philip while using some specific tools because of his inability to do so. In such a scenario, some of the brain parts of those people are shared. This is the farthest point to assume sociality presupposing a physical ground, I believe.

With this discussion of sharing parts, another concern may arise: What differentiates my heart from yours (or my arm, or indeed any of my temporal parts that (maybe necessarily) carry synchronic parts)? The answer to this question, in many cases, is rather obvious. It can be said that the arm in question is mine and not yours, since it does not constitute or sustain your life, but rather mine. (Certain immanent causes

can be relied upon too as well as some physical attractions that may take place.) However, there might also be cases such as the following: imagine that your arm has been transplanted onto somebody else. In this case, as we saw earlier, the framework of the functioning arm in the temporal parts analysis will show the transplantation to constitute the loss of a property instantiation.

Some also may object to a part of our account with analogous examples to what we have already discussed where we took into account some hazardous material such as alcohol or the material we consume when smoking and questioned whether they can function to sustain or constitute life. Consider poisons now. At first it may seem that no poison sustains our life or constitutes it when consumed. But what if it is a small dose, like the stuff you consume when you smoke? It is evident that it does not sustain your life, but a small number of molecules may get into the cellular activity and can be said to be constitute your life. It seems that it depends upon the type of poison you get, and the amount of it. In some cases you can talk about a collective functioning of the poison molecules in order not to sustain or constitute your life. The following assertion might seem contradictory at first: Some constitutive members of our body may not need to sustain our life. We all carry some enemy within.

That may bring us to another discussion: that of cancer or of parts created through auto-immune diseases. I think the cancer cells (or other cells that are alike) can be thought of as constituting your life, but evidently *not* sustaining it. So, whatever the cause of cancer is —smoking, alcohol, some other material or stress etc.— the parts that are said to have cancer are our parts.

Another issue might be about the artefacts that seem to function better to sustain life after replacing an organismic part, if not constitute it. For example, a new pair of artificial ocular lenses might be said to function better than the old ones as to sustain life for some cataract patients. What can be said about their degree of parthood then? It seems to me that, considering contextuality, the organic lenses are more a part of me than the artificial ones just because they are organismic, and if there will be a

technology that shall provide such kind of organismic level in artificial lenses, then it is plausible to say that the organismic old lenses and the artificial but organismic new lenses are parts of human to the same degree.

What about pregnancy? Is the foetus a part of the mother? Evidently, the answer is yes. It constitutes her life even if it does not sustain it. Yet, after the birth, it can hardly be said that the baby sustains the mother's life, or that it constitutes it. Can we say that it functions vice versa i.e., that the mother sustains the life of the baby? Here, proximity comes into discussion again. The mother feeds the baby; yet it is not the mother herself but the ingredients of the milk that sustains the baby's life. One may push the point further and say something about cognitive parthood, and there may well be some examples in which some of the mother's cognitive parts are used by the baby too. In such a case, we can perform a degree analysis and decide whether something is a part of the baby in question to a certain degree.

A concern, related to the one which the temporal parts analysis raises, is that certain non-interesting divisions, used as frameworks, might prove interesting when a further physics/neuro-physics/medical science perspective is employed. How then can we account for our earlier analysis of temporal parts? This is a very difficult question, but I would answer it in the following way: I cannot make a temporal part analysis supposing that there will be further scientific developments that will offer interesting new analyses. I can only say that, in terms of context, one can only do one's best in light of the current state of physics—despite there being certain contradictory claims between some of the theories in use—and hope for future improvements.

One final concern might relate to the constant change that, say, my arm is undergoing. It is changing at every single moment; so can't there be so many temporal parts? The answer is that, if my arm is functioning to constitute or sustain my life, then it is my part regardless of the changes it undergoes. If it stops functioning to sustain or constitute my life, in the temporal part analysis, it could, then, designate a different temporal part of me. If I want to consider a certain part of

my arm, that would require another framework, and that framework would illustrate other temporal parts, as discussed above.

CHAPTER 5

CONCLUSION

To the general reader, the question of persistence might seem of little importance. However, an intuitive point that should neither be ignored nor underestimated is that "we persist by surviving." That is for sure. Therefore, the basic elements of the foregoing analysis, i.e. functioning, constitution and sustenance, are actually very commonsensical —even, maybe, folk-theoretical— ones.

Let us give an example concerning the critical issues discussed so far. Paying tribute to the great author Stephen King[418], say we have a hero named Roland. Imagine he was born on 25 July 1970. Firstly, is it certain that Roland began his career as a human being on 25 July 1970? This, I guess, is a very hard question to deal with; let us leave the answer to a complete science of biology and/or philosophy. Roland is a physical being, some of whose faculties (like "thinking") could be redescribable through a redescriptive physicalism. Roland has a number of parts, like his hands, his blood, his right eye, his cells, his atoms, etc. The parthood status of these parts are to be accounted for by their function in constituting or sustaining Roland's life. Whatever constitutes his life, or sustains it (as we used these terms), is a part of him. Take his mother, Gabrielle, for instance: does she sustain Roland's life? Evidently she does but she is not a part of Roland. My solution to the problem is to say that no non-proximate causes (except cognitive causes, which have a different kind of proximity) can be parts of Roland. So, his mother, although left him very early in his life, provided food and shelter, which are again not parts of Roland unless they function to constitute or sustain his particular life. The food Roland eats gets consumed by his system, and the necessary components are extracted, becoming

[418] See. Stephen King, *The Dark Tower* series, esp., *The Dark Tower II: The Drawing of the Three* (USA: Hodder Paperbacks, 2012) and *The Dark Tower VII: The Dark Tower* (USA: Hodder Paperbacks, 2012).

parts of him. In this way, certain oxygen molecules, or alternatively glucose molecules, amino acids or other atoms, become parts of him.

Humans seem to have many parts, but it also seems that our composition is vague. Some parts seem to be more a part of us than others. One question here is this: Is Roland's left hand or the oxygen molecule he has just consumed more a part of him? The answer is that because of the relative easiness of the replaceability of the oxygen molecule, the possible world in which Roland does not have a left hand is farther away from the possible world in which he does not consume that specific oxygen molecule but some other oxygen molecule. So, his hand is more a part of him than the molecule.

Suppose Roland has some health issues concerning his kidney: he has a kidney stone that partly affects his kidney's functioning. But his kidney still functions to constitute or sustain his life. For this reason, the kidney can be regarded as part of him. However, suppose that the kidney no longer functions either to sustain or constitute his life. In that case, it can easily be said that it is not a part of Roland. It might resume functioning by itself or with the help of some medicine, and then it would become a part of Roland again. Now consider an amputation: say that two fingers of his right hand are chopped off due to an accident. In such a situation, it can be said that Roland loses some parts of himself immediately. Now, let us say that using some medical technology, the fingers are replaced by mechanical ones. Since they are now able to function to sustain Roland's life (but not constitute it by the cellular level), they are parts of Roland. However, in this context, it can intuitively be said that the mechanical fingers are less parts of him than the organic ones.

Let Roland have some friends, called Susan and Eddie. Roland develops a disease that only makes him forget the names of people. The part of his cognitive system that is supposed to function to constitute or sustain his life in this way, no longer functions. So Roland asks Susan for the names he forgets, and in this way some of the parts of Susan's brain replace the function of the non-functioning part of

Roland's brain. Thus a part of Roland is in Susan's brain. (As this example shows, proximity has a new sense when cognition is concerned.)

Imagine now that Roland's friend, Eddie, dies. He will feel that a part of him is lost. However, if no replacement takes place, cognitive or otherwise, then the so-called loss is due to some psychological effect, which is itself not a function that sustains or constitutes life.

Let us say that Roland grows old and dies. This evidently means that he no longer has any parts; there is no longer anything that functions to constitute or sustain his life. However, the exact moment at which his life ends may still be a matter of dispute: for example, whether he can be rescued, whether the parts of him will start functioning again in a minute or so, etc. If he is revived, it may just mean that certain parts of him stopped functioning for a while, and nothing else. However, nobody knows the time interval within which he can still possibly be rescued; but, after a lengthy interval of time in which his parts are not functioning, he will be dead.

Now, let us consider the temporal interval in which Roland exists. On the basis of the four-dimensionalism and perdurantism we discussed above, we can say that Roland can be said to exist by possessing temporal parts through his temporal career. These temporal parts can be used as grounds to determine different temporal parts in different frameworks, and as we said, any framework is real as long as Roland is considered a four-dimensional space-time worm. To give an example, Roland has at least three temporal parts in the 'functioning (two) fingers' framework: one is from his birth to the time he loses his fingers, another is from the beginning of his fingerless period to the mechanical finger implementation, and the others are from the mechanical finger implementation to his death. We say "others" here, because the mechanical fingers do not themselves constitute life, and even if they may from time to time be removed or even re-attached, they still would not constitute life. In addition, there could be many other frameworks for division, all of them real. However, there are two things to say about these frameworks with respect to which which we can examine Roland's four-dimensional existence: firstly, the frameworks

must be physical or redescriptively physical, and secondly, they must be interesting. Finally, one must remember that, within a perdurantist analysis, we must not forget the vagueness and degree talk either.

Let us sum up the line of argumentation followed in this work: a redescriptive physicalism is proposed in Chapter 2, in order to set up a general framework for later discussions. In Chapter 3, the history of modern arguments about time is reviewed, and various reasons to uphold four-dimensionalism are suggested. In Chapter 4, it is argued that a 'function' analysis of the composition of humans would be a feasible one. Yet, since human existence is vague, we also need to assign some degrees (ordinally at least) to the parts of a human. Given such an approach to composition analysis, a four-dimensional perdurantist scheme would seem to work quite well in order to account for change, even in a four-dimensional space-time manifold. Again, focusing on functioning organs and simples, certain physical or redescriptively physical division frameworks can be assigned. These frameworks should be interesting, in the sense that they should be either intuitive or scientifically based.

To put it in a nutshell, this work has tried to capture how and what we are composed of as humans, and how we persist. Along the way we discussed such issues as physicalism, the A-theory B-theory debate, along with the issue of three-dimensionalism vs. four-dimensionalism taking into account the Minkowski space-time and Lorentz space-time, Van Inwagen's organicism, the different approaches to biological functions, vagueness, ordinal degrees, the extended mind hypothesis, the similarity between space and time, endurantism, exdurantism, perdurantism, and plurality of temporal parts.

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APPENDICES

A. CURRICULUM VITAE

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B. TURKISH SUMMARY

Zaman sorunu felsefe tarihi boyunca düşünürlerin kafa yorduğu ve üzerine kuramlar geliştirdikleri bir sorundur. En derinde yatan örtülü bir sorun olarak zaman sorunu bu çalışmanın da temelini teşkil etmektedir. Tabii ki zaman sorununa dikkat çekse de halihazırdaki bu çalışma ancak sorunun bir dalı olarak zaman içinde sürerlik problemini insanlar açısından ele almaktadır.

Tezin birinci bölümü genel olarak fizikalizmi açıklamakta ve bir analiz yöntemi olarak "yeniden-tanımlayıcı fizikalizm"i bir yöntem olarak benimsemenin uygunluğunu belirtmektedir.

Fizikalizm, en geniş tanımı ile her şeyin fiziksel olduğunu dayatan bir görüştür. Fizikalizm köken olarak 1930'lara dayanmaktadır. Materyalizm terimi ile çoğu zaman kol kola giden fizikalizm terimini bu tarihlerde Otto Neurath ve Rudolf Carnap linguistik bir teze atıfta bulunarak kullanmışlardır. Böylece materyalizmi metafizik bir teori olarak almışlar, fizikalizmi ise linguistik bir teori ile özdeşleştirerek bir ayrım yoluna gitmişlerdir. Ancak bu ayrım günümüz terminolojisinde mevcut olmamakla beraber fizikalizm çoğu zaman metafizik bir teori olarak görülmektedir. Materyalizmi fizikalizmden ayıran genel etmenler ise fizik bilimlerinde bulunan bazı varlıkların materyal olmama durumudur. Bu varlıklara örnek olarak enerji, manyetik alanlar, jeodezikler, momentum ve spin verilebilir.

Fizikalizmin birçok türü bulunmaktadır. Kısaca bunlara değinecek olursak üstbağım fizikalizmi ile başlayabiliriz. Üstbağım fizikalizminin düsturu şu şekilde özetlenebilir: Zihinsel olan fiziksel olana veyahut fiziksel olmayan fiziksel olana üstbağımlıdır. Yani hiçbir olası dünya yoktur ki içinde zihinsel olan, veya fiziksel olmayan, alakalı olduğu fiziksel yapı olmaksızın bulunsun. Bu bağlamda, üstbağım bir çeşit metafiziksel bağımlılık öne sürer. Bu bağımlılık bazı durumlarda indirgemeye de yol açabilecektir.

Bu noktada şöyle bir tartışmaya girmek hiç de haksız olmaz. Diyelim ki fiziksel olmayan fiziksel olana üstbağımlı. Bu durumda birtakım varoluşlardan mı yoksa bu varoluşların özelliklerinden mi bahsettiğimizi açıklamamız gerekebilir. Bir düşünce veya fikir tek başına bir varoluş biçimi mi yoksa bir fakülte, bir özellik midir? Eğer bunlar birer özellik ise özelliklerin üstbağımlılığı söz konusu olacaktır. Tüm bunlar ve daha fazlası üstbağım fizikalizminin alt başlıklarını oluşturacaktır.

Bir diğer fizikalizm türü olarak birim fizikalizmi gösterilebilir. Birim fizikalizmine göre her bir tikel tek tek değerlendirilmelidir ve bunların her biri fizikseldir. Yani her aktüel tikele bir fiziksel tikel metafizik düzeyde eşittir. Yani her bir birim fizikseldir. Bu tür bir fizikalizmin karşılaşacağı en büyük sorun ise, her bir duruma tek tek açıklama getirdiğinden, genel bir savda bulunamama durumudur.

Birim fizikalizminin karşısına genelde tip fizikalizmi konur. Tip fizikalizminde aktüel olarak örneklenen her bir zihinsel özelliğe denk gelen bir fiziksel özellik vardır. Ancak buradaki açık problem, zihinsel özelliğin saptanmasında kullanılacak yöntem ve ayrıca zihinsel özelliğin analizde önce gelmesidir.

Fizikalizm aynı zamanda indirgemeci ve indirgemeci olmayan olarak ikiye ayrılır. İsimlerinden de kolayca anlaşılacağı üzere, indirgemeci fizikalizm zihinsel fenomenleri fiziksel durumlara indirger. İndirgemeci olmayan fizikalzm ise bu tür bir indirgemeden uzak durarak fiziksel açıklamalar getirmeye çalışır.

A posteriori ve a priori fizikalizmden bahsetmek gerekirse a priori fizikalizm dünyanın fiziksel yapısının tüm yapıyı oluşturduğunu ve bunun apriori bir zorunluluk olduğunu söylerken, a posteriori fizikalizm böyle bir zorunluluk varsa bile bunun a posteriori olduğunu söyler.

Bizim için bu çalışma kapsamında önemli olan fizikalizm türü ise Robert Kirk tarafından geliştirilen "yeniden tanımlayıcı" fizikalizmdir. Yeniden tanımlayıcı fizikalizmi anlayabilmek için öncelikle "taban açıklaması" ve "saf yeniden açıklama" arasındaki ilişkiyi kavramak gerekecektir. Bunu kavramak için bir örnek faydalı olabilir. Çok küçük ledlerden oluşan bir ekran veya birbirine yakın şekillerde

konumlanmış küçük noktalar düşünelim. LED örneği üzerinden devam edelim. Diyelim ki LED ekranda (789,456), (123,456) vb. şu noktalarda LED ışıkları yanmış olsun. Bu şekillerin LED ekrandaki görüntüsünün uzanmış bir kedi figürü oluşturduğunu düşünelim. Bu örnekte verilen koordinatlar taban açıklaması, kedi figürü de saf yeniden açıklamayı simgelemektedir. Bu koordinatlar analitik olarak kedi figürünü açıklamamakta (Analitik olarak açıklayan örnekler zıt örnek oluşturmaz.) ancak yine de bir şekilde bu taban açıklama, saf yeniden açıklamayı gerekli kılmaktadır. Bu gerekli kılma durumuna Robert Kirk, "mantıksal-kavramsal gerekli kılma" demektedir. M-k gerekli kılma, yeniden tanımlayıcı fizikalizmi kavramada bu anlamda kilit rol oynamaktadır. Yukarıdaki LED örneğinde taban-açıklaması ve saf-yeniden-açıklama arasında metafizik bir boşluk bulunmaktadır. Bu boşluk bütünlükçü mantıksal ve kavramsal köprülerle kapanmaktadır. Kelimelerin anlamlarından dış dünyadaki anlamsal yapılanmaya ve dış dünyadaki anlamsal yapılanmadan kelimelerin anlamlarına doğru çift taraflı iletişim ve bunun yanı sıra mantık kuralları bu bütünlükçü yapıyı oluşturan etmenlerin en önemlileridir.

Bu haliyle m-k gerekli kılma tezi herhangi bir dualist bakış açısını engelleyememektedir. Bunun için fazladan bir sav gerekmektedir. Bu sav, Robert Kirk'ün deyimi ile "hepsi bu" savıdır. Bu sav ile m-k gerekli kılma tezi dualistik dünyaları bertaraf etmektedir.

Peki, m-k gerekli kılma tezini diğer tezlerden ayıran şey nedir? Bunun için bu tezi başka tezlerle karşılaştırmamız gerekebilir. Örneğin şu soruyu soralım: M-k zorunlu kılma tezi a priori zorunlu kılma tezi midir? A priori zorunlu kılma tezi çoğu zaman m-k zorunlu kılma tezini kapsasa da iki tez birbirine eşit değildir. A priori zorunluluk epistemik olgulara dayanmakta ancak m-k zorunlu kılma tezi her zaman epistemik olgulara dayanmamaktadır. Yukarıda verdiğimiz örneği hatırlamak gerekirse LED lambalarının dizilimi a priori olarak kedi imgesini sağlamıyor. Birtakım deneyimsel bilgi açıkça gerekli ve zorunludur.

Bir diğer olası soru da şudur: M-k zorunlu kılma tezi metafizik bir zorunluluk mudur? Zihinsel ve fiziksel arasındaki farka değinerek bir yanıt vermek üretmek

gerekirse denebilir ki metafizik zorunluluk zihinsel olanı fiziksel olanla eşitleme eğilimindedir. Oysa m-k zorunlu kılma tezi böyle bir eşitlemeyi önermez. Zihinsel olan fiziksel olana eşit olamaz, birisi diğerini m-k zorunlu kılabilir. Ancak bu zorunlu kılış bile zihinsel ve fiziksel olan arasında aşılması gereken bir boşluk olduğunu işaret etmektedir.

M-k zorunlu kılma tezi, kavranabilirlik tezi ile de aynı değildir. Kavranabilirlik tezi genel olarak a priori bir kavrama ile hareket eder. Yukarıdada bahsettiğimiz gibi a priori kavrayış m-k zorunlu kılma teziyle zıtlık teşkil etmektedir.

Bu noktada iki ünlü fizikalizm karşıtı tezi tartışmak yararlı görünmektedir. Bunlardan ilki bilgi argümanıdır. Bilgi argümanı şu şekilde özetlenebilir: Mary adında bir bilim insanı düşünelim. Mary bir sinir bilimcisidir ve renkler hakkında bilinmesi gereken her şeyi, her fiziki olguyu bilmektedir. Mary'nin şanssızlığı ise hayatı boyunca siyah beyaz bir odada yaşamış olmasıdır. Bir gün Mary'nin odasının kapısı açılıyor ve Mary dışarı çıkıyor. Gökyüzüne bakan Mary tepkisini şu şekilde dile getiriyor: "Demek mavi böyle görünüyormuş". Bu durumda sorun, Mary'nin yeni bir şey öğrenip öğrenmediğidir. Mary yeni bir bilgiye ulaştı dersek bu durumda fizikalizmin açıklama açısından bir eksiği bulunduğunu, dolayısıyla fizikalizmin doğru bir teori olmadığını, haklı olarak, söyleyenler olacaktır. Bu argümanın literatürde bir hayli tartışma yarattığını ve yaratmaya devam ettiğini belirtmek uygun olacaktır. M-k zorunlu kılma tezinin bu soruna yaklaşımı açıktır. Mary'nin sahip olduğu fiziksel bilgi, sonradan kazandığı söylenen bilgiyi m-k zorunlu kılar. A priori bir çıkarım olmadığından anlamsal boşluğun kapanması için bir deneyim gereklidir. Yani Mary dışarı çıktığında yeni bir şey öğrenmez, sadece bir yeniden tanımlamaya haiz olur.

Bir diğer önemli fizikalizm karşıtı argüman ise "zombi" argümanıdır. Felsefi açıdan zombinin anlamı televizyonlarda izlediklerimizden çok farklıdır. Kısaca özetlemek gerekirse felsefi zombinin sizden veya benden farkı fenomenal kavramlara sahip olmamasıdır. Yani sizin zombi ikiziniz, sizinle fiziksel özellikleri tamamen aynı fakat fenomenal hiçbir bilgiye sahip olmayan bir varlık olacaktır. Eğer böyle bir

varlık kavranabilirse o halde olasıdır. Eğer olası ise fizikalizm zorunlu bir tez değildir ki bu da fizikalizmin doğasına aykırı bir durumdur. Peki m-k zorunlu kılma tezi bu argüman karşısına neyi koyabilir? Kavranabilir olmaktan olası olmaya geçiş sorunlu görünse de, diyelim ki bu geçiş mümkün, bu durumda m-k zorunlu kılma tezinin söyleyeceği şey, zombilerin mümkün olamayacağı; çünkü fenomenal durumların aslında fiziksel durumların yeniden tanımlanması şeklinde var olacağıdır. Ayrık bir varoluşu olsun ya da olmasın, bilinç veya "qualia" gibi fenomenal durumlar fiziksel durumların yeniden tanımlanmasıdır ve fiziksel anlatım fenomenal anlatımı m-k zorunlu kılar. Ancak bilincin ve fenomenal kavramların durumu bu kadar basit değildir. M-k zorunlu kılma tezi tek başına bu konuyu çözmede yeterli olmasa da bir öneri getirmekte ve getirdiği öneri halihazırdaki çalışmanın ilerleyen safhalarında faydalı olacaktır. M-k zorunlu kılma tezinin bu çalışma için bir diğer faydası da ileride göreceğimiz "perdurantizm" dahilinde zamansal parça ayırma çerçevelerinde fiziksel veya yeniden tanımlamaya dayalı fiziksel bölümlemelerin yapılabilecek olmasıdır.

Tezin ikinci bölümü, üç boyutluluğa karşı dört boyutluluk tartışmalarını içermektedir. Bu tartışmalara temel olarak Einstein'ın özel görelilik kuramı alınmaktadır. Yani, Einstein'ın özel görelilik kuramını baz alırsak dört boyutluluk tezi üç boyutluluk tezine göre daha anlamlı olacaktır. Bu noktaya gelmeden önce üç boyutluluk - dört boyutluluk tartışmasının tarihine bakmakta fayda vardır. John Ellis McTaggart'ın "Zamanın Gerçekdışılığı" adlı makalesi tüm bu tartışmalara bir nevi dayanak noktası oluşturmakla birlikte onun orijinal tezi üzerinde herhangi bir tartışma günümüze yansımamaktadır. Bu tezi şimdi kısaca açıklayalım: McTaggart'a göre zaman iki çeşit seriden oluşuyormuş gibi görünür: A serileri ve B serileri. A serilerinde olaylar "geçmiş, şimdi, gelecek" kipleriyle sıralanmıştır. Yani bir olay; geçmişte, şimdi ya da gelecektedir. B serileri ise "öncesi" ve "sonrası" zarflarıyla sıralanır. Bir olay, diğer olayın ya öncesinde ya da sonrasındadır. A serilerinde zaman kipleri varken B serilerinde zaman kipleri yoktur ve B serilerinde sıralama değişmez. McTaggart'ın argümanı şu biçimde ilerlemektedir: A serileri de B serileri de gerçek değildir, dolayısıyla zaman gerçek değildir. McTaggart bu sonuca şöyle

ulaşır: B serileri gerçek değildir, çünkü B serileri zamana dairdir ve zaman bir değişim içerir. A serileri gerçek değildir, çünkü şu anda olan bir olay az önce gelecek kipindeydi ve az sonra geçmiş kipinde olacaktır. Örneğin az sonra kurabiye yiyeceğim ve bu olay gelecek kipinde, şu anda yiyorum ve şimdi kipine geçti, az sonra yemeyi bıraktığımda ise geçmiş kipinde olacak. Aynı olay üç ayrı ve birbiriyle çelişen kipte olamayacağı için bu durumda ancak bir zaman noktasına göre kurabiyeyi yemem gelecekte, geçmişte ya da şimdi diyebiliriz. Fakat bu belirttiğimiz zaman noktası da geçmişte, gelecekte veya şimdidedir ve bunu saptamak için de başka bir zaman noktası gerekmektedir ve bu sonsuza kadar böyle gider. Durum böyle iken A serilerinin de gerçek dışı olduğunu söylemek yanlış olmaz. Zaman A ve B serilerinden oluşuyorsa ve her ikisi de gerçekdışı ise o halde zamanın kendisi de gerçek dışıdır.

A serileri - B serileri tartışması geliştikçe yerini A kuramı ve B kuramı tartışmasına bıraktı. A kuramcıları genel olarak kip barındıran bir zaman yapısını, çoğu zaman "şimdiciliği" ve üç boyutluluğu savunurken B kuramcıları kip barındırmayan bir zaman yapısını, çoğu zaman "bengiciliği" ve dört boyutluluğu savunmaktadırlar. Burada kafa karıştıran terimleri hızlıca açıkladıktan sonra kaldığımız yerden devam edelim. Şimdicilik; sadece şu anın var olduğunu, geçmişin ve geleceğin var olmadığını ancak kiplerle adlandırarak bunlara anlamlar yükleyebileceğimizi savunur. Üç boyutçuluk, üç boyut uzay içerisinde var olduğumuzu ve bu varlığımızın zaman içerisinde süregeldiğini öne sürer. Bengicilik; geçmiş, şimdi ve gelecek olarak adlandırdığımız kiplerin ve varoluşların aslında eş zamanlı olarak var olduğunu ve eşit derecede gerçek olduklarını iddia eder. Dört boyutçuluk ise zamanın da aynen uzay gibi bir boyut olduğunu ve nesnelerin bu dört boyut içinde var olduklarını belirtmektedir. Bu bilgiler ışığında bakacak olursak bu çalışmanın A kuramından ziyade B kuramına yakın olduğu kolayca söylenebilir. Hatırlatmakta yarar olacaktır, ne A kuramcıları ne de B kuramcıları zamanın gerçek dışı olduğunu düşünürler. Şu halde, B kuramına odaklanacak olursak yeni ve eski B kuramları arasında bir ayrım yapmamız gerekmektedir. Eski B kuramlarına göre kip barındıran cümleler kip barındırmayanlara dönüştürülmek suretiyle ortadan kaldırılır. Yeni B kuramlarında

ise kip barındıran cümlelerin belli noktalara dikkat çekme amaçlı kullanılmasına izin verilmekte fakat bu cümlelerin bir olguya işaret etmesi söz konusu olmamaktadır. Şimdi dört boyutçuluk ve B kuramı ile ilgili bir kaç konuya yer vererek tartışmayı bir adım ileriye götürelim.

Hilary Putnam "Zaman ve Fiziksel Geometri" eserinde dört boyutluluk lehine iddialarda bulunmaktadır. Bunlardan en önemlisi belki de daha sonra üçgen argümanı olarak nitelendirilen argümandır. Argüman şu şekilde ilerlemektedir: Şu andaki durumumu düşünelim ve şu andaki durumuma göre hareketli bir başka cisim (C) hayal edelim. Bu cisim ile aramda eş zamanlılık bakımından *R* gibi bir ilişki olsun. Özel görelilik kuramı uyarınca bu ilişkinin bir uzay-zaman referans çerçevesine göre, yani daha yalın bir anlatımla, bir gözlemciye göre kurulması gerekir. Diyelim ki bu durumda gözlemci, uzay-zaman referans çerçevesi benim. Ancak özel görelilikte tüm uzay-zaman referans çerçeveleri eşit derecede gerçektir. Yani öyle bir çerçeve bulunabilir ki benim şu andaki durumumla C'nin şu andaki durumu, benim referans çerçeveme göre eş zamanlı olmakla beraber, bir başka gözlemciye göre benim bir dakika sonraki durumumla C'nin benim referans çerçeveme göre şu anki durumu eş zamanlı olabilir. Yani eğer bir geçişlilik söz konusuysa, bu durumda, tüm referans çerçeveleri eşit derecede gerçek olduğundan benim şu andaki durumumla bir dakika sonraki durumum eş zamanlı olacaktır. Bu da yukarıda bahsettiğimiz bengicilik anlayışıyla uyuşmaktadır; yani geçmiş, şimdi ve gelecek eş zamanlı var olabilir.

Bu durumda ilk akla gelen sorunlardan bir tanesi, gelecekteki önermelere nasıl bir doğruluk değeri atfedebileceğimiz olacaktır. Klasik olarak, gelecek bir şekilde belirlenmiş olsa bile gelecekteki önermelerin durumu tartışmalı olacaktır, denilebilir. Ancak özel görelilik kuramında herhangi bir referans çerçevesi daha avantajlı olmadığından geçmişteki önermelere nasıl doğruluk değeri atfedebiliyorsak gelecektekilere de aynı şekilde atfedebiliriz. Bu sorun, gündelik pratiklerin getirdiği gündelik bir sorundan daha öte değildir.

Bu noktada Minkowski uzay-zamanı ile Lorentz uzay-zamanını karşılaştırmak yararlı olacaktır. Minkowski uzay-zamanı özel görelilik kuramı çerçevesinde dört boyutlu bir evren öne sürerken Lorentz uzay-zamanı yine özel görelilik kuramı çerçevesinde üç boyutlu bir evren öne sürmektedir. Çalışmanın ilgili kısmında Lorentz'in (William Craig'in çalışmasına atıfta bulunarak) neden haksız, Minkowski'nin neden haklı olduğu ve özel görelilik kuramı çerçevesinde Minkowski uzay-zamanının ne tür avantajlar getirdiği görülebilir.

İlk önce Einstein'ın orijinal özel görelilik yorumunun Lorentz'in ve Minkowski'nin yorumlarından nasıl ayrıldığını görelim. Einstein'a göre uzay üç boyut uzay ile bir boyut zamandan oluşur ve özel görelilik dahilinde hiçbir referans çerçevesi bir diğerine göre daha avantajlı değildir. Tümü gerçektir. Üç boyutlu materyal nesneler zaman içinde sürerlik gösterirler. Bu yönüyle Einstein, "endurantist" yani üç boyutlu evrende zamanda sürerliği savunan bir bakış açısına sahiptir.

Özel görelilik kuramının Minkowski yorumu ise Einstein yorumuyla referans çerçevelerinin hiçbirinin avantajlı olmaması konusunda uyuşurken üç boyutlu değil, dört boyutlu bir evren iddiasında bulunur. Materyal nesneler dört boyutlu uzay-zaman içerisinde sürerliklerini korurlar. Bu açıdan Minkowski yorumunun "perdurantist" bir yorum olduğunu söyleyebiliriz.

Özel görelilik kuramının Lorentz yorumu endurantist bir yorum gibi görünmekte ve ilk bakışta Einstein yorumuna benzerlik göstermektedir. Üç boyutlu materyal nesnelerin zaman içerisinde sürerlik sağladığını iddia eden bu yorumun Einstein yorumundan çarpıcı şekilde farklı olan yanı ise bir referans çerçevesinin mutlak olduğunu söylemesidir. Lorentz yorumuna göre bu mutlak referans çerçevesi materyal olmayan bir eter gibi algılanabilir. Bu referans çerçevesi diğer tüm referans çerçevelerine de bir zemin oluşturmaktadır.

Bu durumda, Einstein yorumu A kuramcı bir endurantist ve belki bir şimdici, Minkowski yorumu B kuramcı bir perdurantist ve bengici, Lorentz yorumu ise A

kuramcı bir endurantist ancak şaşırtıcı şekilde bengici bir yorum olarak düşünülebilir.

Şimdi bir Lorentzci olan William Criag'in neden Einstein ve Minkowski yorumlarını reddettiğine bir göz atalım. Craig'e göre Einstein yorumu makul değil ve aynı zamanda açıklama açısından yetersizdir. Makul değildir, çünkü bana göre hareketli durumda olan bir referans çerçevesi düşünürsek, benim açımdan gelecekte olan bir şey bu çerçeve için geçmişte hatta şimdi oluyor olabilir. Eğer bu referans çerçevesi bana göre hareketsiz bir duruma gelirse o zaman ortak bir geçmişimiz, şimdimiz ve geleceğimiz olmuş olur. Ancak bu iki durum da gerçek olduğundan materyal nesneler sanki varlığa geliyor ve yok oluyor gibi görünebilir. Bu açıdan Craig'e göre Minkowski yorumu daha üstündür. Çünkü Einstein yorumunu dikkate alırsak gerçeklik diye nitelendirdiğimiz şey parçalara ayrılmakta ve sabit bir gerçeklik olmamaktadır. Dediğimiz gibi Craig'e göre Einstein yorumu aynı zamanda açıklama açısından yetersizdir. Şöyle ki: Einstein evreninde üç boyutlu materyal nesnelerin şekilleri referans çerçevesine göre değişiklik göstermektedir. Bu değişiklik nesnelerin, örneğin şekil açısından, içsel bir özelliklerinin olmadığını göstermektedir. Dahası, bu şekil bozunumlarının nedensel bir açıklaması Einstein yorumunda verilmemektedir. Nedensel açıklamanın noksanlığı, açıklamadaki yetersizliği doğuran başlıca faktördür.

Peki, Craig, özel görelilik kuramının Minkowski yorumunda neden eksiklikler görüyor? Craig, Minkowski yorumunu üç açıdan reddediyor. Bunlardan ilki; Minkowski uzay-zamanının objektif geçmiş, şimdi ve gelecek gibi kavramlara izin vermemesidir. İkincisi, sezgisel olarak hissettiğimiz zamansal olagelişin Minkowski yorumunda yerinin olmayışıdır. Üçüncüsü ise Minkowski yorumunun, Craig'e göre sezgiye tamamen ters olan perdurantizme kapı açmasıdır. Bu üç eleştirinin halihazırdaki çalışmanın argümanlarıyla ters düştüğünü açıkça görmekteyiz. Birincisi, Minkowski yorumunun objektif geçmiş, şimdi ve geleceğe izin vermediği açıktır ancak bunların gündelik dilde kullanımları olduğunu söylemek ve bilmek objektif oldukları anlamına gelmez. Gündelik dilde birçok şeyi yanlış kullanmaktayız

ve bu yanlışlıklar çok uzun zamandır süregelmektedir. Tabii ki bazı gerçeklerin, bazı noktalarda halk psikolojisine uygun olması gerekebilir ancak bilimsel bazı yaklaşımlar bu konuya dahil değildir. İkincisi, zamansal olagelişin Minkowski yorumunda bulunmadığı da doğru olabilir ancak zamansal olagelişi nasıl algıladığımız başlı başına bir problemdir ve ayrıca açıkça görülebileceği gibi bu, algıya dayalı bir iddiadır. Üçüncüsü, Minkowski yorumunun perdurantizme kapı açması sezgisel açıdan ters bir durum değildir. Tam tersine perdurantizmin, ileriki bölümlerde de göreceğimiz gibi sezgisel olduğu söylenebilir.

Craig'e göre, daha önce de belirttiğimiz gibi, en uygun özel görelilik yorumu Lorentz yorumudur. Bunun, Craig açısından, iki nedeni öne çıkmaktadır: Birincisi, Lorentz yorumunun, içinde zamansal olageliş ve objektif geçmiş, şimdi ve gelecek ihtiva eden klasik uzay-zaman önermesi; ikincisi, bu yorumun, zamansal olarak parçalılık arz etmeyen objektif, avantajlı ve en önemlisi hareketsiz bir referans çerçevesi yani eter önermesidir.

Craig bu tür bir referans çerçevesinin var olduğuna dair üç kanıt öne sürmektedir. İlk kanıt, "kozmolojik yayılım"dır. Kozmolojik yayılım, Robertson-Walker metriğinden doğar ve her temel parçacığın uzayda belirli bir yeri olduğunu varsayar. İkinci kanıt, "mikrodalga arka plan radyasyonu"dur. Bu radyasyonun bir çeşit sabit referans çerçevesi olarak algılanması, Craig'e göre, hiç de şaşılacak bir durum gibi görünmemektedir. Üçüncü kanıt ise "kuantum mekanik boşluğu (vakumu)"dur. Bu üç kanıtın dışında, birtakım kuantum fenomenlerin de eter gibi davrandığı söylenmektedir. İlk fenomen kuantum elektrodinamiğindeki Dirac eteri diye adlandırılan kuantum alanıdır. İkinci fenomen ise Bell teoremi ve EPR ile öne çıkan mutlak eş zamanlılık ve lokal olmama durumudur. Tüm bunlarla Craig, eter veya sabit referans çerçevesi önermesine bilimsel zemin aramaktadır.

Balashov ve Janssen, Craig'in kitabına karşı çıktıkları makalelerinde, onun akıl yürütme şeklinin ve kanıtlarının tutarsızlığına dikkat çekmektedirler. Balashov ve Janssen ilk önce "ilke kuramları" ve "yapıcı kuramlar" arasında bir ayrım yapmaktadırlar. İlke kuramlarında genel ve devamlılık arz eden deneysel verilerden

postulatlar oluşturulur. Bu postulatlar dış dünyada nelerin, nasıl olduğunu açıklar. Yapıcı kuramlar ise daha farklı işler. Bu kuramlarda altta yatan gerçekliğe yönelik bir yöntem uygulanır. Fenomeni açıklayacak bir model yaratılır ve bu modele göre hareket edilir.

Özel göreliliğin Einstein yorumu bir ilke kuramı iken Minkowski ve Lorentz yorumları birer yapıcı kuramdır. Balashov ve Janssen'e göre Craig'in Einstein yorumuna yaptığı eleştiriler tamamen haksızdır; dahası, Einstein yorumu Minkowski yorumuna bir kapı açması bakımından çok önemlidir. Öncelikle bir ilke kuramı olduğundan Einstein yorumu açıklama konusunda herhangi bir iddiası olmayacaktır. Dolayısıyla Craig'in yaptığı Einstein yorumunun açıklama açısından yetersiz olması durumu haksız bir iddiadır. Craig'in yine Einstein yorumu için ortaya attığı "makul değil" suçlaması ise zeminsizdir. Çünkü Einstein, üç boyutlu materyal nesnelerin içsel birtakım özelliklerinin (mesela şekil) sabit olmadığını söylerken, aslında ontolojik olarak bir deformasyon yapmaktan ziyade, var olan üç boyutlu uzaydan farklı olarak dört boyutluluğun önünü açıyor.

Craig'in sabit bir referans çerçevesi olarak eter önermesi ve bunu bilimsel birtakım sözde kanıtlara dayaması konusuna gelecek olursak bu konuda da Balashov ve Janssen, Craig'in yanlışlarını açığa çıkarıyor. Lorentz'in orijinal kuramına da eklemeler olduğu Craig'in yorumunda açıkça belli oluyor. Bu durumda, eter kuramını bir biçimde tekrar gündeme getirerek klasik bir evren kuramı örmeye çalışan Craig'in savunularının dayanaksız ve yanlış olduğunu görüyoruz.

Peki, çalışmanın bu bölümü bize temel olarak ne söylüyor? Eğer özel görelilik kuramını kabul edilebilir bir kuram olarak alacaksak dört boyutlu evren bu çalışma kapsamında en uygunu gibi görünmektedir. Hala sezgisel düzeyde üç boyutluluk savunuları yapılabilecekse de bilime ve sezgiye daha uygun olanın dört boyutluluk olduğu bu çalışmada öne sürülmektedir.

Çalışmanın üçüncü bölümünde insanların zaman içindeki sürerliğine dikkat çekilmekte ve bu sürerliğin hem senkronik hem de diakronik olarak analizi

yapılmaktadır. Burada senkronikten kasıt, aynı zamanda veya zaman aralığında bulunma; diakronikten kasıt ise zaman boyunca bir analiz yapmadır.

İlk önce senkronik kompozisyon ile başlamak daha sağlıklı olacaktır. Senkronik kompozisyonda ilk dikkat edilmesi gereken şey, aslında senkronizasyonun göreli bir şey olduğu, dolayısıyla dört boyutluluğu her zaman zihnimizin bir yerinde tutmamız gerektiğidir. Bir diğer dikkat edilmesi gereken şey ise nedenselliğin belli bir zaman aldığı, eğer iki şey bir kompozisyon oluşturacaksa ve bu bir nedensellik bağıyla bağlanacaksa tek bir zamandan değil, bir süreçten söz etmemiz gerektiğidir. Bu noktaları zihnimizin bir yerine yazdıktan sonra "özel kompozisyon sorusu" ile devam edelim. Özel kompozisyon sorusunu dolaysız olarak senkronik kompozisyonla bağdaşmasa da, senkronik kompozisyon dahilinde incelememiz daha sağlıklı olacaktır. Özel kompozisyon sorusu asıl olarak şudur: *x*'e bir maddesel yapı dersek hangi gerekli ve zorunlu şartlar *x* için sağlanmalıdır ki bu tür *x*'ler *y* gibi bir bütün oluştursun? Yani, gündelik tartışmaya dökmek gerekirse, önümdeki çay kupasının belli parçaları var: Kulpu, tabanı, yan yüzeyleri vb. Peki, çay kupasının yanında duran kalem çay kupasının bir parçası mıdır? Onu ayrı bir nesne veya başka bir şeyin parçası yapan kriterler neler olabilir? Veya işaret parmağımın tam ucunda bulunan atomu düşünelim. Bu atom benim bir parçam mıdır? Eğer öyle ise bu atomu hemen yanındaki atomdan ayıran özellik ne olabilir? Bu tür soruların yanıtı, özel kompozisyon sorusunun da yanıtı yerine geçebilecektir. Şimdi örnek olarak birkaç görüşü ele alalım.

Kısıtsız kompozisyon görüşüne göre her bir derleme bir nesne oluşturur. Yani yukarıdaki örneği düşünürsek çay kupası ile kalem bir nesne oluşturur. Hatta aklınıza gelen her materyal nesne bir diğeriyle başka nesneler oluşturabilir. Kısıtlama söz konusu değildir. Tabii ki bu tür bir görüşün kabul edilebilir olmadığı düşünülebilir. Fakat bir de şöyle düşünelim: Biz materyal nesneleri aslında neye göre ayırıyoruz? Kısıtsız kompozisyon görüşünün savunanlar bunun yanıtını "konvansiyon" olarak vermektedirler. Kısıtsız kompozisyonun tam karşıtı olarak nihilizm gösterilebilir. Nihilizme göre ise hiçbir alt veya üst yapı bir materyal nesne oluşturmaz. Bu görüş

de aynen kısıtsız kompozisyon görüşü gibi uçlarda bir görüştür ve savunucusu pek fazla değildir. Bir diğer örnek görüş "kontak" olabilir. Kontak görüşünde birbirine dokunan her nesne başka bir nesne oluşturur. Masamdaki kalemi çay kupasına dokundurduğum anda "çay kupası kalemi" gibi bir nesne oluşur. Dokunmasını engellediğim anda ise tekrar iki ayrı nesne haline gelirler. Fakat bu görüşün birtakım garip tarafları hemen dikkati çekmektedir. Diyelim ki biriyle el sıkışıyorsunuz; el sıkıştığınız anda ikinizin de içinde olduğu bir başka nesne oluşur, diyebilir miyiz? Biraz zor görünüyor. Masaya dokunduğumda masa ile, Eyfel Kulesi'ne dokunduğumda Eyfel Kulesi ile birlikte bir nesne haline geleceğim. Bu tür örnekler kontak görüşünü zayıflatmaktadır. Kontak görüşüne yakın bir görüş de "yapışıklık" görüşüdür. Bu görüşte, örneğin elim, bir nesne olan bana yapışık olduğundan elimle birlikte bir nesne oluşturmaktayız. Çay kupasının kulpu kupaya yapışık olduğundan kupanın bir parçası olmaktadır. Yalnız bu görüşte de tabii ki eksiklikler göze çarpabilmektedir. Diyelim ki bir böcek derimin altına yumurtalarını bıraktı; bu durumda, böcek yumurtaları benim bir parçam olmuş oluyor mu? Ya da diyelim ki bir ameliyat sırasında karaciğerime yapışık bir biçimde bir pens unutuldu; pens parçamdır, diyebilir miyim? Bu soruların yanıtı olumsuzmuş gibi görünmektedir.

İnsanın kompozisyonu sorusuna benim bu tezde önereceğim yanıt ise Peter van Inwagen'in yanıtının bir modifikasyonu olmaktadır ve tezin amacı doğrultusunda sadece insanları kapsayacak şekilde düzenlenmiştir: *x*'ler *y*'nin yaşamını oluşturacak veya yaşamını sürdürmesini sağlayacak şekilde fonksiyon gösteriyorsa *x* gibi bir şey, *y* gibi bir insanın parçasıdır. Bu önerme ilk bakışta tutarlı ve uygun gibi görünse de bazı problemler mevcut olabilir ki bunlara sonra değineceğiz. Şu anda dikkat çekilmesi gereken konu, burada adı geçen fonksiyonun nasıl tanımlandığıdır. Fonksiyon konusunda bir çok görüş olsa da bizim buradaki kullanımımız, gündelik dile daha yakın ve sadece bir yaşamın sürdürülebilmesini ya da oluşmasını sağlayan eylemler kapsamında düşünülmelidir. Fonksiyon tartışması geniş bir tartışmadır ve bu tartışmanın içindeki önemli kuramlar şunlardır: sistemik yaklaşım kuramı, amaca katkı kuramı, yaşam şansları kuramı, etiyolojik yaklaşım kuramı ve tarihsel olmayan kuramlar. Bunların ayrıntılı tartışması bu çalışma içinde yapılmaktadır.

Özel kompozisyon sorusuna yanıtımızı verdikten sonra senkronik kompozisyon ile ilgili bir konuya daha değinmekte fayda olacaktır. Bu ise "muğlaklık" konusudur. Bu tezde insan varoluşunun muğlaklığı savunulmaktadır. Nasıl bir muğlaklıktan bahsettiğimiz açıklamadan önce, insan bahse konu olduğunda muğlaklığın nasıl geliştiğini, bir düşünürü takip ederek açıklayalım. Peter Unger şu şekilde bir argüman izlemektedir: Ben diye bahsettiğim insan *M* olsun, bu insanın kompozisyonunda kesinlikle ihmal edebileceğimiz, yokluğunda insanlığımızdan bir şey kaybetmeyeceğimiz bir parça vardır; örneğin sol el başparmağımın tırnağının en ucundaki atom. Bu parçaya *x* diyelim. Hiç kimse yoktur ki *M*-*x* için "insan değildir" tanımlaması kullansın. Ayrıca ben de kendim için "insan" tanımlamasını kullanmaya devam etme eğilimindeyim. Şimdi de eklendiğinde bana herhangi bir görünür katkı sağlamayacak *z* diye bir parça düşünelim. Örneğin bu bir oksijen molekülü olabilir. Yine yukarıdaki önermenin bir versiyonunu kullandığımızda diyebiliriz ki *M*+*z* yine ben dediğim şeydir. Ancak materyal yapı açısından *M, M*-x ve *M*+*z*'nin farklı olduğu su götürmez bir gerçektir ve bu örnekler çoğaltılabilir. Dolayısıyla şu anda tek başıma bulunduğumu sandığım odada birçok insan adayı birlikte bulunuyor denilebilir. Bunlardan bana en yakınını seçmek için ise uygulanacak çok fazla düşünce sistemi yokmuş gibi görünüyor. Buna rağmen, odada birden fazla insan var, demek yerine daha uygun olanı; odada bulunan insanın kompozisyonel olarak muğlak bir yapıya sahip olduğunu, sınırlarının muğlak olduğunu söylemek daha uygun görünüyor. "Bu muğlaklığa nasıl bir analiz önermek gerekir?" sorusu ise geçerliliğini hala korumaktadır. Bunun için "bulanık kümeler mantığı" öneren düşünürler çoğunluktadır. Yalnız bir kompozisyonun muğlak olduğunu söylediğimizde kaçınılmaz olarak "dereceler"den bahsetmemiz gerekir. Hangi parçamızın, hangi derecede parçamız olduğunu söyleyebilirsek bu durumda muğlaklığa da bir analiz ve bir çözüm getirmiş oluruz. Ancak bunu yapmak söylendiği kadar basit değildir. Bir parçanın 0 ila 1 arasında derecesini belirtmek (0: parça değil, 1: parça) çok zordur. Fonksiyonlar üzerinden verdiğimiz kriteri aklımızda tutarak şu örneği verelim: Soluduğum oksijen benim hayata devam etmemi sağlıyor, hücrelerimde reaksiyona giriyor vb. Peki, tek bir oksijen molekülü

kolum kadar parçam sayılır mı? Sanırım "hayır" deme eğilimindeyiz. Fakat parçalığın derecesini kardinal olarak (yani 0,2, 0,5 vb. değer vererek) saptamak imkansız gibi görünmektedir. Yani yardımcı olabilecek gibi görünse de, bulanık kümelerin bize aslında pek yardımı dokunmamakta. Bizim işimize yarayacak olan ise ordinal bir derecelendirme önermek yani iki parçamızı yukarıda yaptığımız gibi kıyaslayarak hareket etmektir. Bu konuda olası dünyalar üzerinden bir analiz yapılabilir, fakat bu analizden önce "bitişik nedensel fonksiyonlar" üzerine kısaca birkaç cümle söylememiz gerekiyor. Kriterimize göre bizim hayata devam etmemizi sağlayan şeyler bizim parçamız olacaktı. Peki, örneğin Güneş de bizim parçamız mı? Hayatımıza devam etmemizi sağladığı kesin. Fakat Güneş'in parçamız olduğunu söylemek bizi başka garip sonuçlara doğru sürükleyecektir. Dolayısıyla yapmamız gereken, sadece fotonların yaşamımızı sağlamak üzere fonksiyon gösterdiği noktada, yani bitişik nedensellik sağladığı noktada, parçamız olduğunu söylemektir. Bu durumda Güneş parçamız olamaz, sadece birtakım fotonlar parçamız olabilir. Peki, bitişik nedensellik sağlamayan bir parçamız olabilir mi? Buna "evet" demek yanıltıcı görünebilir ama bu "evet" aslında şu anlama gelir: *Sadece bilişsel sistemlerimizde* bitişiklik bazen uzamsallıktan sıyrılmış daha çok fonksiyonların yerini alma yöntemiyle gerçekleşir gibidir. Bu konuyu ayrıntılandırmak için genişletilmiş zihin hipotezine göz atmak gerekir.

Genişletilmiş zihin hipotezini bir örnek ile açıklayalım: Otto ve Inga adında iki kişi düşünelim. Otto, alzheimer hastasıdır ve bazı şeyleri hatırlamak için elinde her daim taşıdığı defteri kullanıyor. Modern Sanatlar Müzesinde bir sergi olsun. Serginin zamanını hatırlayamayan Otto, defterini açıp bakıyor ve öğreniyor. Inga ise normal bir insan olarak deftere ihtiyaç duymuyor ve hatırladıkları çerçevesinde müzeye zamanında gidiyor. Genişletilmiş zihin hipotezine göre Inga'nın beynindeki ilgili yerin Inga için oynadığı rolün benzerini defteri Otto için oynuyor. Bu iki bilişsel süreç arasında hiç fark yok. Dolayısıyla defterin Otto'nun genişletilmiş zihni (Buradaki zihin kavramı "biliş" olarak görülmeli. Yukarıdaki "yeniden tanımlama" yöntemini hatırlayalım.) olduğu kolayca söylenebilir. Böyle bir durumda bitişiklik yokmuş gibi geliyor ama bilişsel bir sürecin beynin içinde veya dışında süregeliyor

olması absürt bir durum yaratmıyor ve ayrıca bu tür bir fonksiyon yüklenmesi durumuna bitişiklik demek de çok zor değil.

Eğer tekrar derecelendirme analizine dönecek olursak olası dünyaları hesaba katarak şöyle bir derecelendirme yapabiliriz: İki olası dünya düşünelim; ilkinde *X* kişisi *z* parçasına sahip değil, ikincisinde *X* kişisi *y* parçasına sahip değil. Bu durumda şu söylenebilir: İlk olası dünya, aktüel dünyaya uzaklığı açısından bakıldığında, ikinci olası dünyaya göre daha uzaktaysa "O halde *y*, *z*'ye göre daha çok parçamızdır." diyebiliriz. Yani ordinal derecelemede *z*, *y*'den daha ileridedir. Bu ordinal derecelendirme yöntemini kullanırken nelere dikkat etmeliyiz? Dikkat edilecek hususlar dört tanedir: Fonksiyonlar üzerinden verdiğimiz parça olma kriteri, bitişik nedensel fonksiyonlar, sezgi ve bağlam.

Şimdi bu çalışmanın önemli bir başka parçasını oluşturan diakronik kompozisyona göz atalım. Diakronik kompozisyon, daha önce de belirttiğimiz gibi zaman içindeki kompozisyon olarak görülmelidir. Bu noktada dört boyutlu uzay yapısını unutmamak gerekmektedir. Bu şekilde düşünecek olursak öncelikle üç kuram arasındaki ayrımlar belirtilmelidir. Bu kuramlar; endurantizm, perdurantizm ve eksdurantizmdir ve bu kuramların, değişim ve aynı kalma nosyonlarına birtakım çözümler üretmesi beklenmektedir. Endurantizm, daha önce de belirtildiği gibi, üç boyut uzama sahip materyal nesnelerin zaman içinde süregeldiğini öne sürer ve endurantistlere göre dört boyutlu uzay-zaman içerisinde yapılan analizler sezgisel değildir. Perdurantizm dört boyutlu uzay içerisinde materyal nesnelerin aynı uzayda olduğu gibi zamanda da parçaları olduğunu söyler. Nasıl ki kolumuz bir parçamızsa iki yaşından üç yaşına kadarki halimiz de bizim zamansal bir parçamızdır, diyebiliriz. Eksdurantizm de parçalı bir yapı öne sürer fakat eksdurantizmde bu parçaların her biri birer nesnedir ve bu parçalar birbirleri arasında birtakım karşıtlık ilişkileri kurarak devamlılık sorununa yanıt verirler. Bu çalışmanın ilgili kısmında da görüleceği üzere, eksdurantizm ve perdurantizm arasındaki seçim, zaman zaman konvansiyona dayanmaktadır. Çalışmanın genel yapısını göz önünde tutacak olursak en uygun düşecek diakronik kompozisyon perdurantizmmiş gibi görünmektedir. Aynı

analizlerin eksdurantizm çerçevesinde yapılması ise, öyle sanılır ki, anlamsal farklılıklar yaratmanın ötesinde bir şeye dikkat çekmeyecektir.

Tüm bunlardan sonra perdurantizm çerçevesinde nasıl bir analiz yapılabilir? Bu analizi yaparken akılda tutmamız gereken şeyler bulunuyor. Bunlardan en önemli ikisi, fonksiyon kriterimiz ve muğlaklıktır. Kompozisyonel olarak muğlak olan insanların diakronik kompozisyonları da kaçınılmaz olarak muğlak olacaktır. Değişim ve aynı kalma konularında değerlendireceğimiz için zamansal parçaların ayrımı için birtakım çerçeveler koymamız gerekmektedir. Değişim ve aynı kalma dediğimizde aklımıza ilk olarak "Neyin değişimi?" veya "Neyin aynılığı?" soruları gelir. Bu soruların yanıtı çerçevelerle verilmektedir. Çerçevelerden kastımızı şöyle bir örnekle açıklayabiliriz: Diyelim ki Otto'nun sağ kolu ampute edildi. Bu durumda, kolun bir parça olması, dolayısıyla Otto'nun bahsettiğimiz anlamda fonksiyonel bir kola sahip olması çerçevesinde zamansal bölümlemeler yapabiliriz. Yani Otto'nun bu anlamda, fonksiyonel bir kolunun olduğu bir zamansal parçası ve ampute edildikten sonra bir diğer zamansal parçası olacaktır. Otto'ya yeni mekanik bir kol takıldığını düşünecek olursak bu durumda da, üçüncü bir zamansal parçası olacaktır. Fakat tabii ki burada, yeni mekanik kolu, sağlıklı diğer kolu kadar parçası olmayabilir (Yukarıda yaptığımız gibi, derecelendirme kriterleriyle analiz yapmak gerekecektir.). Tüm "ilginç" ayrım çerçeveleri gerçektir. Ayrım çerçevelerinin ilginç olması; birincisi, fiziksel ya da yeniden adlandırmaya dayalı olarak fiziksel olmaları anlamına; ikincisi, bilimsel veya sezgisel düzeyde ilginç olmaları anlamına gelmektedir.

Toparlamak gerekirse bu çalışmanın ilk kısmında, çalışmanın içeriğine uyacak bir çeşit fizikalizm önerilmiştir. Yeniden tanımlamayıcı fizikalizm diye adlandırılabilecek bu fizikalizme göre fenomenler ya fizikseldir ya da fiziksel olarak yeniden tanımlanabilir. Çalışmanın ikinci kısmında, bilimsel veriler göz önünde bulundurulduğunda dört boyutluluk tezinin üç boyutluluk tezine göre daha avantajlı bir tez olduğu söylenmektedir. Üçüncü kısımda ise insan denen varlığın kompozisyonu sorununa fonksiyonlar çerçevesinde bir yanıt getirilmeye çalışılmakta

ve bu yapılırken dört boyutlu uzay-zaman varsayan perdurantizm kuramının yeni bir analizi ortaya atılmaktadır. Bu yeni analizde, zamansal parçaları, belli ilginç ayrım çerçeveleri dahilinde ele almamız gerektiği öne sürülmekte ve bu şekilde ele alınan çerçevelerin tümünün gerçek olduğu iddia edilmektedir.

C. TEZ FOTOKOPİSİ İZİN FORMU

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