Presentism as Dynamic Existence

Kerry Langsdale

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Thesis Introduction

In this thesis, I propose and defend a somewhat unusual version of presentism; dynamic existence presentism (DEP). DEP is based upon two central commitments. The first commitment is 'there are no times'. To clarify, I reject the notion that time consists in individual, static slices of time. Here, I follow the work of Merricks (2007) who argued that the presentist should not accept the notion that the present is a slice of eternalism, rather the presentist should argue that being present is just existing. Tallant (2014) developed this idea further, proposing existence presentism (EP). According to EP, there is no (slice of) time that is the present moment. Instead, what it is to be present just is what it is to exist, or, more formally, presence is existence.

The second commitment I hold is that time, or rather, temporal existence, is fundamentally dynamic. Though I accept that the passage of time involves dynamism, I draw a distinction between the passage of time and temporal dynamism. I reject the reality of the former and posit the latter. According to DEP, temporality is fundamentally dynamic. In other words, dynamism is an irreducible, primary aspect of temporality.

The mechanics of this dynamism on DEP are dispositional properties, or powers. Specifically, I propose a version of powers ontology held by Neo-Aristotelian powers proponents. These proponents hold that powers are irreducibly process-like

and that primitive change occurs when some power is manifested. Further, I hold a pandispositional view according to which *all* change is understood in this way, meaning that all properties must be powerful.

According to DEP, then, the world is an interconnected web of dynamic powers. Change happens because dispositional properties, or powers, bring about further dispositional properties, which form the mechanism of change. Further, as my commitment to existence presentism tells us, what it is to exist just is what it is to be present, or, in other words, presence is existence. Therefore, as the manifestation of powers changes what exists, it also changes what is present.

According to DEP, objects are bundles of powerful properties. Some, or all, of these powerful properties are intrinsic to the objects that bear them. It therefore follows that these objects cannot be separated from their properties. As properties are intrinsically dynamic, objects are therefore intrinsically dynamic. In this way, dynamism is intrinsic to what exists, and in virtue of EP, dynamism is intrinsic to what is present.

This thesis is divided into eight chapters. In the first chapter, I introduce my two main commitments and provide some initial motivation for why we might consider moving away from more conventional commitments, in favour of these somewhat controversial ones. I first explore our commitment to the existence of static times, arguing that this commitment is based upon a bias towards eternalist ontology. To explain this, I explore the work of Seibt (1997). Seibt's work is not centred around

exploring the nature of time but instead focuses on ontological theories concerning existence in time. She claims to have uncovered a bias towards substance ontology and goes on to explain why substance ontology falls short as a theory of truth-makers for dynamic processes. I borrow from Seibt to highlight how theories which centre around static times fall short of describing the dynamic nature of time.

From here, I further explain and motivate the second main commitment within this thesis: that temporality is fundamentally dynamic. I outline the main A-theoretic accounts, the moving spotlight, growing block and presentism. My preferred theory from which to base my account is presentism, and I follow the work of Merricks (2007) and, later, Tallant (2014) in proposing that presentism should be understood not as a commitment to a present moment, or presently existing objects, but as an identity claim summarised by my preferred presentist theory, existence presentism: presence *is* existence.

The project of chapter 2 teases apart the concepts of the passage of time and temporal dynamism. I explore how, despite these concepts being used interchangeably by proponents of theories according to which passage is an objective feature of reality, they are not, in fact, the same concept. I explore the three common features of the passage of time, borrowed from Price (2011). I show that there are models of time which are temporally dynamic, but which do not involve passage as it is generally understood, nor do they involve all three of the commonly accepted features of passage outlined by Price.

Chapters 3 and 4 explore what I take to be the two most significant challenges raised against proponents of the passage of time; the rate of passage argument, and McTaggart's paradox. In chapter 3, I outline the three main versions of the rate of passage argument, the trivial rate argument, thanks to Smart (1949) and Markosian (1993), the no rate argument, thanks to Olson (2009) and Phillips (2009), and the no alternate possibilities argument, thanks to Tallant (2016), Price (1996), and Raven (2011). I offer some responses to these arguments on behalf of the passage proponent, though I conclude chapter 3 by showing that my understanding of temporal dynamism avoids much of the challenge faced by the passage proponent.

The project of chapter 4 involves outlining McTaggart's (1908) paradox and the significant problems this causes for the passage proponent. I explore responses to the paradox thanks to Smart (1949), Gale (1966), Mink (1960), Lowe (1987a, 1987b), LePoidevin and Mellor (1987), and Dummett (1960). I conclude that the best escape from McTaggart's paradox is to adopt presentism, following those who have taken this position previously, such as Le Poidevin (2002), Craig (2001), and Bourne (2006).

I go on, in chapter 5, to explore problems for the presentist specifically. I start by exploring a reformulation of McTaggart's paradox aimed at presentism, thanks to Tallant (2010b). I argue that, although Tallant's reformulation of the paradox is indeed a problem for more conventional versions of presentism, the existence presentist avoids this challenge. I go on to explore what I take to be the main problem facing presentism: the truth-maker problem. I consider this problem as outlined by Leininger

(2015). I determine that this challenge should be taken seriously by both proponents of conventional versions of presentism, and by proponents of existence presentism. I go on to offer two responses, which any presentist may adopt, to resolve the truth-maker problem: Tallant's (2010c) cheat's grounding principle, and a response borrowed from Ingram's (2019) thisness presentism.

As my aim in this thesis is to form a version of presentism which is fundamentally dynamic, I consider, in chapter 6, a recent previous attempt thanks to Golosz (2018). I consider two criticisms of presentism put forward by Golosz; that presentism does not imply the flow of time, and that presentism is inhomogeneous in that it posits both a static and dynamic ontology. I concur with Golosz's criticisms of presentism, and go on to consider Golosz's alternative account, 'dynamic reality' (DR). Golosz offers DR as an account of presentism which avoids the pitfalls of his two criticisms of presentism. However, I show that DR does fall victim to both of Golosz's criticisms and therefore cannot serve as a workable alternative.

In chapter 7, I propose a dynamic version of pandispositionalism as the mechanism of dynamism on my theory. I follow 'anti-passivist', Neo-Aristotelian powers proponents such as Ellis (2001), Mumford and Anjum (2011), and Groff (2012) in arguing for an account of powers which is non-reducibly dynamic. According to this account, powers are process-like and cannot be analysed as a series of static events. I then acknowledge an argument, thanks to Donati (2018) and Backmann (2019), that powers are not straight-forwardly compatible with any of our current theories of time,

including presentism. I concur with their conclusion; however, I argue that powers are compatible with existence presentism. In the final sections of this chapter, I combine existence presentism with dynamic pandispositionalism, to form my preferred theory, dynamic existence presentism (DEP).

Chapter 8 provides motivation for DEP and considers which of those challenges faced by presentists can reasonably be asked of the proponents of DEP. First, I consider DEP in light of Tallant and Ingram (2023), who clarify which questions presentism is supposed to answer. They propose that presentism should tell us why existence has the temporal duration that it does, and why objects have the (particular degree) of *permanence* that they do. I show how presentism, as it is commonly understood, does not answer these questions. Further, I show how existence presentism does provide answers to these questions. I then build on Tallant and Ingram's concluding remarks that much more work needs to be done to clarify 'dynamism' on the presentist account. From this, I propose two further questions the presentist should answer: how, and why, do objects change? I show that conventional versions of presentism fall short of clarifying 'dynamism' and do not provide answers as to how and why objects change. Further, I show that DEP both provides a mechanism for dynamism and tells us how and why objects change.

I go on to consider again the challenges raised against the presentist in chapters 3, 4 and 5, and show how the DEP proponent cannot reasonably be asked to answer the challenges in chapters 3, and 4, and can provide answers to the challenge

in chapter 5. I then admit a problem for the DEP proponent, in the challenge from relativity, which the DEP proponent has no better answer to than any other presentist. I go on to consider two models of worlds which DEP might be true of, but which my opponent might say shows that DEP is not truly dynamic. I offer a response to show why these models need not concern the DEP proponent. Finally, I defend the place of DEP among other presentist accounts. In this, I follow the work of Tallant and Ingram (2021) who argue that there is no theoretic core to presentism, therefore no account which claims to be a presentist account can be omitted from this category based on being seemingly unconventional versions of presentism.

Chapter 1:

There Are No Times

Chapter overview

In this opening chapter, I introduce the two central commitments of this thesis: first, that there are no times, and second, that time is fundamentally dynamic. I will develop a theory centred around these two commitments. What I propose is a version of presentism which, generally, is the view that only present objects exist, though the version of presentism I defend here is existence presentism, thanks to Tallant (2014). Throughout this thesis, I build on the works of Merricks (2007), Tallant (2014), and Golosz (2018), whose theories I introduce in chapter 1.

To motivate this work, I will explain what I consider an underlying bias in the debate concerning dynamic time: a bias towards eternalist ontology. To illustrate this bias, in section 1.2, I explore an analogous allegation of bias due to Seibt. I explore Seibt's argument in which she explains a bias towards substance ontology and how this has restricted ontological debate. Seibt argues that this bias has led to the development of theories which fall short of accounting for different kinds of change.

In section 1.3, I draw a comparison between Seibt's criticism of the debate concerning existence in time and the debate concerning the passage of time. I argue

that the passage debate takes place within an eternalist framework, reducing dynamic time to static 'time-slices', thereby falling short of delivering a theory which can fully account for what I take to be the dynamic nature of time, which I discuss in section 1.4.

I go on, from section 1.5, to explore current and recent A-theoretic accounts of time. By laying out those most popular and notable A-theoretic accounts, I aim to show that there is reason to believe that the A-theory is imprecisely characterised as a theory according to which time is dynamic and that it falls short of capturing the dynamic nature of time which it is thought to capture. This section will also be a helpful contextualisation of my theory within the wider A-theoretic debate.

I conclude that presentism suffers profoundly and needlessly from the bias identified in this chapter. I follow Merricks (2007) in arguing that the presentist should not want to characterise presentism according to the eternalist framework. Free from this framework, the presentist can reimagine their theory on their own, non-eternalist, terms, and successfully provide an account which is fundamentally dynamic.

Chapter Introduction

Time passes. Or, at least, time seems to pass. This is something we are distinctly aware of. No matter what else we might do, or think, we are always aware

that there seems to be a before and after, an earlier and a later, a past, a future, and a now. The passage of time has often been explained away as nothing more than a subjective phenomenon, abandoning the objective passage of time to mere myth (notable examples include Williams 1951, Prior 1959, Prosser 2012). However, there are those who argue that the flow of time is an objective feature of the world (Zimmerman 2008, Cameron 2015, Golosz 2017).

In this chapter, I focus broadly on A-theoretic accounts, or accounts which take passage, or temporal dynamism, to be an objective feature of reality. I outline why I believe the formulation of these accounts is based upon an underlying bias towards a static eternalist framework. I will discuss why this framework should be abandoned, and my intention to reframe my preferred theory of presentism in such a way that it is free from this bias.

First, I will briefly outline the difference between A-theoretic, and B-theoretic accounts. The term 'A-series' was first coined by McTaggart (1908), who referred to the A-series as a way of ordering events in time as either past, present or future[1]. McTaggart proposed that time is ordered in a series in two different ways; the A-series and the B-series. The A-series is the ordering of times into past, present and future. The B-series orders times as either 'earlier than', 'simultaneous with' or 'later than'. McTaggart further argued that there is no genuine change on the B-series and that no

[1] McTaggart, 1908, pp458.

feature of any event in a B-series ever changes. It is only the changing positions of the A-series which results in genuine change.

Relations between events on the B-series are permanent and fixed. Some event M, which is earlier than event N, is always earlier than event N. For example, Maya Angelou was born 41 years earlier than the publication of her first autobiography, and the event of her birth will always be 41 years before the publication of her first autobiography. On the other hand, events which form an A-series are constantly changing, as they change their position from future, to present, to past, and become ever further past. Some A-series event M which is present, will be past. According to the A-theorist, the publication of Maya Angelou's first autobiography was future, was then present, is past, and will ever become further in the past.

I borrow a more formal version of the A-theorist's two main commitments from Leininger:

"The A-Present Thesis: One, and only one present moment – the NOW – is objectively privileged.

The A-Change Thesis: What moment is present changes; there is a succession of present moments."[2]

[2] Leininger, 2018, pp111.

I utilise Leininger here because of the effective and efficient manner in which she formalises these two central theses. I shall refer to these theses simply as the A-present thesis and the A-change thesis throughout this chapter.

There are a variety of different competing A-theories, these are, broadly, the moving spotlight, the growing block, and presentism. The difference between these A-theoretic views can be set up as a difference in what exists, or more specifically, what times exist. The moving spotlight theorist posits that past, present and future times all exist. The growing block theorist accepts that past and present times exist but argues that the future is yet to exist. The presentist accepts only that the present time exists, and that the past no longer exists and the future does not exist yet. To illustrate the different approaches, take, for example, these three propositions:

(a) Dinosaurs exist.

(b) The Eiffel Tower exists.

(c) Mars outposts exist.

The moving spotlight theorist, broadly, agrees with (a), (b) and (c). The growing block theorist agrees with (a) and (b) but denies (c). The presentist accepts (b) but denies (a) and (c).

The debate between different A-theoretic views is set up thus: time exists as individual, static, slices of time. Proponents of different A-theories disagree concerning how many of these individual, static, time-slices exist. (However, there are some, for

example, Zimmerman 2008, who treat all of space-time as existing, in which case the disagreement concerns where objects are located). The moving spotlight theorist argues that all of these time-slices exist. The growing block theorist argues that the past time-slices and present time-slice exist, and the presentist argues that only the present time-slice exists.

In this chapter, I argue that proposing an A-theoretic, dynamic account of time, by positing the existence of static time-slices, is to avoid taking dynamism seriously. I propose, instead, rejecting the existence of individual, static time-slices, in favour of fundamentally dynamic existence.

1.1 There Are No Times

There is one central, yet controversial, commitment running throughout this thesis: there are no times. This is not a reframing of McTaggart's (1908) proof of the unreality of time. On the contrary, I argue that temporality is fundamentally dynamic, but argue against the existence of individual, static time-slices.

Those working within the philosophy of time often feel that we can theorise about time *sub specie aeternitatis*. That is, we tend to believe that we can develop theories about time from 'outside' time, or from a 'God's eye' view. This view contributes to McTaggart's (1908) paradox, Dummett's (1960) response and the

disagreement concerning McTaggart's work between Lowe (1987a, 1987b) and Le Poidevin and Mellor (1987), which I will discuss in detail in chapter 4. We see this also in Broad's (1923) metaphor for the moving spotlight theory (which I discuss in section 1.5.1), and indeed in many of our metaphors for the passage of time, in which time is described as a row of houses, or a flowing river. In these examples, time is always something we are looking at, rather than something we exist in.

Adopting such a perspective can lead us to make assumptions about the structure of time. By looking at time from the outside we break time up into pieces, we imagine that time is comprised of lots of individual time-slices. When we think about time, past, present and future, from this view 'outside' time, we tend to think of time from the eternalist's viewpoint. That is, time looks like the following:

t1 t2 t3 tn…

In other words, if we imagine looking down on time from outside time, we imagine time as a line which consists of very many points, or a box which consists of very many slices. This picture captures the eternalist view of time; the view that time consists in many individual, equally real, times. This time-slice view of time is the ontology to which the eternalist is committed.

I believe that this eternalist ontology has become the framework within which many other (non-eternalist) theories of time have been, and continue to be, developed. It is as though viewing time from this god's eye view has led to a bias

towards, or assumption of, eternalist ontology. This is problematic, partly because it can restrict the development of our theories, and partly because it leaves theories vulnerable to pitfalls that they might otherwise avoid (which I discuss in detail in chapters 3, 4, and 5).

To explain this problem, I explore the work of Seibt (1997), who points to a similar problem in another debate. It is important to note that Seibt's work concerns existence in time, whereas my work concerns time itself. However, the problem I explore concerning a bias towards eternalist ontology is analogous to Seibt's problem concerning a bias towards substance ontology. Further, our conclusions regarding the problems caused by the underlying biases are somewhat similar: mainly that these biases cause difficulties in how we can understand change, particularly dynamic change, on the theories which are restricted by these biases.

In section 1.2 I will outline Seibt's argument that all of our theories concerning existence in time involve substance ontological presuppositions, even those theories which do not intend, or need, to be framed within substance ontology. I will then explore the problems which Seibt argues this causes, and briefly summarise Seibt's arguments that these problems can be avoided by rejecting the underlying presuppositions and reframing the debate, free from this bias.

Borrowing from Seibt's framing of her argument, I then go on, in section 1.3, to explain why I believe there is a bias towards eternalist ontology in the debate

concerning the nature of time. I argue that the eternalist view leads to problems concerning change, and that, by assuming eternalist ontology, other A-theoretic views leave themselves vulnerable to such pitfalls.

In section 1.5 of this chapter, I outline the main A-theoretic views of time, the moving spotlight theory, the growing block, and presentism. I will show how these theories are restricted by an underlying eternalist framework and the problems this causes. I argue that the assumption of the eternalist framework causes significant problems for my preferred view, presentism. Further, I argue that presentism can avoid the pitfalls of the eternalist's understanding of change, and the passage of time (explored further in chapters 3 and 4), by rejecting eternalist ontology and reframing presentism free from these biases.

Finally, in section 1.5.3 I explore the beginnings of how we might reframe presentism, thanks to Merricks (2007). Although Merricks does not propose an alternative theory of presentism, he does argue that the presentist should reject the assumption of the 'time-slice' view of time and proposes an alternative: that the presentist should see being present as just existing. This view was then furthered by Tallant (2014), into a version of presentism he dubbed 'existence presentism'. My theory, outlined in this thesis, (and explored more fully in chapters 6 and 7) expands further on Tallant's 'existence presentism', arguing that existence presentism can understand change and passage differently than it is understood in the eternalist view. In other words, I argue that, by rejecting eternalist ontology, the presentist can

reimagine the nature of change as something fundamentally dynamic, avoiding the pitfalls of eternalism.

1.2 Seibt: "From Substance to Process"[3]

Seibt argues that most present-day ontological debates are governed by a specific ontological paradigm which underpins the construction of ontological theories. This paradigm is that of substance ontology (which Seibt understands very broadly, from the Aristotelian understanding of substance, for example, Loux 1978, Sheilds 2007.). Substances are difficult to define (as detailed by Lowe, 1998). However, for my purposes here, substances can be understood as particular entities which are the bearers of properties. Further, these entities persist through time, the substance itself unchanging, while their properties change. For example, a cup is a substance, which bears the property 'redness'. The cup bears the property 'red' at t1, and 'blue' at t2. While the properties of the cup are different at t1 and t2, the cup, as a substance, is the same at t1 and t2. The important aspect of substance ontology for Seibt's purpose is the various presuppositions of substance ontology, which I detail later in this section.

The bias towards substance ontology is so prevalent that even ontologists who do not subscribe to substance ontology import the additional principles and

[3] Seibt, 1997, pp143.

presuppositions of substance ontology. For example, Seibt holds that those ontologists who posit that basic entities are events, tropes or states of affairs still import the presuppositions of substance ontology[4]. Assuming the presuppositions and principles of substance ontology as a framework for all ontological debate influences and limits contemporary debate about the nature of existence in time. Seibt dubs this phenomenon "the myth of substance"[5] and shows how this bias towards the myth of substance creates problems for ontological theories which need not adopt these presuppositions. Seibt then goes on to suggest a process-ontological framework which is free from the presuppositions of substance ontology. She uses this framework to develop an alternative theory of existence in time which avoids the pitfalls of the current theories. I will outline Seibt's argument in section 1.2.1, detailing the presuppositions from substance ontology. I then go on, in section 1.2.2, to show how, by rejecting the bias towards these presuppositions, Seibt begins to form an ontology which is appropriate for capturing processes. In section 1.3, I come back to discuss how, by utilising Seibt's solutions, we can begin to develop an ontology which more appropriately captures the process of temporal dynamism.

[4] Seibt, 1997, pp143.
[5] Seibt, 1997, pp143.

1.2.1 Seibt's Methodology and the Five Presuppositions

Seibt looks first at the methodological process of ontology:

"An ontology is a theory of truth-makers for the sentences of a certain natural or scientific language L."[6]

Seibt claims here that when we embark on formulating an ontology, we are attempting to describe what exists which makes sentences true. Take, for example, the sentence 'my cup is red'. An ontological theory should describe what exists which makes true 'my cup is red'. Seibt also explains that the structure of these truth-makers should explain how we can make inferences from those truth-makers[7]. For example, the structure of the truth-maker for 'my cup is red' should explain why we can infer that one and the same 'red' can exist multiply at different points across time and space, but the same is not true for 'my cup'.

According to Seibt, these same requirements hold when we formulate an ontological theory of existence in time. Such a theory should *make true* sentences about existence in time, and those truth-makers should explain within their structure how we can make various inferences. For instance, Seibt explains that an ontological theory should explain the three following examples. First, why the sentence:

[6] Seibt, 1997, pp144.
[7] Seibt, 1997, pp144.

(1.1) “Kim saw the explosion that destroyed my car this morning

implies

(1.2) Kim witnessed an explosion this morning,

while the sentence

(1.3) Kim saw the man who destroyed my car this morning,

does not imply that Kim witnessed anything at the time of the destruction of the car.”[8]

Seibt tells us that there are some entities which exist *as* change, process or activity, as in (1.1) which implies that Kim witnessed an entity which exists as change, namely, the explosion. We also understand this to be different from (1.3), in which Kim witnessed the man who destroyed the car. In (1.3), Kim witnessed the man who caused the change; she witnessed an entity which changes, but she did not witness a change. In other words, we differentiate between the explosion in (1.1) and the man in (1.3); we take the way they exist in time to be different. Seibt argues that our ontological theories should explain within their structure why we can infer from (1.1) - (1.3) that some entities exist in time as change, and some entities exist in time as something that changes. However, our ontological theories only account for entities which undergo

[8] Seibt, 1997, pp145.

change, as implied by (1.3), and do not account for entities which exist as change, as implied by (1.1).

Second, Seibt argues that our ontological theory should explain the inferences indicating that we conceive of different types of change; why the sentence:

(1.4) "Kim is running

implies

(1.5) Kim has run,

but

(1.6) Kim is running a mile

does not imply that Kim has run a mile."[9]

Here Seibt argues that we conceive of a difference between the types of change involved in an activity. In (1.4), 'Kim is running' implies that there is some activity that is happening; Kim is in the process of running. In (1.6), the implication of 'Kim is running a mile', is that this is a development of an event, such as Kim having run a mile. Seibt seems to be drawing our attention to a distinction between countable and non-countable changes. 'Kim is running' implies that 'Kim has run', regardless of how long Kim has been running. However, in the example, 'Kim is running a mile', it does

[9] Seibt, 1997, pp145.

make a difference how long Kim has been running. To put this another way, we can sensibly ask (and answer) the question, 'how many miles has Kim run?', whereas we cannot sensibly ask (or answer) the question 'how many runnings has Kim done?'.

Finally, Seibt argues that our ontological theory should explain the inferences we make between the different types of things which change; why

(1.7) "Kim divided the unspeakable in half since Pat and Kit both wanted the unspeakable,

implies

(1.8) The unspeakable exists in time like apple pie or playing tennis or the Red Cross Catastrophe Assistance, but not like an Oaktree, a computer or Kim."[10]

Seibt's examples in (1.7) and (1.8) show that we differentiate between different types of entities that exist in time. For instance, we can infer from (1.7) that there are some entities that can be divided or reduced. We distinguish this as a different type of entity from a person, such as Kim, which cannot be divided in this way. Again, Seibt insists that our ontological theories need to account for these different kinds of divisible and non-divisible entities.

[10] Seibt, 1997, pp145-6.

According to Seibt, the contemporary debate about existence in time has, for the most part, neglected to examine these different types of change. Instead, varieties of different types of change are all commonly classified broadly as 'events'. However, as Seibt illustrates, there are significant differences in how entities exist in time and significant differences between different kinds of change. The sentences in (1.1) – (1.8) imply that there are different ways that entities exist in time and different ways that entities change through time. Seibt refers to all sentences about changes in time, both tensed and tenseless, as S-sentences. This includes, for example, sentences such as 'x is green at t1 and red at t2', and 'Kim went running'[11]. Traditionally, despite S-sentences having a variety of different implications, all S-sentences are treated in the same way, and the debate has become simply about which entities make S-sentences true.

Seibt argues that this oversight is made because the question of how things exist in time has become merely a question of how objects persist through time. This is a question rooted in substance ontology, which is concerned with how substances change over time and yet remain numerically identical. For example, I am one and the same individual now as I was thirty years ago, yet thirty years ago I was a child, and now I am an adult. I am numerically the same, yet I have changed. Part of the role of ontology should be to account for how I have somehow persisted through time and change as one and the same individual. However, the tradition in substance ontology

[11] Seibt, 1997, pp147.

of treating the problem of existence in time in this manner has led contemporary ontologists to believe that this encompasses the entire question of existence in time. Seibt outlines this more formally as the first presupposition:

> "P1: The task of an ontological theory of existence in time is to explain the persistence of things or persons, i.e., to describe the truth-makers of 'S-sentences'."[12]

P1 tells us that our ontological theories should explain only the persistence of entities which undergo change. Holding this presupposition results in the development of ontological theories which neglect to account for the other kinds of existence and change implied in (1.1) – (1.8).

Seibt goes on to argue that P1 is likely held as a result of a further, underlying presupposition. The current ontological debate treats all concrete entities which persist through time and change as the same type of entity. Therefore, P1 suggests, and can be strongly motivated by, a presupposition which assumes that all entities must either be a 'particular' entity or an 'abstract' entity:

> "P2: What there is belongs to one of two sorts of entities: individuals, i.e., concrete countable particular entities, and general abstract entities. General abstract entities are not changes and do

[12] Seibt, 1997, pp148.

not undergo any change. Individuals exist in time and undergo change."[13]

As with P1, holding presumption P2 restricts the development of our ontological theories, resulting in our theories neglecting to account for different kinds of entities, for example, entities which exist as change (or as process).

It is important to note here that Seibt is not arguing that contemporary ontologists are all substance ontologists. Instead, most ontologists commit themselves to one of two main ontological theories of persistence: endurance (Haslanger 1989, Van Inwagen 1990, Merricks 1994) or perdurance (Heller 1984, Copeland et al. 2001, Hawley 2001). An entity endures by being wholly present at multiple times and is therefore identical to itself at each of those times, for example, x at t1 is identical to x at t2. Substances are considered to be the only entities which endure, therefore enduring entities are substances, and substances are enduring entities[14]. Perdurance is often regarded as rejecting substance ontology. An entity perdures by having different temporal parts, or different successive states, existing at different times. For example, an object x which persists across times [t1, t2 t3…tn], does not exist wholly at any one of these times, instead, a part of x exists at t1, another part at t2, etc.

Seibt goes on to tell us that because the perdurance account of persistence stipulates the existence of temporal parts, while the endurance account does not, it is

[13] Seibt, 1997, pp148.
[14] Seibt, 1997, pp149.

mistakenly thought that a perduring entity has theoretical constituents, whereas an enduring entity does not. In other words, there is a bias against the perdurance account because it posits the existence of temporal parts, which are theoretical constructs. The endurance account, alternatively, does not posit the existence of such parts, an enduring object is wholly present at any time and is therefore mistakenly thought of as not being a theoretical construct. However, any ontological constituent is theoretical in that any ontology is a construct, designed to act as a series of truth-makers for how the world is. Therefore, both the endurance and perdurance accounts of persistence are constructs designed to act as truth-makers for S-sentences. Thus, any bias against the perdurance view in this regard is unwarranted.

Additionally, proponents of the endurance view attempt to motivate endurance by appealing to everyday language. The thought is that the endurance account seems to correspond with the language of our everyday discourse. For example, I say that 'my cup contains coffee'. I do not say that 'a temporal part of my cup contains coffee'. In this way, the endurance view is supposed to capture the way that we talk about objects, while the perdurance view does not. This bias towards the endurance account gives us the third presupposition:

> P3: An enduring entity is not a theoretical construct – "ordinary language is substance-language"[15].

[15] Seibt, 1997, pp151.

However, this is but another instance of the endurance view being favoured due to a misunderstanding. Seibt claims that to think "ordinary language is endurance language"[16] confuses explaining our everyday language with explaining an ontological theory[17]. Seibt is drawing a distinction between ontological and everyday language and denying that we can explain or motivate one in reference to the other. How we use language in our everyday discourse, and how we use language in ontology are very different, and there is no reason to think that our everyday language should inform our ontology.

Having outlined the first three presuppositions, we then progress to the problem at the centre of this debate, which Seibt calls the 'aporia of change'[18]. This problem is well-known within the literature and refers to the conflict between enduring entities having different properties at different times, and yet remaining identical, and Leibniz's law, which requires that identical entities have identical properties. However, Seibt argues that the aporia only arises if additional presuppositions are held. Seibt applies the aporia to the following S-sentence example:

a is F at t1 and G at t2[19].

The aporia and additional presuppositions arise as follows:

[16] Seibt, 1997, pp150.
[17] Seibt, 1997, pp150.
[18] Seibt, 1997, pp151.
[19] Seibt, 1997, pp151.

(EN) Endurance Principle: Persistence through time and change is numerical identity, i.e., whatever satisfies the predicate 'F' at t1 is identical with whatever satisfies the predicate 'G' at t2.

(I) Principle of non-variant identity: The identity of an entity does not change over time; identity is not a tensed predicate.

(LL) Leibniz Law: If two entities are identical, then they have (i.e., are the logical subject of) the same properties (satisfy the same predicates).

(P4) Principle of subjecthood: α is the entity persisting through the change described by sentence (1.9) iff α is the logical subject of the predications occurring in (1.9).

(P5) State analysis of change: The entity denoted by '*a*' in (1.9) has changed iff 'F' and 'G' are made true by the referent at '*a* at t1' and '*a* at t2.'[20]

These principles are inconsistent, so resolving this problem requires that at least one must be abandoned. Leibniz's law (LL) is the least likely to be rejected as it differentiates identity from other equivalency relations[21]. Arguably the most contested principle is (EN), which, as explored above, is rejected by perdurantists. The remaining

[20] Seibt, 1997, pp151-2.
[21] Seibt, 1997, pp152.

three assumptions, (I), and, in particular, P4 and P5, principles of Aristotelian substance metaphysics, have been the subject of little to no debate.

Presuppositions P1 to P5 originated from substance metaphysics but form the backdrop of almost all contemporary debates concerning existence in time. As a result, contemporary debate about existence in time is restricted by assumptions that implicitly favour substance-style metaphysics, and, as such, any resolution to the aporia of change is similarly restricted. Seibt argues that exposing these presuppositions to revision or rejection could bring us closer to a working theory of existence in time.

1.2.2 Moving from Substance to Process

In identifying and outlining the five presuppositions P1 through P5 Seibt shows that there are pre-existing biases within the debate about existence in time. These presuppositions restrict, and negatively impact, the debate about existence in time, and therefore should be challenged. Rather than rejecting or revising each of the five presuppositions P1 through P5 individually, Seibt takes a more radical approach, rejecting all five of these presuppositions, and attempting to spark a debate free from the bias towards substance-metaphysics.

Of course, Seibt's methods may be criticised here. Her opponent, and mine, may argue that, if indeed a bias is present, this may not require us to abandon all of our presuppositions. We could interrogate all our presuppositions, abandoning only those which lead us astray, or needlessly restrict us, and keeping those which enhance our ontology. However, if there is indeed a long-held bias which may be unconsciously swaying our ontological theories, then I am sceptical that we could interrogate our presuppositions without being influenced by that bias. Further, if those presuppositions have indeed steered us down the wrong ontological path, then it seems prudent to choose a new path by abandoning the very presuppositions which led us astray.

So, though it seems radical of Seibt to reject P1 through P5 I also would choose to reject all five presuppositions. P1 through P5 are leftover relics of substance ontology, built so deeply into the foundation of this debate that they are often never questioned. As a result of this, all our discourse on persistence through time is, consciously or unconsciously, influenced and restricted by these long-held assumptions. If we are to contribute meaningfully to this debate with a view to finding a solution, then I agree that we should not be encumbered by these presuppositions.

Seibt begins reconstructing an ontology based on five observations about how things exist in time. To understand Seibt's first observation let us revisit the opening comments of section 1, above. First, an ontology is a theory of truth-makers for a certain language. Second, something about the structure of these truth-makers should

explain how we can make inferences from them. What this means is that expressions belong to certain ontological categories based on their inferential role. Or, to put this another way, expressions have categorical implications associated with them. For example, when we use the expression 'green', the ontological category of 'green' is guided by the inferential role of 'green'. In this case, we take the inferential role of 'green' to be 'universal'. Therefore, we can say that the expression 'green' has the categorical implication of 'universal'.

The first observation that Seibt makes is that the relationship between the lexical meaning of expressions and their inferential role is more flexible than this. In other words, Seibt argues that expressions may have several different categorical implications associated with them. For an example, take the expression 'Alice discovered a new book'. We understand this expression as an event: the event of Alice having discovered a book. For example, the expression 'Alice discovered a new book' has the categorical implication of 'event'. Now let us look at a second example: 'Alice is discovering a new hobby'. In this case, we understand that this is an activity, Alice is performing the activity of discovering. In this case, the expression 'Alice is discovering a new hobby' has the category implication of 'activity'. Both the expression 'Alice discovered a new book' and 'Alice is discovering a new hobby' include the 'accomplishment verb', 'to discover'. However, in each case, the verb 'to discover' has different categorical implications. It sometimes has the category implication associated with events, such as 'she discovered', and sometimes has the categorical implication

associated with activities, such as 'she is discovering'[22]. This would suggest, as Seibt argues, that expressions can have several different categorical implications.

A similar argument can be made for nouns, which are typically thought to have either the categorical implication of 'countable' or 'mass'. For example, when talking about drinking water, 'water' has the categorical implication 'mass', whereas when talking about reading a book, 'book' has the categorical implication 'countable'. However, Seibt argues that examples can be given in which a noun can carry either categorical implication, for example, in the expression, 'I am reading a book', the noun 'book' is countable, and in the expression 'I like books', the noun 'book' is a mass. The two examples above give us Seibt's first observation:

O1: Lexical meanings do not determine categorical implications[23].

The second observation is about the category implications of language. Specifically, objects, masses, and activities share common elements, for instance, they can be measured in terms of spatio-temporal extent[24]. For example, 'water', which carries the categorical implication 'mass', and 'running', which carries the categorical implication 'activity', can both be combined with numerical quantifiers, e.g., 3 litres of water, or 5 miles of running. Seibt's second observation, more formally is:

[22] Seibt, 1997, pp165.
[23] Seibt, 1997, pp167.
[24] Seibt, 1997, pp167.

O2: The category implications associated with objects (or masses) share elements with the category implications associated with events[25].

Seibt proceeds to make several observations about the relationship between countable and non-countable entities. Non-countable entities are entities which are the same regardless of quantity. For example, running is non-countable; if I run 1 mile, or I run 5 miles, in both instances I am running. We cannot sensibly ask 'how many runnings are there?'. However, this is only true of non-countable entities to a certain degree. For example, individual temporal parts of running, such as my foot touching the ground, are too short to qualify as running[26]. 'Running' does not consist of a single temporal part. Rather, it is spatio-temporally extended; it consists of successive spatio-temporal regions which each contain some running. The predicate 'is running' is satisfied by several, connected, spatio-temporal regions, each containing some running. This suggests that non-countable entities such as activities and masses must have minimal amounts.

Seibt argues that this has implications for countable entities, such as 'cup'. The predicate 'is a cup' is satisfied by connected, spatio-temporal regions, but can only be satisfied by the entire connected region. Therefore, countable entities like 'cup' can refer to non-countable entities which occur in their minimal amounts, the countable

[25] Seibt, 1997, pp167.
[26] Seibt, 1997, pp168.

entity ‘cup’, has been recategorised as a special kind of non-countable entity[27]. This results in Seibt’s third observation:

> O3: The category implications associated with countable entities can be fulfilled by non-countable entities[28].

Or, as Seibt’s process ontology formalises it:

> (D1) An n-dimensional non-countable entity DM is minimally homoeomerous if for some n-dimensional region R in which DM occurs, either there is no part of R which is an occurrence of DM or else there is exactly one partition of R into parts which are occurrences of DM.[29]

It is important to note, however, that although the implications of countable entities can be satisfied by non-countable entities, the converse is not true. The implications of non-countable entities cannot be satisfied by countable entities. Countable entities are particular entities. In other words, a countable entity, such as a specific cup, exists at a unique spatio-temporal location and is not repeatable. Therefore, the categorical implications for countable entities require that the entities which satisfy them are particular entities[30]. For example, the category implications of

[27] Seibt, 1997, pp168-9.
[28] Seibt, 1997, pp168.
[29] Seibt, 1997, pp169.
[30] Seibt, 1997, pp170.

'running' cannot be satisfied by the same category implications as 'a cup'. When I refer to a cup I am referring to a particular, non-repeatable entity, which can only exist in a unique spatial location. When I refer to 'running' I am referring to a non-countable, repeatable activity, which can exist multiply across both time and space. Therefore, 'running' cannot be recategorised as a special kind of countable entity. This summarises Seibt's fourth observation:

> O4: Since countable entities are particular entities, they cannot satisfy the categorial implications of non-countable entities[31].

The final of the five observations follows from O4, and shows a key problem with adopting substance-ontological presupposition P2 in this debate:

> O5: The very idea of a category of non-countable entities is in conflict with the substance-ontological presupposition that every entity must be either a concrete particular individual or a general and abstract entity[32].

The problem Seibt is highlighting here is that, as outlined in P2, substance ontology tells us that all there is, are individual entities and general entities. Or, more specifically, what there is in the world must belong either to the category 'individual entity' or to the category 'general entity'; no entity can belong to both categories.

[31] Seibt, 1997, pp170.
[32] Seibt, 1997, pp172-3.

Seibt, however, argues that non-countable entities, such as masses and activities, can be either singular (individual) or general terms. For example, if I say, 'this is water', I am referring to 'water' as a singular, individual entity. However, if I say 'the liquid in this glass, and the liquid in that glass are both water'[33], I am referring to 'water' as a general entity. 'Water', therefore, can be either an individual or a general entity. Given this, if we accept presupposition P2, we make concrete, non-countable entities appear as 'ontological monstrosities'[34]. In other words, concrete, non-countable entities do not fit our ontology given P2. Therefore, Seibt suggests, that if our long-held presuppositions lead us to develop ontological theories which cannot categorise and make true the way the world is, then it is prudent to abandon these presuppositions and form a new ontology.

At this stage in her argument, Seibt goes on to suggest a different ontological framework, one free from the presuppositions of substance ontology. This new framework, she argues, serves as a more appropriate theory of truth-makers for dynamic, process-like events. Seibt then goes on to develop a new theory of persistence through time within this new framework. I will not discuss this theory here, however, because Seibt's theory, which she dubs 'dynamic mass theory' is not what I intend to defend here. Instead, I will go on in section 1.3 to utilise Seibt's set-up of the problem of the 'myth of substance' and how this negatively impacts ontological

[33] Seibt, 1997, pp171.
[34] Seibt, 1997, pp172.

debates concerning persistence, to show how the underlying eternalist framework restricts how we understand time, change and passage.

1.3 The Problem with Static Times

With Seibt's problem in mind, let us turn to theories of time. In this section, I will look at what our theories should be explaining about time. As my preferred theory of time is a version of presentism according to which time is fundamentally dynamic (which I will revisit from the end of chapter 4 onwards), I focus here on what a theory should deliver to explain temporal dynamism. I will then explore how the framework of eternalist 'time-slices' restricts our theories from accounting for the dynamic nature of time.

Seibt argues that our ontological theories about existence in time should describe what exists which makes true propositions about existence in time. Likewise, ontological theories about time should describe what exists which makes true propositions about time.

When we embark on formulating an ontology, we are attempting to describe what exists which makes sentences true. Take, for example, the sentence 'my cup is red'. An ontological theory should describe what exists which makes true 'my cup is red'. Seibt also explains that the structure of these truth-makers should explain how

we can make inferences from those truth-makers[35]. For example, the structure of the truth-maker for 'my cup is red' should explain why we can infer that 'red' can exist multiply across time and space, but the same is not true for 'my cup'.

These same requirements hold when we formulate an ontological theory of time. Such a theory should *make true* sentences about the nature of time. Those of us who hold that time is dynamic should formulate an ontology which makes true the dynamic nature of time. Although my position here is very non-standard, I propose that much of our current A-theoretic ontology rests upon the eternalist's metaphysic of static time-slices, and therefore falls short of accounting for the dynamic nature of time.

To explain this problem, let us first look at what we mean when we say that time is dynamic. Specifically, I will outline the kind of change I believe we are trying to communicate when we say that time is dynamic. To understand this, let us compare the dynamic change of time with Seibt's examples of change; my cup is first red and then blue, and, I am running. To illustrate the difference between these two, I will illustrate the change by first 'mapping out' the change in my cup:

[35] Seibt, 1997, pp144.

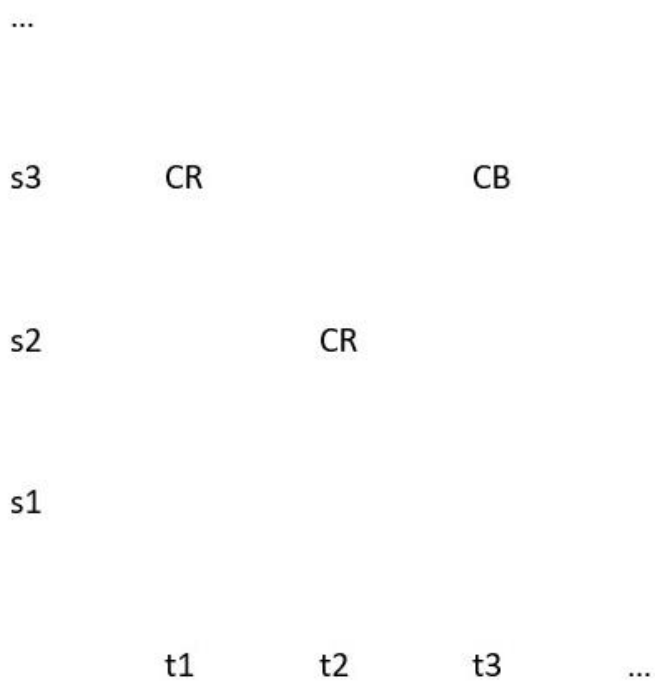


Fig 1: Change in properties on the eternalist view.

This map shows different spaces (y-axis) and different times (x-axis). The time is split into separate slices, as per the eternalist view. CR denotes my cup being red, and CB denotes my cup being blue. On this map, we can see that my cup is red at t1, red at t2, and then has changed to being blue at t3. This map appears to adequately tell the story of my cup changing colour. We can see that there is a difference between the property of redness possessed by my cup in t1 and t2, and the property of blueness possessed by my cup in t3.

Let us now try to map 'I am running' onto a similar map:

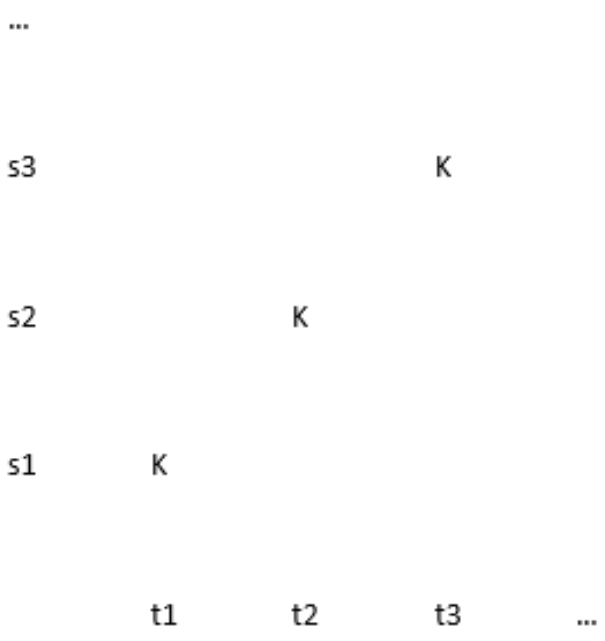


Fig 2: Attempting to map 'running' on an eternalist view.

On this map, at t1 I (K) am located at s1, then at t2 I have run to s2, and at t3 I have run to s3. We can see from the map in fig 2 that I have moved, from s1t1 to s2t2 to s3t3. This shows my difference in location at different times, but it does not capture the process of my running. Of course, we could create increasingly detailed maps which show the difference in location of each individual point of my running, for example, the difference in position of each part of me as I run. However, I argue that this difference in position over time fails to capture 'I am running' in the way that it captures 'my cup is red and then blue'. Something is missing from the story of 'I am running', which our eternalist ontology cannot capture, even when our map is

increasingly detailed. The *process* of running has been lost. This is because the process of running is an activity. Running is akin to Seibt's example of Alice discovering a new hobby; both of these examples have the categorical implication of activity. Whereas the cup being red at t2 and blue at t3 has the categorical implication of event, similar to Seibt's example, 'Alice discovered a new book'.

When we discuss the dynamism of time, are we saying something akin to the different colours of my cup at different times? Or are we saying something akin to 'I am running'? If the former, then we have a succession of static moments, [t1,t2, t3…tn]. Like the cup example, we have a difference between one moment and the next, which we might understand as, for instance, the difference in properties between some present time and some past time. Due to our eternalist, time-slice view of time, I believe we have come to understand dynamic time as being akin to the difference in properties of my cup. Dynamic time on this view becomes reduced to being merely a difference in the location of the property of presentness.

However, like with the process of running, we seem to lose the process of time passing. I suggest that when we say that 'time is dynamic', we are saying something akin to 'I am running'. My concern is that the dynamism of time gets lost when we divide time into static slices. My opponent in this may take time passing to be nothing more than a whole collection, (or some sub-set) of multiple time-slices. However, I believe that A-theoretic views of time, as they are currently understood, lack the dynamic nature to which they claim to be committed. I suggest that, while a time-slice

has the categorical implication of 'event', the process of time passing has the categorical implication of 'activity'. By claiming that time's passing is nothing more than a sub-set of time-slices, my opponent is committing herself to the position that increasing the number of time-slices (the number of 'events') changes the categorical implication. If this were true, then the difference between the categorical implications of event and activity is merely a question of quantity. The difference between static entities and processes intuitively seems more distinct than a matter of quantity. Compare this to Seibt's example, 'Alice discovered a new book', which has the categorical implication of 'event'. If this event occurred on more than one occasion it would not change the categorical implication to 'activity'.

Time passing, then, should be understood as a dynamic, irreducible process because it does not have the categorical implication of event, but of activity. Perhaps a view of time as a succession of static moments makes sense in some of the ways we discuss time. For example, at 9 o'clock this morning my chair was at my desk, and then, at 2 o'clock this afternoon my chair was by the window. However, this describes times as static, and if we think that time is dynamic, then we need our ontology to reflect this dynamism so that it might accurately capture, or make true, this dynamism.

1.4 Time is Fundamentally Dynamic

A-theorists are supposed to hold that time is dynamic. McTaggart (1908) classified the A-series as involving a change; a constant movement of which moment is present. Since McTaggart, the A-theory is generally understood as being dynamic or involving dynamism (For claims of the A-theory as dynamic, see Craig 2000, Deasy 2018, Latham & Miller 2020. For examples of specific A-theoretic accounts see Pezet 2020, Leininger 2015, Perovic 2021). However, A-theorists generally break down time into many times, understood as individual time-slices, which are static. The 'dynamism' within the A-theory comes not from the times but from some additional commitment to change that these static times undergo. There is a variety of different notions of change that the A-theorist might choose, and I will go on to explore different A-theories and their respective ontologies in section 1.5. Some examples of change on the A-theory, though, include (though are not limited to):

(I) temporary temporal properties, e.g., some time, t1, is first future, then present, and then past.

(II) events or objects coming into or going out of existence, e.g., some event, x, which does not exist, then comes into existence, or/and some event x exists, and then ceases to exist.

A-theories which posit change on these terms are explored in more detail in section 1.5. The point I want to put across here, though, is that the A-theorist does not hold that time is dynamic, or rather, they hold that time is both static and dynamic.

This problem is highlighted thanks to Golosz (2017). Golosz argues that, rather than positing a dynamic ontology, the A-theorist posits both a static and a dynamic ontology simultaneously. While Golosz aims this criticism at presentism specifically (as I explore in detail in chapter 6), I believe this is true for many A-theoretic accounts. The A-theorist, I believe thanks to an eternalist framework, posits the existence of static time-slices, committing themselves to a static ontology. However, as the A-theorist holds that time is dynamic, they must then hold an additional commitment to some understanding of change which they argue results in the flow of time, thereby committing themselves also to a dynamic ontology. Golosz argues that holding commitments to both static and dynamic ontologies results in accounts which are inhomogeneous.

Inhomogeneity is itself, not internally inconsistent, nor does it invalidate one's theory. However, in light of the eternalist bias I believe is present within the debate, the A-theorist should be questioning their commitment to the static ontology within their theories. If one holds, as the A-theorist is thought to, that time is dynamic, then, although not 'incorrect' it does seem counterintuitive to first commit to a static ontology. I believe the A-theorist takes this counterintuitive step because that is typically how the debate is framed: around the existence of static time-slices, and how many there are supposed to be.

If the A-theorist rejects the question of static time-slices and which time-slices are thought to exist, then they need not commit themselves (at least initially) to a

static ontology as a primary ontological commitment. As a proponent of temporal dynamism, I believe the A-theorist should commit themselves first (and I believe exclusively) to a dynamic ontology. In this sense, although inhomogeneity is not in and of itself problematic within the wider philosophical debate, in this case, inhomogeneity is a counterintuitive feature of A-theories and does not fully capture the dynamic nature of time that A-theorists are supposed to want.

This brings us to the second main commitment of this thesis: time is fundamentally dynamic. Though the A-theorist holds that time is dynamic, I believe that the A-theorist should hold that time is *fundamentally* dynamic. I take this to mean that the A-theorist should, or at least should want to, take a flux-first, or dynamism-first approach to time. In other words, they should take the view that the primary, or foundational feature of time is dynamism. The dynamic ontology should not be an 'addition' which overlays a static ontology, the dynamic ontology should be the primary commitment. I explore the nature of dynamism in chapter 2, and the mechanisms of dynamism on my theory in chapter 7.

1.5 The A-Theory

In the next sections, I shall outline in detail the commitments of the moving spotlight theory, the growing block theory, and presentism. I will frame them initially within the current 'time-slice' framework, and then explore one method of reframing

the growing block theory thanks to Perovic (2021), and a significant reframing of my preferred theory, presentism, thanks to Merricks (2007).

1.5.1 The Moving Spotlight Theory

The Moving Spotlight theory (MST) of time is often thought of as a combination of a B-series, with the A-present thesis and the A-change thesis. Although, it is important to note that not all MST proponents agree with this characterisation, for instance, Cameron (2015) regards MST not as "taking the B-theorist's metaphysic and *adding* to it that one time is objectively privileged"[36], but rather as an "enriched presentism"[37], or as presentism with the addition of past and future times. More formally, Cameron regards MST as the A-theory combined with the view that "every concrete substance that did exist, or that exists now, or that will exist, exists simpliciter"[38]. Generally, though, the moving spotlight theorist holds that all times are equally real, there is an absolute, objective present moment, and which moment is present changes.

Moving spotlight critic C. D. Broad (1923) illustrated the theory as follows:

[36] Cameron, 2015, pp128.
[37] Cameron, 2015, pp128.
[38] Cameron, 2015, pp6.

"We are naturally tempted to regard the history of the world as existing eternally in a certain order of events. Along this, and in a fixed direction, we imagine the characteristic of presentness as moving, somewhat like the spot of a policeman's bull's-eye traversing the fronts of the houses in a street. What is illuminated is the present, what has been illuminated is the past, and what has not yet been illuminated is the future."[39]

On this understanding of MST, we have a series of times, represented by the individual houses, which are a metaphor for individual static times, or time slices. These time-slices are characterised by individual times on the static B-series. A 'spotlight' moves along the series "lighting up"[40] which moment is present, representing the temporary property of presentness. While this metaphor may aid us in visualising MST, it is as Broad himself argues, rather flawed. While I do not intend to lay out all the merits and pitfalls of each of these theories here, I do wish to lay out the flaw in this metaphor to gain clarity on MST and to represent it accurately.

The problem is thus. The MST posits a B-series of times; the houses in Broad's metaphor. This is time, or events in time, according to MST. What then, is the light which shines upon the houses? In the metaphor, this is supposed to denote the movement of the present moment. However, the MST proponent needs the 'spotlight' to be a part of the series, not "something that happens…from the outside"[41].

[39] Broad, 1923, pp59.
[40] Skow, 2009, pp677.
[41] Broad, 1923, pp60.

Essentially, the MST proponent is positing a primary, or first-order series of times, the initial B-series, and is then positing a second-order series of time in the form of a dynamic A-series moving along the first-order series. This results in the MST proponent being committed to time which moves along another set of time. I will come back to the significant problems with taking such a position in chapters 3 and 4. For now, though, I will be clear that this is not what the MST proponent intends.

To gain clarity on the MST position it is clear that we cannot rely on metaphor. We must be precise about what it is they are committed to. One prominent example of a formalised version of MST is thanks to Deasy (2015). Deasy formalises MST as a conjunction of two theses:

"PERMANENTISM: It is always the case that everything exists eternally"[42].

"A-THEORY: Some instant of time is absolutely, non-relatively present"[43].

According to Deasy, combining these two theses gives us MST:

"MOVING SPOTLIGHT THEORY: Some instant[44] in time is absolutely, non-relatively present (A-THEORY) and it is always the case that everything exists eternally (PERMANENTISM)"[45].

[42] Deasy, 2015, pp2074.
[43] Deasy, 2015, pp2073.
[44] Note, again, the individual static time-slices posited by the MST proponent.
[45] Deasy, 2015, pp2075.

Deasy describes this formalisation of MST as a "barebones" version of MST. Indeed, this certainly cannot be the whole picture. The conjunction of permanentism and the A-theory gives us, not a *moving* spotlight theory, but a *stuck* spotlight theory. That is, so far Deasy has delivered a conjunction of permanentism and the A-present thesis. Without some thesis which posits some kind of dynamism, such as the A-change thesis, the spotlight does not move. I will discuss the stuck spotlight further in chapter 2. For now, we need something which will set the spotlight moving.

To achieve the 'moving' part of MST, Deasy argues that the standard version of MST accepted by most is characterised thus:

"CLASSIC MST: THE MOVING SPOTLIGHT THEORY & there is exactly one temporary fundamental property"[46].

MST, so understood, is, therefore, a conjunction of permanentism, the A-theory, and the thesis that there is exactly one temporary fundamental property. The temporary fundamental property according to MST is absolute presentness. This temporary fundamental property of absolute presentness is what sets the spotlight moving. In other words, the movement of the property of presentness is what is supposed to make MST a dynamic theory of time, as opposed to a static theory.

[46] Deasy, 2015, pp2077.

There are several points at which the MST theorist agrees with the static ontology of the B-theorist. They agree that past and future objects such as dinosaurs and Mars outposts exist and that they are positioned at past and future times respectively. Further, the MST theorist and the B-theorist agree that past and future objects bear permanent relational properties[47], such as being a dinosaur at some particular past time and being a Mars outpost at some particular future time. The B-theorist may object to the use of the terms 'past' and 'future' in this example, however, fundamentally, the MST theorist is taking the same position as the B-theorist on any time that the moving spotlight theorist regards as non-present.

However, according to a criticism of MST thanks to Sider (2011), in positing that there is exactly one temporary property the MST theorist concedes a lot more than they might like to the B-theorist:

> "there is genuine change in which moment is present. But notice that the spotlight theorist does not admit genuine change for anything else! For her, there is no genuine change in whether I am sitting, or in whether there are dinosaurs, or whether a war is occurring, since her account of these matters is identical to the spatializer's".[48]

[47] Deasy, 2015, pp2078.
[48] Sider, 2011, pp260.

Sider is arguing that the MST theorist is accepting far more of the B-theorist's static ontology than they need to. I add that, if this is indeed what the MST theorist is committed to, then they are accepting more of the B-theorist's static ontology than any proponent of a dynamic theory of time should *want* to.

Sider argues that because the MST theorist posits that there is exactly one temporary fundamental property (presentness), it follows that ordinary predicates express permanent properties. For example, Sider argues that for the MST theorist, the predicate 'is sitting' expresses a permanent property. If this is the case, then 'Ted is sitting' is permanently true in the same way a B-theorist would argue for: 'Ted is sitting on Monday' is permanently true. If this is the case, then the MST theorist does not allow for genuine change in cases such as this.

Deasy accepts that there is some agreement between the MST theorist and the B-theorist regarding past and future objects and regarding the permanent relations of past and future objects at a time. Therefore, he accepts that the MST theorist shares some of the B-theorist's commitments. Where he disagrees with Sider is on the jump from the MST theorist positing one temporary property, to the MST theorist positing that all ordinary predicates express permanent properties. Deasy agrees that committing to all ordinary predicates being permanent would indeed concede far too much to the B-theorist and that no MST theorist would accept the jump which Sider proposes. On the contrary, Deasy argues that A-theorists should want ordinary predicates to express temporary properties. The MST theorist achieves this because

the fundamental property of presentness is temporary. 'Ted is sitting' expresses the temporary proposition 'Ted is sitting at the present moment'. This is either true simpliciter when Ted is sitting at an instant which instantiates the fundamental temporary property of presentness, or it is false[49].

To summarise, MST is a theory according to which the passage of time is an objective phenomenon, so it is supposed to be dynamic, or involve dynamism. I follow Sider in arguing that the MST proponent takes on far more of the B-theorist's static ontology than an A-theorist should want to. There is no significant change on the MST model, other than a temporary property of presentness. It is a fundamentally static theory, which adds a dynamic aspect. Even when we consider Cameron (2015), who dislikes this characterisation of MST, and instead characterises MST as presentism plus the past and future. Cameron simply stresses the privileged nature of the present on the MST account[50], which does not move us away from the underlying static ontology towards a more fundamentally dynamic view.

Having considered the moving spotlight theory, I shall now go on to consider the Growing Block, or Growing Universe theory and examine the underlying ontology proposed in that view. I show that, although there is greater potential scope to

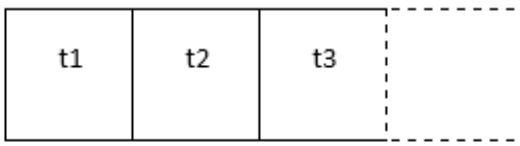
[49] Deasy, 2015, pp2079.
[50] Cameron, 2015, pp128.

develop a dynamic view on the growing block theory, there is much more work that needs to be done to move away from a fundamentally static view.

1.5.2 Growing Block Theory

The Growing Block theory (GBT) of time posits that the present and past exist, but that the future does not (yet) exist. There are a variety of different versions of the GBT, and I will outline versions here thanks to Broad (1923), Forrest (2004), and Perovic (2021).

An early version of the GBT theory is thanks to Broad (1923), and has been described as a 'fourdimensionalist growing block' (FBG) view[51]. According to this version, the past and present exist, and are equally real, with no difference at all in their intrinsic properties. Broad describes the present moment as the point at which new times-slices come into being, the point of becoming.



[51] Perovic, 2021, pp626.

Fig 3: Fourdimensionalist Growing Block Theory.

On this figure, t1 and t2 are past, and t3 is present. There is no intrinsic difference between t1, t2 and t3, except that t3 is the point at which fresh slices of existence, or slices of time, are added to history[52]. The four-dimensional block in this figure grows bigger as time-slices come into existence. The addition of new time-slices at the present moment is the feature which makes this view A-theoretic; it is why time is considered to pass on this view.

I can say little about Broad's views of change on his account, as Broad himself does not give a detailed description as to how times come into existence. He states only the importance of *becoming,* as the coming into existence of new times[53] (or events[54]), as becoming is unanalysable.

Forrest (2004) is a proponent of another GBT variant, the dead past growing block (DPGB). This version shares the no-futurism of Broad's FGB, and the commitment to the present as the moment at which new time-slices are 'added' to the block.

However, the ontological structure deviates concerning the nature of the past. As the name suggests, the DPGB posits that while the past exists, it is dead. There is no

[52] Broad, 1923, pp66-7.
[53] Broad, 1923, pp68.
[54] Broad switches between discussing time-slices and events.

activity, no life or consciousness in the past. As Forrest has it, "life and sentience are… activities, not states. Activities only occur on the boundary of reality, while states can be in the past"[55]. The activity at the boundary of reality is the coming into existence of new times. Again, this coming into being at the present moment is what the DPGB proponent takes to be the passage of time, however, there is seemingly little work done to clarify this 'activity' any further.

With little detail given by proponents of the GBT as to the precise nature of the dynamic aspect of the various GBT accounts, Perovic (2021) seeks clarity on this. According to Perovic, there are three ways of understanding dynamism on the GBT:

> Dynamicity_{EX} – the extrinsic addition of new time-slices.[56]
>
> Dynamicity_{IN} – the intrinsic activity within the four-dimensional block.[57]
>
> Dynamicity_{OE} – the irreducible dynamic character of ongoing events, which cannot be derived from static slices.[58]

Dynamicity_{EX} is posited on the FGB and the DPGB views, while dynamicity_{IN} is posited on the FGB but not on the DPGB. I do not believe either dynamicity_{EX} or

[55] Forrest, 2004, pp359.
[56] Perovic, 2021, pp639.
[57] Perovic, 2021, pp639.
[58] Perovic, 2021, pp639.

dynamicity$_{IN}$ capture dynamism as I intend it within this thesis. Dynamicity$_{IN}$ seems to be positing nothing over and above what the eternalist is positing; a temporality which is reducible to a series of time-slices. As dynamicity$_{EX}$ has not been clarified in any detail, it is difficult to precisely determine the dynamic nature of this. It may be that the 'becoming' at the present, the point at which new time-slices are added, does capture something fundamentally dynamic. However, even with dynamicity$_{EX,}$ time on the GBT still consists of eternalist-style time-slices.

Dynamicity$_{OE}$ merits further investigation. As this dynamism is not reducible to time-slices it seems to move away from the eternalist time-slice view. Perovic suggests that, instead of taking time-slices as a primary feature, events should take primacy. Perovic turns to Whitehead (1938) to develop the notion of dynamicity$_{OE:}$

> "It is nonsense to conceive of nature as a static fact, even for an instant devoid of duration. There is no nature apart from transition, and there is no transition apart from temporal duration."[59]

Perovic believes that should dynamicity$_{OE}$ be understood in these terms, then the notion of an instant of time, or a time-slice, is either non-sensical or a mere abstraction of the process of dynamic events[60].

[59] Whitehead, 1938, pp207.
[60] Perovic, 2021, pp641-2.

Perovic suggests that a new variant of the GBT, dubbed the 'growing events' (GE) theory, be developed which captures dynamicity$_{OE.}$ This theory is still in its infancy, but Perovic describes GE as positing the existence of the past and the present, and that the present changes[61]. The GE theorist thinks of events as the primary temporal entities; they are metaphysically prior to time-slices (if time-slices exist at all on this view. Perovic leaves this possibility as an open question to the individual theorist). Instead of a growing block of time-slices, then, the GE theorist holds that the universe is a "universe-event"[62] consisting in a "multitude of constitutive events"[63] as its parts.

As Perovic offers GE as an initial suggestion for the GBT proponent, it still needs some fleshing out. At this stage, GE combined with both dynamicity$_{OE}$ and dynamicity$_{EX}$ is a version of the GBT which is very much akin to the FGB but without the static, eternalism-style time-slices. This is a promising development for the GBT proponent who wishes, as I do, to explore their preferred theory free from the framework of the eternalist. However, much more work needs to be done to develop GE, and at such an early stage it is too soon to say whether such an undertaking is likely to deliver a fundamentally dynamic account. I cannot predict how the GE proponent might remove the underlying static ontology from their account. I can, however, make strides forward in this area for my preferred theory, presentism, which I go on to lay the groundwork for in the next section.

[61] Perovic, 2021, pp640.
[62] Perovic, 2021, pp642.
[63] Perovic, 2021, pp642.

1.5.3 Presentism

On the presentist view only the present time, and present objects, exist. The Eiffel Tower exists, but dinosaurs do not exist, and Mars outposts do not exist. There are no existing past and future times for dinosaurs and Mars outposts to be positioned at, there is only one existing time: the present. This view is often contrasted with eternalism, the view that all times, past, present, and future, exist. For the eternalist, the Eiffel Tower, dinosaurs, and Mars outposts all exist. Eternalism treats time as analogous to space. There exist different spatial locations at which different objects are located. Similarly, for the eternalist, there exist different temporal locations at which events are located. For the eternalist, there exist different temporal locations at which the Eiffel Tower, dinosaurs, and Mars outposts all exist.

Presentism and eternalism are often treated as though they are fundamentally different, but I argue that the standard[64] definition of presentism is not fundamentally different from eternalism. Standard presentism treats the present as one small section (the present section) of eternalism. On this view, the present is analogous to a space, in which temporal (present) objects are located. I believe that this view is not one which the presentist should accept as not only is it difficult to adequately define, due

[64] 'Standard definition' of presentism is used here and throughout for brevity, but in chapter 8 I challenge that there is such a standard definition of presentism.

to the triviality problem facing presentists, which I explore in the next section, but it also fails to distinguish presentism adequately from eternalism. Additionally, I make the speculative claim that the standard definition of presentism does not give a sufficient account of change.

1.5.3.1 The Standard Definitions of Presentism.

There is a familiar problem in the literature as to how we should define presentism[65] in a way which is neither trivial nor false. There are several different ways to understand the presentist's central thesis:

P: Nothing exists that is not present[66].

There is contention surrounding what 'exists' means in P. 'Exists' could either mean 'exists now' (P1), or 'has existed, exists, and will exist' (P2). Thus:

P1: Nothing *exists now* that is not present.

P2: Nothing *has existed*, *exists*, or *will exist* that is not present.

[65] Some notable contributions to this debate include Meyer (2005), Crisp (2004), and Sider (2006).
[66] Meyer, 2005, pp213.

P1 tells us that what exists *now*, or what exists in the present, is present. For example, I can say of my chair that it exists *now* (presently), so my chair is present, and that dinosaurs do not exist *now* (presently) so they are not present. This is, of course, true, but it is trivially true. It tells us nothing of interest. Even the eternalist can agree with this. This cannot be what is meant by P, because surely the presentist is telling us something more substantial than this. P2, on the other hand, is just as obviously false. It is clear that everything which exists, has existed or will exist is not present. My chair exists, dinosaurs have existed, and Mars outposts will exist, but it is not the case that my chair, dinosaurs and Mars outposts all exist *presently* (in the present).

Meyer (2005), and Crisp (2004), suggest that to read P as either P1 or P2 is to wrongly take 'exists' to be temporal. 'Exists' in P should instead be understood as tenseless, resulting in 'exists' meaning 'exists simpliciter'[67]:

P3: Nothing *exists simpliciter* that is not present.

Meyer (2005) argues that this amounts to claiming either that an object exists in the actual world but outside time or that an object exists in some possible world. This results in either one of:

P4: Nothing *exists outside time* that is not present.

[67] Meyer, 2005, pp215.

P5: Nothing *exists in other possible worlds* that is not present.

P4 and P5 do not suffer from being obviously false, nor trivially true, but neither do they capture the view of presentism.

The debate continues, and there may well be a way of defining P such that proponents of such versions of presentism are satisfied, and which avoids the pitfalls encountered in P1-P5. However, this has yet to be put forward. In the next section, I go on to suggest redefining presentism, following the work of Merricks (2007).

1.5.3.2 Redefining Presentism.

Sceptics argue that the eternalist and the presentist do not actually disagree and that the debate is merely verbal. In other words, they mean the same thing given a sentence such as:

M: Dinosaurs exist.

The sceptic claims that 'exists' here can be read as 'once existed', in which case, both the presentist and eternalist agree that M is true. On the other hand, 'exists' could be read as 'exists now (presently)', which, again, both the presentist and eternalist will

agree is false. A suitable response to the sceptic is to claim that 'exists' here means 'exists simpliciter', which leads the presentist and the eternalist to disagree on the truth-value of M[68].

Far from agreeing with the sceptic, I suspect that the views of presentism and eternalism are fundamentally different. On typical presentist models, the present is described, by Ingram and Tallant (2022), as positing that "present things are the only things that exist…Certainly, this marks the present as distinctive"[69]. I suspect that the view of presentism as a theory that posits a distinguished, or privileged present, originates, at least in part, from the way that presentism is described. To borrow again from Tallant and Ingram, when introduced to presentism we are asked to "begin with the intuition that there is something special about the present – something distinctive"[70].

However, I believe that presentism is only described in this way because it is assumed that we are starting from an eternalist ontology. Either it is assumed that we have the intuition that the past, present and future all exist, or we think and write so frequently from the eternalist's perspective that to motivate presentism, we are asked to focus on our intuition that the present is special compared to the past and future. Of course, there are some iterations of presentism which posit that all times do exist,

[68] Sider, 2006, pp75-6.
[69] Ingram and Tallant, 2022.
[70] Ingram and Tallant, 2022.

but that only the present contains events and objects[71], such as Zimmerman (2011). However, the models I focus on here do not posit the existence of any other times. I focus here only on those versions of presentism which take the past and future to be non-existent.

Merricks (2007) voiced similar misgivings about how we describe presentism:

"consider a view that starts with the eternalist's picture of time and existence at a time, and then 'shaves off' the past and the future, leaving only a thin (instantaneous?) slice called 'the present'"[72].

Merricks believes, as do I, that this is not something the presentist should accept, as this leaves us not with presentism, but with a slice of eternalism.

If we approach presentism differently, and instead of starting from an eternalist ontology, we start from the notion that what exists is present, I believe we arrive at a different view of presentism. To clarify this, in describing presentism, I ask you to tell me all the things which exist simultaneously with my asking this question. You will then give me a list of all the objects which exist now; you, me, the Eiffel Tower, etc. What you arrive at now is not a present moment which is privileged or distinguished, rather you have arrived at the view, described by Markosian (2004), that only present things (or objects) exist. While I acknowledge there are many problems with this

[71] Zimmerman, 2011, pp190-1.
[72] Merricks, 2007, pp125.

description of presentism (see Crisp (2004), it is nonetheless accepted as being (generally) what the presentist is committed to.

I follow Merricks in arguing that standard definitions of presentism fail to adequately highlight the fundamental difference between presentism and eternalism:

> "One might think that, while presentism and eternalism part ways with respect to other times, they agree about the nature of the present time and, relatedly, agree about what it is to exist (and have properties) at the present time. But they do not agree about these things.[73]"

Presentism and eternalism are (wrongly) understood as viewing the present in the same way, the only difference between the views being that the eternalist also posits the existence of the past and the future. Eternalism holds that all times exist, and times on this view are treated as analogous to space; to exist at a time is to be located at some slice of existence. Merricks argues that the standard understanding of presentism starts from an eternalist view of time. Merricks believes that presentists should not accept this as a description of presentism because according to this description, presentism is nothing more than a slice of eternalism. Merricks argues that presentism differs from eternalism in a much more fundamental way and that the presentist should hold that the nature of existence on each of these theories should

[73] Merricks, 2007, pp123.

be significantly different. Instead of accepting that presentism is nothing more than a thin slice of eternalism, the presentist should reject the existence of these slices of time:

> "I think presentists should deny that there is anything at all—much less some super-thin slice of being—that is the present time"[74].

Further, in denying that there exist any time-slices, even a present time-slice, the presentist cannot then, be committed to objects existing *at a time*. This differs fundamentally from the eternalist view because the presentist is no longer spatialising time, as the eternalist does, by holding that objects are located at a time. Instead, according to Merricks, what it is to be present on the presentist's view, just is existing.

> "Since they do not believe in a region called the 'present time', presentists cannot reduce existing at the present time to being located at that region. I think presentists should, instead, say that existing at the present time just is existing"[75].

From Merricks' criticism of standard presentism, Tallant developed his view, existence presentism. Existence presentism has one very simple thesis:

> "Presence is existence."[76]

[74] Merricks, 2007, pp125-6.
[75] Merricks, 2007, pp126.
[76] Tallant, 2014, pp496.

In short, existence presentism tells us that what it is to be present just is what it is to exist. In other words, if I tell you that I am a presentist, I am telling you a story about what it is to exist. The central thesis of this understanding of presentism is:

Q: Existing at the present time just is existing[77].

The idea behind Q, on my view, captures presentism far more accurately than a definition based on 'stripped-down' eternalism. However, as shown by Tallant (2014), Q is open to the same line of inquiry as P, in other words, it is unclear how we should read 'is' in Q, either as 'is now', or as 'has been, is, and will be':

Q1: To exist at the present time just is *now* existing.

Q2: To exist at the present time just *has been, is, and will be*, existing.

In attempting to define existence presentism, we face similar problems encountered by proponents of more standard versions of presentism. Q1 is trivially true, it tells us only that what is presently existing is presently existing. On the other hand, Q2 is obviously false, an entity which has been existing, or will be existing, is not

[77] Tallant, 2014, pp493.

existing at the present. Expressing presentism in a way which avoids this problem, Tallant proposes:

Existence Presentism (EP): Presence is existence.

EP equates presence with existence, presence is just existence. This avoids the pitfalls in Q1 and Q2. Given that I want to express presentism as a view fundamentally different from eternalism, EP is immediately more attractive as a starting point than the standard definitions of presentism. No eternalist would agree with a presentist who held EP.

However, EP, as yet does not involve dynamism. I shall go on in section 1.5.3.3 to consider the notion of dynamism on the presentist account. I consider one option, due to Deasy (2017) which might ostensibly seem an attractive way to 'add in' dynamism. However, I show why Deasy's account does not work and then suggest some initial thoughts on the mechanism of dynamism on my view, which I then expand upon significantly in chapters 2, 6 and 7.

1.5.3.3 Dynamic Presentism

Borrowing from Leininger, we see presentism as follows:

T1

Fig 4: Leininger's view of 'standard' presentism.

Here, t1 represents the present moment, and the house represents all things which exist in the present moment. This is very much a traditional view of presentism, the 'thin slice of eternalism' view. As described in this chapter, presentism is an A-theoretic account of time, so we can say that, broadly, presentists hold two theses:

> The Present Thesis (PT): "Only the present exists: past and future moments do not exist"[78].
>
> The Change Thesis (CT): "What is present changes: there is a difference in what exists from moment to moment".[79]

Leininger believes that the presentist cannot hold both theses as they are contradictory, and I shall come back to why this is in greater detail in chapter 5. I believe that the presentist can account for temporal dynamism. In other words, I

[78] Leininger, 2015, pp726.
[79] Leininger, 2015, pp726.

believe that the presentist can account for there having been a previous moment, even though only the present exists.

What remains a mystery is how we get from t1 to another state of affairs. The picture in t1 is static. It is not being created or destroyed. It is not in flux. It seems to have a static existence. However, the presentist does not want to argue for a static theory of time. Presentism, generally, is a theory according to which time is supposed to be dynamic.

In order to deliver a dynamic view of time, the presentist should tell us what is dynamic about it[80]. If I am to express presentism as EP, that presence is existence, then to deliver the dynamic nature of presentism, I need to say something more about how we get dynamism into the picture. I explore a recent option, thanks to Deasy (2017), who argues that a new debate should be had in defining presentism. However, I argue that Deasy's option, despite having some benefits for the presentist, falls short of delivering dynamism, as it is consistent with there being a static time-slice that is the present.

According to Deasy (2017), the standard definition of presentism is derived from the presentist's answers to two questions:

[80] I do not think that presentism is the only theory of time which falls short in this regard, but presentism is the focus here.

(i) Are there past things?

(ii) Are there future things?[81]

In answering these questions, as shown above, the presentist gives us a view which is merely a 'stripped-down' eternalism. The eternalist and the presentist will answer (i) and (ii) differently. The eternalist answers 'yes' to both, whereas the presentist answers 'no' to both. This merely returns us to the project of exchanging lists of objects that exist and arguing about whose list is correct.

Even if we could settle on presentism as the correct list of things that exist, Deasy (2017) argues that this list would not allow us to properly articulate presentism. He proposes that, instead, the presentist should focus on answering the questions:

(iii) Do things begin to exist?

(iv) Do things cease to exist?[82]

In answering (iii) and (iv) the eternalist would answer 'no' to both questions. For the eternalist, all objects, dinosaurs, the Eiffel Tower, and Mars outposts all exist. Nothing begins to exist, and nothing ceases to exist. The presentist answers 'yes' to both (iii) and (iv). Present objects begin to exist when they become present, and then they cease to exist when they are no longer present. Deasy formalises this thus:

[81] Deasy, 2017, pp378.
[82] Deasy, 2017, pp390.

Transientism: Sometimes, something begins to exist and sometimes, something ceases to exist[83].

In changing which questions the presentist is trying to answer, and in prosing the addition of transientism to the presentist's view, Deasy's approach results in two benefits for the presentist. First, it results in a view which more clearly distinguishes presentism from eternalism. Eternalists would disagree that anything begins and ceases to exist because according to the eternalist, everything exists eternally (though everything is not present). Second, it applies a dynamic *element* to presentism. The present, given transientism, is something which changes with regard to being existent.

Combining transientism with EP results in the following commitments:

EP: Presence is existence.

Transientism: Sometimes, something begins to exist and sometimes, something ceases to exist.

So far, then, this view proposes that presence is just existence and that things begin to exist and will cease to exist. On this picture, the dynamic element is in some event coming to be, and then ceasing to be. However, I am not convinced that this delivers a dynamic presentism because transientism is consistent with the present being static in nature.

[83] Deasy, 2017, pp390.

T1

Fig 5. Presentism and Transientism.

It seems, on this picture, there is something dynamic in the 'coming to exist', and something dynamic about the 'ceasing to exist'. But it could be that what exists between these points, the present, existent objects, are static. When I express presentism, I want to express something more dynamic than transientism. The present is dynamic, not just in that it begins, and it ceases, but intrinsically. I would argue that the standard presentist view is consistent with a view according to which the present is the coming into being of static objects, which are then present (and existent), and then cease to be. Time, then, is made up of a dynamic progression of static moments which come into and go out of existence.

In my preferred definition of presentism, I aim to cast off static existence. To borrow again from Merricks, I look to reject the idea that the present is a 'time-slice' at which present objects are located. Talk of the present is not talk of a moment but of existence. Further, on this view, that which is existent cannot be reduced to being located at a particular time called the present[84]. Instead of a present moment being

[84] Merricks, 2007, pp125.

occupied by static objects, what we call presence is a dynamic existence. Presence is existence, and that which exists is not static.

I argue that presentism (EP) is fundamentally dynamic in virtue of what exists, and what exists is bundles of fundamentally dynamic, powerful properties. In this way, dynamism is intrinsic to what exists, and, as presence is existence, so dynamism is fundamental to presence. I will outline this notion of dynamic existence in detail in chapters 6 and 7.

Chapter conclusion

In this chapter, I introduced two main commitments which will underpin the remainder of this thesis. First, there are no times. Second, temporality is fundamentally dynamic. Throughout the remainder of this thesis, I build towards a theory of presentism which posits that existence is fundamentally dynamic.

In investigating different A-theoretic accounts in this chapter, I argued that these accounts are not fundamentally dynamic in nature. Though proponents of these views hold that the passage of time is an objective feature of reality, I argue that these views fall short of accounting for temporal dynamism as I aim to understand it here.

To elaborate on this, in chapter 2, I aim to tease apart the concept of the passage of time from the concept of temporal dynamism. I will explore the nature of dynamic theories of time, and which aspects of these dynamic theories to either include or exclude as I rebuild a version of presentism free from the current paradigmatic bias identified in this chapter.

Chapter 2:

An Exploration into the Key Features of Temporal Dynamism

Chapter overview:

In chapter 1, I argued that A-theoretic debate is restricted by an eternalist framework. This framework influences our theories about time and the passage of time. I suggested exploring the development of A-theoretic, or dynamic theories of time, without being restricted to the eternalist's framework.

In chapter 2, I aim to tease apart the passage of time from temporal dynamism and determine what the dynamic aspect of dynamic theories of time consists in. I will explore which commonly posited features of time are the *key difference makers* and *key features* for temporal dynamism on various models of time.

This thesis aims to explore a theory of dynamic presentism which is free from the bias of an eternalist ontology. Once freed from the features of the time assumed on the eternalist picture, I need to determine which features to allow into my account in order to achieve the dynamism I desire. In section 2.1 I outline three features, due to Price (2011), which are common features of different accounts according to which the passage of time is an objective feature of reality; a privileged present moment, objective direction, and dynamism.

I examine different models of time that either omit or include each of these three features to determine which of these three features are doing the work of dynamism. In section 2.2 I consider a privileged present moment. By first including a privileged present moment on static models in section 2.2.1, and then omitting a privileged present moment from dynamic models in section 2.2.2, I show that a privileged present moment is not a key difference maker for temporal dynamism.

In section 2.3 I consider objective direction. Again, by including objective direction on static models in section 2.3.1, and then omitting objective direction from dynamic models in section 2.3.2, I show that objective direction is not a key difference maker for temporal dynamism. I do, however, consider that objective direction may be a key feature of temporal dynamism; a feature which is involved in temporal dynamism, and yet not doing the work of dynamism.

In section 2.4, I consider the dynamic models from sections 2.2.2 and 2.3.2 and determine what we can learn about temporal dynamism from those models. I conclude that, on models of temporal dynamism, what exists, (maximally) changes.

Introduction.

Theories which posit that the passage of time is an objective feature of reality are described as theories according to which time is dynamic. Williams (1951) describes dynamic theories thus:

> "Over and above the spread of events… there is something extra, something active and dynamic, which is often and best described as 'passage'"[85].

Olson (2009) offers the following description:

> "Many philosophers say that time has a kind of flow or passage that distinguishes it from space. Future times and events become less future; past ones become more past; persisting things grow older. The world is caught up in a process of purely chronological change. This is the dynamic view of time".[86]

Descriptions such as these are not uncommon. However, when described in these terms, the passage of time and temporal dynamism are conflated, as though they are the same thing. As I explored in chapter 1, I do not deny that theories which posit passage hold some commitment to dynamism. I admit the passage of time involves dynamism, but I hold that dynamism is a feature of the passage of time rather

[85] Williams, 1951, pp460.
[86] Olson, 2009, pp3.

than being the same as passage. Conflating passage with dynamism is misleading. There are those theories which are compatible with, and argue for dynamism, but which deny that there is such a thing as the passage of time (Tallant, 2010a, takes this position, and my own theory described in chapters 6 and 7 also takes this position).

As passage and dynamism are incorrectly conflated, then some work needs to be done to separate these concepts. By teasing apart passage and dynamism, I will show which features are the key difference makers for temporal dynamism. This is the focus of this chapter. I will investigate the features of different models of time according to which there is temporal dynamism, and according to which time is static. My aim is to gain clarity on which features are the 'key difference makers' for temporal dynamism. If any of the key features of passage can be excluded from models which involve temporal dynamism, this will likely show that this feature is not a difference maker for temporal dynamism. In turn, if any of the key features of passage are included on static models, again, this will show they are not a key difference maker for temporal dynamism.

I take a key difference maker to be some feature which is doing the work, or some of the work, of dynamism. In other words, it is some feature that makes the difference as to whether some model of time involves temporal dynamism. I take a key feature to be some feature which is not doing the work of, or towards, temporal dynamism, so it does not itself make a difference as to whether a model is dynamic.

However, it is still an important characteristic, for instance, a key feature might be an emergent characteristic.

The methodology in this chapter is as follows. I will outline a variety of models of time which either include or exclude different features of passage (thanks to Price 2011). I will take an intuitive approach to distinguish which models of time are static, and which are dynamic. As I go on to discuss in chapter 6, there is some debate as to precisely how to understand 'dynamism' (Groff 2012), though we tend to have a clearer idea of what it means for something to be static, which gives us something of a demarcation between the two concepts. I will then identify those features which, when included, deliver an intuitively dynamic model, showing that they are key difference makers for temporal dynamism.

Before continuing, I do need to make an important clarification as to the aims of this chapter. I do not aim to deliver a full reductive, conceptual analysis of the necessary and sufficient conditions for the passage of time. It may be that the reader takes some feature, or condition, that I am considering to be necessary or sufficient for passage or dynamism. However, such is not my intention. While I do think that the content of this chapter may serve as a starting point for a conceptual analysis of necessary and sufficient conditions, such an undertaking is a significant task and exceeds the scope here.

While relatively little work has been done towards clarifying what the conditions for the passage of time are, there are three key features which are frequently posited on accounts which argue that time passes: a privileged present moment, objective direction, and dynamism. Generally, there is some moment, the present, which is objectively privileged in some way, this property of presentness is held by each moment consecutively, and the consecutive movement of this present is objectively future directed. I shall understand this as the passage of time.

I will consider these three possible conditions, a privileged present moment, asymmetric direction, and dynamism to determine which belong to models which posit dynamism, and which belong to theories of passage. These conditions are borrowed from Price (2011). I borrow from Price as he brings together and considers the most widely utilised features of accounts which claim to posit the flow of time. It is important to note that Price's aim is not to determine the conditions for passage. Instead, Price argues that each of these features, independently, can bring us closer to the objective passage of time, but that a successful defence of all three conditions would deliver the strongest case for objective passage. In his paper, Price focuses on attempting to gain clarity on what each view involves. I do not aim to directly challenge Price. Instead, I will consider each of the three proposed features of the passage of time and determine which are the key difference makers for dynamism.

2.1 Features of Temporal Dynamism.

To understand how the passage of time is generally understood, let us look again at the A-theoretic accounts of time in chapter one. Generally, they posit the existence of time-slices (though which time-slices exist is different on different accounts) and three further commitments which are alleged to bring about passage:

(i) there is some property of presentness possessed by one time (time-slice).

(ii) there are (was or will be) times (time-slices) which are objectively either past or future.

(iii) there is some property of presentness held by different times (times-slices) in turn.

Price (2011) offers his version of features (i), (ii) and (iii) as features of the passage of time. Price examines what the world would have to be like for the flow of time to be an objective feature of reality.[87] He claims there are three compatible, yet independent answers to this question:

(1). The view that the present moment is objectively distinguished.

[87] Price, 2011, pp276.

(2). The view that time has an objective direction; that it is an objective matter which of two non-simultaneous events is the earlier and which is the later.

(3). The view that there is something objectively dynamic, flux-like, or flow-like about time.[88]

According to Price, a successful defence of any one of these answers will go some way to supporting the view that there is an objective passage of time, though Price claims that defending two, or all three of these views would be a stronger defence of the passage of time than defending only one.[89] Price also argues that, if it were properly understood, and if it were coherent, then the last condition, some form of dynamic element to time, might deliver passage, even if the first two conditions were not met[90].

I differ with Price in that I argue that temporal dynamism is a concept distinct from the passage of time. Our understanding of the passage of time is based upon the concept of something, for example, presentness, moving along, or in relation to, times or time-slices. Since Heraclitus, we have utilised the metaphor of the flow of a river to illustrate what we mean by the flow or passage of time. This implies that the 'flow' of the passage of time runs from t1 to t2 to t3 to tn, and so forth. However, we can imagine models of time which are dynamic, but according to which time does not

[88] Price, 2011, pp277.
[89] Price, 2011, pp276.
[90] Price, 2011, pp302.

'flow' in this way. For instance, in section 2.3.2 I outline a model, the 'sporadic spotlight' according to which the property of presentness jumps sporadically to non-consecutive times.

A further implication of this understanding of the passage of time is that there is a thing, *time*, which changes, or in relation to which the property of presentness changes. However, there are theories according to which there appears to be some kind of temporal dynamism, and yet there is no thing that is time. Tallant (2010a) suggests a version of presentism according to which what exists changes, but there is no time which can be said to change. I explore this idea further in section 2.2.2, along with Merricks' (2007) view. In this section, I build further on my preferred version of presentism, EP, according to which there is temporal dynamism, but there is no time which can be said to pass.

To determine whether the three features of the passage of time are key difference makers for temporal dynamism, I shall apply (1), (2) and (3) each, in turn, to several different models of time. Before I proceed, it is important that I clarify what I do and do not require from the models which I explore. I do not require that these models are fully formed theses which could be true of the world. All I require to illustrate my point here is that there are models which posit an objectively privileged present moment, or an objective direction, and yet are not dynamic. Also, that there are models which do not posit an objectively privileged present moment, and yet can be dynamic. Finally, there are models which are dynamic, which feature objective

direction, yet objective direction is not doing the work of dynamism on those models. If these models are possible, then a privileged moment and objective direction are not key difference makers on a theory of dynamic time, and a privileged present moment is not a feature of temporal dynamism (which does not posit the passage of time).

2.2 An Objectively Privileged Present Moment

A-theoretic accounts of time are committed to the notion that the present is in some way special. The present time enjoys a privileged position, either compared to all other times, or as the only time which exists. To test whether a privileged present moment is a key difference maker for temporal dynamism, I shall propose certain models of time which either include or omit this feature.

First, I shall suggest a model of time which has an objectively privileged present moment. If a privileged present moment is a key difference maker of temporal dynamism, then this should be a model according to which time is dynamic. I argue that, according to my suggested model, time is static, and this model does not involve any temporal movement, thereby showing that a privileged present moment is not a key difference maker or a key feature of temporal dynamism.

Second, I shall propose a model of time which does not have an objectively privileged present moment. If a privileged present moment is a key difference maker

for temporal dynamism, then this model should be static. I argue that this suggested model does involve some kind of temporal dynamism, and therefore a privileged present moment is not a key difference maker of temporal dynamism. I conclude that a theory according to which time is dynamic (but does not pass) does not require an objectively privileged present moment.

2.2.1 Static Models with a Privileged Present

I shall begin by outlining a model of time according to which there is an objectively privileged present moment, but according to which time is static. This model, which I borrow from Cameron (2015), is a modified version of a moving spotlight theory, dubbed the 'stuck spotlight'.

As we saw in chapter 1, there are a variety of different versions of moving spotlight theories. For the purposes of this chapter, I shall understand MST as positing three main commitments:

a) Past, present and future times all exist.

b) There is an objectively privileged present moment.

c) Which time is present changes.

These commitments result in a standard version of MST as described in chapter 1.

The stuck spotlight model which I am proposing would include commitments (a) and (b), but not (c). So, on this model, the past, present and future all exist, and there is an objectively privileged present moment. However, on the stuck spotlight model, which moment is present never changes, it is fixed at one particular moment of time.[91]

On the stuck spotlight view, we start with a commitment to an eternalist ontology, that all times exist. Then we posit the existence of an objectively privileged present moment. Let us say that this objectively privileged present moment is on 25th April 2020, and is always on 25th April 2020. Now, while this may be difficult to motivate, I see nothing incoherent or inconsistent with this model.

The stuck spotlight view posits an objectively privileged present moment, yet this is not a model on which we have any temporal movement or dynamism. According to the stuck spotlight view, times, and the present time, are static. That is to say that what is true of a time is true eternally, and what is true of the present moment, and its location, is true eternally. Even if we cannot currently agree on precisely what constitutes the passage of time, we surely want to say that any model like this, on which time is completely static, does not result in an objective passage of time. It seems clear then that the addition of a privileged present moment to an eternalist

[91] Cameron, 2015, pp 81.

ontology, as we have on the stuck spotlight view, is not a key difference maker as to whether there is temporal dynamism.

On a typical moving spotlight view, there is an additional commitment, not only a commitment to a privileged moment but also a commitment to some kind of change (some temporary property). While I accept that the moving spotlight theory does involve some temporal movement and is a theory that posits the passage of time, I reject the notion that it is the privileged present moment doing the work to bring about that temporal dynamism. Rather it is the privileged present moment in conjunction with some dynamic aspect which results in passage. But, in this case, it is not the present moment doing the work of dynamism, which is made clear on the stuck spotlight model, as this model does not involve any objective passage or dynamism. Therefore, although an objectively privileged present moment in conjunction with dynamism might be key features of the passage of time, a privileged present moment, alone, is not the key difference maker for temporal dynamism.

2.2.2 Dynamic Models Without a Privileged Present.

While presentism is, generally, taken to be a theory that posits a distinguished, privileged present moment, I suggest a model which challenges that position. Revisiting existence presentism, the version of presentism outlined in chapter 1, I suggest a model of presentism according to which there is no present (moment). This

model, borrowed here from Merricks (2007), and later, Tallant (2014), does not say, as in traditional versions of presentism, that to be present is to exist at a (slice of) time[92]. Rather, according to existence presentism, "existing at the present time just is existing"[93].

Presentism, thus described, does not hold that there is a privileged present moment or a present moment at all. What it is to be present *just is* what it is to exist, and what exists changes. This means that there is no moment at all, no 'box', at which present objects are located. According to existence presentism, when we ask what is present, we are not asking about the contents of a particular time, we are simply asking about what exists. Further, existence presentism is a model according to which the passage of time is an objective feature of reality. Presence is existence, and what is present, i.e., what exists, changes.

A sceptic of this view may argue that, according to this model, there is no objective passage of time. I suspect that, as there are no times, there may be some doubt as to whether time can pass. However, I would argue that a lack of individual time-slices does not imply a lack of temporality. A very similar response to this sceptic's view was put forward by Tallant (2010a). Tallant argues that the presentist can deny that there is a *thing*, time, in which case it would be correct to say that *time* doesn't pass[94]. I concur with Tallant and argue that on the existence presentism

[92] Merricks, 2007, pp124-5.
[93] Tallant, 2014, pp493.
[94] Tallant, 2010a, pp136.

model, though there may be no such *thing*, time, it is still true that what exists changes. Therefore, there are existing (present) objects, there were other objects which did exist, and there will be objects that will exist. Therefore, existence presentism is a model according to which there is genuine temporal change.

This model of existence presentism shows that some understanding of non-static temporal change can be true of the world, without the need to posit a privileged present moment. Therefore, we can argue that a privileged present moment is not required for there to be genuine dynamic temporal change. At the very least, I believe this model shows that a privileged present moment is not the key difference maker for a theory of temporal dynamism. With this said, let us now move on to consider whether an objective direction is a key difference maker for dynamism.

2.3 An Objective Direction.

Let us shift our focus to the second consideration; that time has an objective direction. This certainly seems intuitive. I want to say that my waking up this morning was earlier than my writing now, or that dinosaurs roamed the earth before the existence of humans. In other words, there seem to be facts about which objects and events are past, and which are future, which are earlier, and which are later. We intuitively think of time as moving from the past to the future, and so it is not unreasonable to think that, based on the way we experience time, and based on our

pre-theoretic judgements about time, time has a direction. Time travels away from the past and towards the future.

However, there is some debate as to whether this objective direction, this asymmetry, is an objective feature of reality, or whether directions in time are objectively just as indistinguishable as directions in space.

Before launching into an examination of this consideration, however, it is important to look a little closer at what we might mean by 'objective direction'. As stated earlier, the aim in this chapter is to gain clarity on what we mean when we talk about the passage of time, and precisely what ingredients or conditions the passage of time involves. I believe that this is an area under-explored in the literature, and I believe this is evidenced in Price's consideration of the second ingredient for the passage of time: direction. As Price states initially, we intuitively think that the passage of time involves:

> (2) "The view that time has an objective direction; that it is an objective matter which of two non-simultaneous events is the earlier and which is the later."[95]

It's important to note here that Price is referring to two distinct ways of understanding objective direction. First, time having an objective direction, and

[95] Price, 2011, p277.

second, it being an objective matter which events are earlier and/or later. Price also considers understanding objective direction as there being asymmetry to temporal structure, which gives us a further possible understanding of objective direction.

What we see in Price's paper, then, are three different versions of the notion of an objective distinction between the past and present, and whether there is an objective direction to time. I will outline these three different considerations thus:

2a. Time has an objective direction.[96]

2b. It is an objective matter which of two non-simultaneous events is earlier and which is later.[97]

2c. Temporal structure has an objective asymmetry.

When investigating the key features of the passage of time, we must be clear on what we mean by those features or conditions. At first glance, Price's examples may seem to effectively say the same thing. However, I shall consider 2a, 2b and 2c in turn, to determine whether reading 'objective direction' differently has different results.

I will outline a series of models of time, applying the three different variations of objective direction, as above, to show that an objective direction is not a key difference maker for temporal dynamism. However, I do conclude that objective

[96] Price, 2011, pp281.
[97] Price, 2011, pp281.

direction is a key feature of temporal dynamism. As in section 2.2, all I require to show that an objective direction is not a key difference maker is that there are models which posit that there is some objective direction, temporal asymmetry, or objective earlier/later relations, which do not involve temporal dynamism. If these models are possible, then we can reject an objective direction (as understood in 2a, 2b and 2c) as being a key difference maker for temporal dynamism.

2.3.1 Static Models with an Objective Direction

The model of time I will be focusing on here is a B-theoretic model. The B-theory is the ordering of events into relations of earlier than and later than. Furthermore, which event is earlier, and which is later, is an objective matter. For instance, the event, y, of my making coffee this morning is objectively later than the event, x, of my waking up. Generally, B-theoretic models of time do not involve any kind of flow or passage of time (while this is generally true, there are notable exceptions to this, for example, Skow 2015, defends an "anaemic"[98] version of passage on the block universe theory, which, though Skow dislikes this terminology, is B-theoretic). But, according to notable B-theorists, such as Oaklander (2004), and Mellor

[98]Skow, 2015, pp2.

(1981), the B-theory does involve objective direction. I argue that B-theoretic models of time posit an objective direction as understood in 2a, 2b and 2c.

Let us first consider 2a, that time has an objective direction. I acknowledge that 'direction' on a B-theoretic view might be a controversial term to use. If we take B-series relations of earlier than/later than to be unanalysable, we might argue that these relations are grounds for direction. However, McTaggart, argued that there is no direction on a B-series without an A-series. Indeed, for McTaggart, it is the movement of the A-series which gives the B-series direction. It is the flow of time from futurity, to presentness, and then to pastness which makes earlier than/later than relations temporal and therefore gives them direction[99]. If we were to accept McTaggart's reasoning here then 'direction' implies some kind of flow, or movement *in a direction*. This might cast doubt as to whether the B-theory has a direction.

McTaggart's initial description of the B-series as only having direction given to it by an A-series might generate some scepticism for the claim that the B-theory has an objective direction. However, many B-theorists argue that there is objective direction on the B-theory. Prominent proponents of this view, such as Mellor (1981), for instance, hold that the B-theory has an objective direction, and that B-theoretic directionality is grounded in the direction of causality[100].

[99] McTaggart, 1908, pp462.
[100] Mellor, 1981, pp148.

I am inclined to agree with the B-theorist that the B-theory has an objective direction. Something need not travel in a direction to be pointing in a direction or facing a direction. As it is an objective matter which event is the earlier and which is the later, then it seems correct to say that B-series events have a direction. For example, take the B-series events, M, N, O, where M is objectively earlier than O. The direction runs from M to N and through to O. Though there is nothing *moving* in any dynamic sense towards the future, the B-series is still directed from M to O. McTaggart's original distinction was later expanded upon by Farr (2020) who also argued that it is the C-series (the ordering of non-temporal events) which is an ordered temporal relation but lacks direction, while the B-series has an objective direction within the earlier/later relations[101].

As this is the case, then the B-theory is a model of time according to which time has an objective direction, and yet does not involve temporal dynamism. Therefore, objective direction is not a key difference maker for temporal dynamism.

2b is most clearly posited on a B-theoretic model, as the central thesis of the B-theory is that if event x is earlier than event y, then it is eternally true that event x is earlier than event y. Oaklander (2004) argues that earlier than/later than relations between B-series events are primitive and unanalysable. There is an irreducible qualitative difference between the temporal relations of B-series events[102]. This

[101] Farr, 2020, pp3.
[102] Oaklander, 2004, pp157.

satisfies 2b; that it is an objective matter which of two non-simultaneous events is earlier and which is later. So, the B-theory can be said to involve objective temporal direction, as understood in 2b, without involving any temporal dynamism. On this B-theoretic model of time, then, it being an objective matter which of two non-simultaneous events is the earlier and which is the later, does not result in any temporal dynamism. Therefore, on this interpretation of 'objective direction', an objective direction is not a key difference maker for temporal dynamism.

I will consider one possible objection from the B-theorist here. The B-theorist may argue that, if 2a and 2b are correct given the B-theory, this can be used as evidence that the B-theory is, in fact, dynamic. I, of course, will reject such an argument. We would not say, for example, that a series of static objects lined up in a certain order, facing a certain direction, were dynamic, or process-like in any way. The B-series consists in a series of static time-slices. That these time-slices have some objective order does not imply any dynamism, particularly not the kind of process-like, fundamentally dynamic understanding of dynamism which I build towards throughout this thesis.

Finally, interpretation 2c; that there is an asymmetry to time, is true of the B theory. While it is true that all events on the B-series exist on par, and have an equal status, it is not the case that the series itself is symmetrical. If we pick out any one time, or event, on a B-series then it will objectively be the case which events are earlier than, or later than this event. We can see this clearly in the following example:

t1 t2 t3 t4 t5

Fig. 6. The B-theoretic model.

Imagine that t1 is the earliest event, and t5 is the latest event. If we pick out any time on this model, for instance, t3, it is the case that t1 and t2 are objectively earlier than t3, and t4 and t5 are objectively later. To put this another way, it is the case that any event which lies earlier in the series from another event is objectively, and eternally, earlier than any event which lies later in this series. Oaklander (2004) argued that B-theoretic asymmetry is grounded in the objective earlier than/later than relations of events. In this case, due to the permanent earlier/later relations of the B-series, the temporal events in fig 6 are asymmetrical.

Of course, there are other ways for the B-theorist to ground this asymmetry. Let us again consider Mellor (1981), for whom the asymmetry of the B-series is grounded in the direction of causality. In this case, the events at t1 cause the events at t2, which cause the events at t3, etc. This causal direction is objectively fixed. What occurs at t1 is the cause, followed by the effect at t2. If causality is, as Mellor argues, fixed in this direction, then fig 6 cannot be symmetrical.

So, on this model, events are ordered from t1 to t5, and it is not the case that the order might change so that t5 is an earlier event than t1. In this way, then, we can say that the B-series is a model according to which time is asymmetric.

Applying interpretations of 'objective direction', 2a, 2b and 2c, to the B-theoretic model of time, then, shows that objective direction is compatible with a model according to which there is no temporal dynamism. Therefore, objective direction is not a key difference maker for temporal dynamism.

2.3.2 Dynamic Models and Objective Direction

In the previous section, I outlined models of static time which have an objective direction to show that merely by including an objective direction in a static theory we cannot arrive at temporal dynamism. In this section, I will go on to show that although the addition of an objective direction is not a key difference maker for temporal dynamism, models which involve temporal dynamism can deliver objective direction. I will outline two models of time which involve temporal dynamism and show that in these cases some form of objective direction arrives from that dynamism.

Let us revisit the moving spotlight theory, thanks to Cameron (2015). To briefly recap, according to the moving spotlight model, all times exist, and the 'spotlight' of the present moves along these times. This movement is what the passage of time

consists in on this model. On a traditional moving spotlight model, the spotlight moves from one moment to the next in turn, or, in a direction from the past to the future. In other words, a traditional moving spotlight would move from t1, to t2, to t3…etc. Here, I will adjust this model into what I will call the sporadic spotlight model of time.

On the sporadic spotlight model, instead of always moving in one particular direction, from past to future, the spotlight highlights different moments sporadically. The sporadic spotlight might 'jump' from t1, to t4, to t2, and back to t1, etc. To clarify, the spotlight on this model does not journey from one time to the next successively, but instead will 'light up' a time sporadically.

In the opening section of this chapter, I indicated that there is a distinction between the passage of time and temporal dynamism. The sporadic spotlight model is an example of a view according to which there is temporal dynamism, but on which it is unclear whether time passes. On this model, time does not pass in the same way that we think of time passing, i.e., time does not flow from one moment to the next consecutive moment. It is certainly less obvious on this model that time passes in the way that we traditionally think of passage. When the spotlight jumps around, as in the sporadic spotlight model, we lose that 'flow' associated with passage.

I would argue though, that, although on this model it is unclear whether time passes, as we traditionally are used to understanding or visualising passage, neither is

it a static model of time. That there is movement and change in which time the spotlight is 'highlighting' suggests that this model involves temporal dynamism.

If we can say that there is temporal dynamism, in some form, on this model, then my next task is to investigate whether there is objective direction on this model, as understood in 2a, 2b and 2c. First, on this model of time, does time have an objective direction? At first glance, it might seem not. If the placement, or movement of the spotlight is sporadic, then we cannot say that the spotlight is always moving in one direction. The spotlight could start at t3, then move to t1 and then move to t2. It might be mistakenly viewed as not having an objective direction. However, although the moving spotlight view is A-theoretic, the events within an A-series also form a B-series. As outlined in the previous section, there is an objective direction on the B-theory, therefore an objective direction features within the structure of the sporadic spotlight model. Even if the spotlight is constantly changing direction, the underlying B-theoretic structure delivers objective direction.

Is it an objective matter which of two non-simultaneous events is earlier and which is later? A sceptic might think not. If the spotlight 'lights up' time t3, and then lights up time t1, the sceptic might say that t3 is objectively earlier than t1, because the spotlight was at t3 first. In response, I see no reason why, on the sporadic spotlight model, the spotlight need 'light up' a particular time only once. If the spotlight 'lights up' time t3, then t1, and then t3 again, it becomes much less clear what the earlier than/later than relationship between t1 and t3 is when we only consider the spotlight.

However, again, the underlying structure of the B-series tells us that t1 and t3 have an objective earlier than/later than relation. So, even if which moment is present (highlighted by the spotlight) is sporadic, the underlying structure delivers an objective earlier than/later than relation.[103]

Finally, let us look at 2c; does this model have an objective asymmetric structure? Again, although the sporadic movement of the spotlight means that which moment is present is sporadic, and the spotlight may move back and forth along the series, the underlying B-series always has an objective direction. The order of times always runs from, for example, t1, to t2.

This shows that on a model of time, based on an A-theory, even a non-traditional A-theory, objective direction is delivered by the underlying B-series order. (As a point of interest, the sporadic spotlight moment appears to have all three features of the passage of time; a privileged present moment, an objective earlier than/later than structure, and an objective direction. However, this model does not capture passage as we traditionally understand it. It seems, then, that more work needs to be done to clarify passage. However, as my task here is to gain clarity on temporal dynamism, this work goes beyond the scope of this thesis).

[103] I think there is scope to draw up two different notions of 'ordering'. The order of the underlying B-theoretic structure, and the order that the spotlight runs in. The underlying B-theory gives us direction, though whether the spotlight gives us direction may need further investigation. Such an investigation goes beyond the scope of this thesis but may be of interest in a future project.

I will now outline a model which posits temporal dynamism but does not have a B-series to give it objective direction. This model is based on presentism.

Presentism is generally thought to be a theory according to which time passes (although there is some contention to this claim, for instance, Tallant 2010a), or according to which there is some kind of temporal dynamism. Presentism, generally, posits the existence of only one time, and here I am considering versions of presentism such as that proposed by Markosian (2004), who holds that only present objects exist, or Crisp (2005), who holds that only the present is real.[104] If the presentist holds that there is only one time, then there is no existing underlying B-series which can give presentism a direction. Does presentism still have an objective direction though? Let us consider 2a, 2b and 2c on the presentist model.

Presentism posits that what is present changes. The present, or that which presently exists, I argue, does have an objective direction. The present is future directed. The changes which occur are changes which bring new things into existence. The present does not change in such a way as to resurrect things which did exist. This future-directedness is an objective feature of presentism. However, it is possible to have a model according to which the present is not future directed. Let us instead imagine that the present changes and that sometimes those changes are future directed, and sometimes those changes are past-directed. For example, imagine a

[104] There are notable examples of presentism which reject the notion that there exists only one time, such as Orillia (2016), or Smith (2002). I will return to consider such exceptions in chapter 8.

version of presentism which sometimes changes to bring things into existence which have not previously existed (future things), but sometimes changes to bring back into existence some way the world has been previously. At any time, the temporal change is happening in an objective direction. At one time the present is directed (either future directed, or past-directed), but may not have the same direction with each change, and it may not be the kind of direction compatible with 2c, but it is an objective direction. If we have movement, then, we have movement in a direction.

Let us now look at 2b with regard to the presentist model. Again, considering those versions of presentism (such as Markosian 2004, Crisp 2005) according to which there are no earlier or later times than the present, it may not be immediately clear that it is an objective matter which time is earlier than/later than another time. These earlier than/later than relations can only exist between existing times, as that which does not exist cannot bear a relation to anything. Take, for example, the death of Socrates and the reading of this thesis. We want to say that the death of Socrates is objectively earlier than the reading of this thesis. However, for these two events to hold this relation, they must both exist. According to the presentist, the event of the death of Socrates *did* exist (when it was present), but it *does* not exist. There is some debate in the presentist literature concerning the presentist accounting for past truths. I explore this in more detail in chapter 5, but for now, let us allow that the presentist can account for this. This would mean that, although the presentist cannot say that the death of Socrates exists, they can give an analysis of truth conditions so that it is true which of two events is the earlier/later. For example, the presentist might say that ‘x is

earlier than y' is true, if it was the case that x, and it is the case that y. If this is true, then, on the presentist model, it is objectively the case that events are earlier than/later than other events. Therefore, on this model, there is objective direction as in 2b.

Whether or not there is asymmetry (as in 2c) in the temporal structure of presentism might depend upon the commitments of each individual presentist account. The presentist could, for example, ground temporal asymmetry in the direction of causation (provided they can also ground the truth of past events). They could, additionally, posit that being objectively future facing, or future directed, is an intrinsic feature of the present moment, or of presently existing things (I suggest something similar in chapter 7).

Presentism and the sporadic spotlight, then, are models which posit some kind of temporal dynamism and are models which either do, or can, have an objective direction. These findings, combined with the previous section which shows that there are models which can have objective direction but not temporal dynamism suggest that an objective direction is not a key *difference maker* for temporal dynamism, it does appear to be a key *feature* of temporal dynamism. In other words, objective direction is not doing the work to bring about dynamism but will be a feature on a dynamic model, either because it exists within the underlying B-theoretic structure, or because that which is dynamic moves in a direction.

2.4 Dynamism

In this section, I shall deviate from my previous methodology, because there is little point in exploring whether dynamism is a key difference maker for temporal dynamism. I take it as a matter of course that it is. That is to say, I take it as intuitively correct that there would be no temporal dynamism on a fully static model, as I take fully static models to preclude the kind of process-like dynamism I aim for. Instead, I shall examine the models explored in sections 2.2 and 2.3 to determine what we can learn about dynamism.

Looking back at the models from sections 2.2 and 2.3, the models which involved temporal dynamism were the sporadic spotlight, presentism, and existence presentism. Examining what these models have in common should tell us something about dynamism. So, what do all of these models have in common? Simply that they are not static models; they all have some dynamic element to them. Further, the difference between a static model, and a dynamic model, is that the dynamic models involve some kind of genuine change. I take this genuine change to consist, in varying degrees, in a change in the sum total of what exists.

To understand this, I will first look again at the sporadic spotlight model from section 2.3.2 (though the following is also true of the traditional moving spotlight theory). Dynamism on this model consists in the change in which moment is

objectively present. There is a temporary property (presentness) which moves around, resulting in a change of the sum total of what exists. T1 is present, then t2 becomes present and t1 is no longer present[105]. The sum total of what exists changes because the location of the property of presentness has changed.

As explored in section 2.2 it is not the presentness doing the work of dynamism on this model, because this section determined that a privileged present moment is not a key difference maker for dynamism. Further, dynamism does not consist in the *difference itself*, but in the *movement*, in the *change* which brings about the difference. On B-theoretic models, there is a difference between one moment, t1, and the next, t2. However, there is no dynamism on a B-theoretic model because there is no movement from t1 to t2, and the sum total of what exists does not change.

To illustrate this more clearly, let us look at a model of presentism, again, following the likes of Markosian (2004), and Crisp (2005). On this model some time, t1, is present. As the present changes, t1 ceases to be present (ceases to exist) and t2 becomes present (begins to exist). On this model, we can more clearly see that there is a difference in the sum total of what exists; a change in what there is simpliciter from moment to moment. The difference in the sum total of what exists moment to moment is much greater on this model compared to the spotlight model, because

[105] This can also be explained in terms of truth-values, but I have chosen not to explain this difference in those terms because I want to highlight that this change is a metaphysical issue, not a semantic one.

everything is different on this model, whereas on the spotlight model, the only difference is in which moment is present.

There are, however, problems facing these two models. First, as outlined in chapter 1, the time-slices on these models are static. For those models based on the moving spotlight, this means positing that every time (slice) is static and the only elements which change are the A-properties, past, present, and future. This causes further problems in that there may be no dynamic change possible at all on models such as these, due to McTaggart's infamous paradox, which I will explore in chapter 4.

There are also potential problems with dynamism on the standard presentism model. This is due, again, to the commitment to a static time-slice (which is itself static, despite undergoing dynamic change). One problem, which I will revisit in more detail in chapter 5, is the well-known presentist problem of accounting for truths about the past. If the presentist cannot make true that previous moments existed, then they cannot make true that time passes. This results in the presentist only being able to account for the existence of a stuck static time-slice. I shall explore this further in chapter 5.

This static time-slice issue, combined with the findings in section 2.2 in which I determined that a privileged present moment was not a key feature of temporal dynamism, begs the question of why we would posit a present moment (or time-slice) on a model which does not require one. To put this another way, when developing a

dynamic version of presentism, a privileged present moment is both potentially problematic and spends more ontological coin than we need to spend. While this alone does not show that there is no reason to posit a privileged present time, it is reason to investigate versions of presentism which do not include this commitment.

I turn, then, to a model of presentism which does not posit a present moment, or time-slice; existence presentism. As outlined in chapter 1, and in section 2.2.2 of this chapter, existence presentism posits that there is no such time as the present and that what it means to be present *just is* what it means to exist. According to this model, there is no privileged present moment, because there is no moment, or 'time-slice' which exists; there are only (presently) existing events and objects. There is also a commitment to a dynamic element on this model because what exists changes. As I suggested at the opening of this section, different dynamic models can involve dynamic change to varying degrees, for instance, the moving spotlight models change only in regard to A-properties, whereas presentism changes with regards to everything that exists. On this version of existence presentism, everything changes. The commitment on this model, then, is:

C1: What exists, (maximally) changes.

I expand on this model, and the change involved, in significantly more detail in chapters 6 and 7. For now, though, I hold that this maximal change is what dynamism consists in on a presentist model which is free from commitments we do not need.

My opponent in this, who does not accept that such a commitment can deliver a model which involves temporal dynamism, will need to outline a model according to which what exists maximally changes, and yet there is no temporal dynamism. However, it is difficult to see what kind of model might fit this requirement, after all, genuine changes in the sum total of what exists are thought only to be able to occur because time is dynamic. The B-theoretic change of things, explored earlier in this section, cannot fulfil this role, as this is not genuine change, but mere difference.

If my opponent wishes to show that this commitment, C1, cannot deliver a dynamic model of time then they must outline a model according to which time is dynamic, and what exists does not maximally change. But what kind of model might this be? As stated above, this model cannot be a B-theoretic, or a static model, because time is not dynamic on such a model. One option for a model according to which nothing changes, and yet time is dynamic, is Fine's (2005) fragmentalism, according to which reality is fragmented, and these fragments do not belong to a single, coherent whole[106]. Each fragment contains internally consistent facts, but different fragments will contain inconsistent facts. Each fragment contains some facts which are presently true. For instance, one fragment may contain the fact 'I am writing', and another fragment may contain the fact 'I was writing'.

My opponent might argue that the content of each fragment does not maximally change, and yet fragmentalism involves temporal dynamism (or passage)

[106] Fine, 2005, pp262.

because of some relation between the fragments. Let us say that there is a fragment, f-, in which Boris Johnson is the prime minister, and another fragment, f+, in which Boris Johnson was the prime minister. I think my opponent might argue that this can deliver some notion of dynamism or passage because the facts in f+ are somehow related to the facts in f-, in such a way that would mean that the facts are successively present.

However, even Fine himself casts doubt as to how some relation between fragments might result in a dynamic theory of time, or in passage[107]. I see no reason to suppose that such a relation between these fragments exists, or even could exist. Further, even if there were a relation between the fragments, I see no reason that this would result in succession. The relation between fragments would need to be a temporal relation, but even if these fragments did hold a temporal relation to each other, this relation would need to be a very specific kind of relation to result in succession. It is plausible that, if some temporal relation did hold between fragments, it would give us a B-theoretic model, on which the fragments hold 'earlier than', or 'later than' relations to other fragments. Therefore, this model fails to show that time is dynamic, or passes, despite nothing maximally changing.

[107] Fine, 2005, pp288.

Chapter Conclusion

To conclude this chapter, the only key difference maker for a dynamic model of time is dynamism. Objective direction seems to be a key feature of dynamism; however, it is dynamism which is the only feature doing the work to deliver temporal dynamism. Further, a privileged present moment, though often included in arguments for dynamic theories of time, may be abandoned, without abandoning a commitment to temporal dynamism.

Though the conclusion that some dynamic element is required for temporal dynamism may not be surprising, it is a conclusion which needs to be drawn. There is a distinction to be drawn between the passage of time and temporal dynamism which has been overlooked within the literature, and these two concepts are frequently conflated. Indeed, though it goes beyond the scope of this thesis, I suggest that there is a gap in the literature for a formal investigation into the necessary and sufficient conditions for the passage of time to further clarify the nature of this concept.

On a final note, Price, among many others, argued that a dynamic element to time is an incoherent notion, and that time cannot be dynamic. I have not addressed such concerns in this chapter, focusing instead on determining what dynamism consists in. However, I referred within this chapter to several problems which are faced by dynamic theories of time, which I shall go on to address in chapters 3, 4 and 5.

Chapter 3

The Rate of Passage

Chapter overview:

In chapters 3 and 4 I consider two significant challenges to the passage of time which suggest that passage is incoherent, or unreal. As discussed in chapters 1 and 2, I aim to defend a temporal dynamism which is distinct from temporal passage. Although the challenges I now go on to explore are aimed at the passage proponent, little work has been done to tease apart passage from dynamism and to consider how the challenges against the passage of time fair against temporal dynamism. As such, I examine these challenges to defend dynamic theories of time. I first attempt some defence on behalf of the passage proponent and then go on to consider how damning these challenges might be for the proponent of temporal dynamism.

In chapter 3, I shall respond to the argument that time cannot pass because its putative 'rate of passage' is incoherent. This chapter considers three different arguments against the passage of time all centred around the question of how fast time passes, or to put this question another way, 'what is the rate of the passage of time?'. The obvious answer to this question is that time passes at a rate of one second per second. However, this answer faces challenges which I explore within this chapter.

In section 3.1, I outline the trivial rate argument (TRA), thanks in large part to Smart (1949), and Raven (2011). The TRA argument concludes that the rate of passage is trivial, or uninformative. Smart does not argue at length for this, focusing instead on the problematic terms in which we think of passage. The thought, though, is that the only answer to the rate of passage question which might be given is that time passes at a rate of 'one second per second', which is a trivial, uninformative answer. It tells us nothing about the passage of time. I respond that although 'one second per second' may be a trivial answer, the proponent of passage would be sensible to accept this triviality as the only sensible answer.

In section 3.2, I focus on the debate concerning the no rate argument (NRA), thanks to Olson (2009), Price (2011), Markosian (1993), and Phillips (2009). The NRA argues that the only rate we can sensibly give for time's passage is 'one second per second' which is not a coherent rate. If the rate of the passage of time is incoherent, then time does not pass. I respond that 'one second per second' is not only a coherent rate but the only rate we can give to the question of the rate of passage.

I explore the no alternate possibilities (NAP) argument in section 3.2 due to Tallant (2016), Raven (2011), and Maudlin (2007). This argument also challenges the coherence of the 'one second per second' rate. It differs from the NRA, though, in that the rate 'one second per second' is thought to be incoherent because this rate of passage is fixed by necessity. The NAP argues that for a rate to be coherent that rate must be able to have other values. As the rate of passage could not have any other

values, it is an incoherent rate. I argue that the rate of the passage of time is a unique rate, as it is the only rate which is fixed by necessity.

Finally, in section 3.4, I refer to the distinction I made in chapter 2 between the passage of time and temporal dynamism. I argue that these 'rate of passage' arguments are considerably less problematic to those theories which posit temporal dynamism rather than passage. If time does not 'pass' on theories which posit temporal dynamism (rather than passage), then the proponent of this view cannot reasonably be asked to respond to this challenge.

Introduction

As expressed in chapter 2, throughout this thesis I maintain a commitment to temporal dynamism and the fundamentality of that dynamism. I hold, not that there is a dynamic *element* to temporality, but that dynamicity is *foundational* to temporality. I will not attempt to persuade my B-theoretic counterparts of such a commitment, our intuitions on this point being so at odds. However, I do need to address those arguments which attempt to show that time cannot be dynamic.

In this chapter, I will focus on responding to the 'rate of passage argument'. The root of the rate of passage problem can be summarised thus: for any change, we can reasonably ask what the rate of that change is. The passage of time is essentially time

changing. If time passes, then we can ask what the rate of the passage of time is. Some answer must be forthcoming. There are three main arguments centred around the question of the rate of passage; the trivial rate argument (TRA), the no rate argument (NRA), and the no alternate possibilities argument (NAP).

I shall consider each of these arguments within this chapter and offer some response on behalf of the passage proponent. These arguments largely target those theories according to which the passage of time is an objective feature of reality. My responses will attempt to salvage passage. However, I also revisit my arguments from chapter 2 that the passage of time and temporal dynamism are different and explain that the rate of passage arguments carry less weight against temporal dynamism than they do against passage.

3.1 The Trivial Rate Argument

There is some debate in the literature, thanks in part to Broad (1938) and Smart (1949)[108], who argue that if time passes then we can reasonably ask 'how fast does time pass?', or 'what is the rate of the passage of time?'. This question is often raised as an objection to theories which posit the objective passage of time. Smart

[108] See also, Markosian (1993), and for a more contemporary debate Olson (2009) and Phillips (2009).

argued that it is sensible to ask how fast time passes but denied that there is a coherent answer to such a question. As he had it:

> "…with respect to motion in space it is always possible to ask "how fast is it?". An express train, for example, may be moving at 88 feet per second. The question, "How fast is it moving?" is a sensible question with a definite answer: "88 feet per second". We may not in fact know the answer, but we do at any rate know what sort of answer is required. Contrast the pseudo-question "how fast am I advancing through time?" or "How fast did time flow yesterday?". We do not know how we ought to set about answering it. What sort of measurements ought we to make? We do not even know the sort of units in which our answer should be expressed. "I am advancing through time at how many seconds per -?" we might begin, and then we should have to stop. What could possibly fill the blank? Not "seconds" surely. In that case the most we could hope for would be the not very illuminating remark that there is just one second in every second."[109]

Smart (1949) illustrated this problem by inviting us to imagine time as a flowing river and events as floating along the current[110]. When we say that today has gone by

[109] Smart, 1949, pp485.
[110] Smart, 1949, pp484. Though, as I shall discuss later in this section, Smart views the metaphors used for passage inaccurate and unhelpful.

faster than yesterday, we are saying that the flow of the river was faster today than yesterday. The rate of passage argument asks us how fast this movement is, in other words, what the rate of the passage of time is. The obvious answer is that time passes at a rate of one second per second.

However, as Smart acknowledges, despite its very common use, there is a problem with thinking of the passage of time in terms of the metaphor of a flowing river. This metaphor suggests that there are different levels to time. In other words, it suggests that there is a 'first-order' time (the river) and a 'second-order' time (the events floating along the current). So, to say that time passed today more quickly than it passed yesterday is to invoke a second-order time of events measured against the first-order time of the river's current[111].

The passage of time proponent should not accept that this is the case. The problem, as Markosian (1993) discusses, is that when time is understood as something that flows or passes, then there is some further time dimension, a second-order time dimension, distinct from the first-order time dimension, and that the passage of the first-order time-dimension is to be measured against this second-order time-dimension[112]. This second-order time dimension is also something which flows or passes, and therefore also requires a distinct time dimension, a third-order time dimension, against which the second-order time dimension is to be measured. As each

[111] Smart, 1949, pp484.
[112] Markosian, 1993, pp837.

additional time dimension also requires a further distinct time dimension, the addition of time dimensions continues *ad infinitum*, leaving the proponent of passage in an infinite regress.

Whatever we take the rate of the passage of time to be, then, we must avoid giving the rate as a relation between first-order and second-order time. We need to avoid taking the step to a second-order time altogether. But what is the rate of time's passage, if not one second per second? Ostensibly, it seems that the defenders of any theory involving the passage of time must always find themselves in the undesirable position of arguing for the existence of a first-order time and higher-order times. When we say that time passes at a rate of one second per second, then, we measure time against time. It seems that we are saying that it takes time for time to pass.

As we cannot measure time against a further time dimension, then, it seems we are measuring time against itself. I believe this is why Smart argues that 'one second per second' is a trivial answer[113]. It is an empty statement, which tells us nothing at all of the rate of the passage of time and holds no explanatory power whatsoever. Triviality may be a concern here because giving a rate of change is supposed to tell us about the relation of one thing to another, in this case, it should give us some metric to quantify time's passage. Providing a trivial answer denies us

[113] Smart, 1949, pp485.

that metric, it provides no useful or informative information and therefore we can learn nothing of the passage of time from this answer.

My response is that I see no problem with accepting this triviality, though I am sure there are those who would object, or who would dismiss this line of discourse entirely, were I to leave the argument here. I accept that, if time passes, it passes at a rate of one second per second, tells us nothing particularly informative about the passage of time. However, it seems obvious to me that, if time passes, it must necessarily pass at a rate of one second per second. Why should such an obviously true answer to the question 'how fast does time pass?' be controversial, when there are other trivial, and uninformative claims which are accepted as a matter of course? For instance, if we were to ask an analogous question in the spatial case, we might ask 'where is space located?', or 'how much space is there in space?'. It seems obviously true that each spatial location is located at itself, or that space measures one metre per metre. This answer seems to me to be just as trivial and uninformative as in the temporal case, and yet it attracts no such controversy.

It is important to note, however, that Price (2011) argues that comparing 'one second per second' to a spatial case is unfavourable. Price suggests that someone who has travelled 500 miles can be said to have travelled 500 miles per 500 miles.[114] This spatial case mirrors the triviality of the temporal case, and yet Price believes that this is a problem for the passage of time. Time is supposed to differ from space in that time

[114] Price, 2011, pp304.

flows, however, if we can give a rate of the 'passage' of space in the same way that we give the rate of the passage of time, then there is nothing special about the temporal case.

It seems clear to me, and Tallant (2016) offers this same response to Price, that what differentiates time from space need not be reflected in the way that we express the rates. That there might be, for instance, one mile for every mile, is not to say that there is any kind of passage to space. Indeed, the rates of change or exchange of all kinds of things are given in this same format. That we say there is one dollar for every dollar does not commit us to saying that currency cannot be differentiated from space or from time. In the region where I am situated there is one person per person, yet I certainly think there is much that differentiates me from space and time.[115]

3.2 The No Rate Argument

Olson (2009) argues that to say that time passes at a rate of one second per second is to fail to give a rate at all. According to Olson, 'one second per second' is one second divided by one second, and when we divide one second by one second, the answer is 'one'.[116] So, when we ask, 'at what rate does time pass?', the answer must be 'one'. However, there is no such rate as 'one', because 'one' is not a rate at all. This

[115] Tallant, 2016, pp40.
[116] Olson, 2009, pp5.

leads Olson to conclude that, as it is reasonable to ask the rate at which time passes, and there is no coherent answer to this question, time cannot pass. I present Olson's argument more formally as:

0. Time is dynamic, therefore time passes.

1. If time passes, then time must pass at a rate.

2. 'One second per second' is not a coherent answer to the rate of passage question because it is reducible to 'one', which is not a rate.

3. Claiming that time passes at a rate per other unit of change is not a coherent answer to the rate of passage question. (e.g., time passes at a rate of 1 hour per circuit of a big hand on a clock, is just another way of saying time passes at a rate of 'one hour per hour).

4. There is no coherent rate at which time can be said to pass.

C. Time does not pass.

In response to Olson's argument, I shall not challenge premise 0 here (though as I explored in chapter 2, I do not accept that if time is dynamic, it follows that time passes. I will return to this in section 3.4). I shall instead accept, at the least, that the passage proponent will accept premise 0. I have no reason to contest premise 1,

though, at the end of section 1, I will make some clarifying remarks on how we might view the term 'rate' as it pertains to time. My main response to this argument, on behalf of the passage proponent, will focus on premise 2, which, successfully challenged, will nullify the conclusion.

Let us start with denying the project of premise 2; that 'one second per second' is not a coherent rate. In his response to Olson, Phillips (2009) denies that 'one second per second' is reducible to 'one'. When we are looking for the rate of anything, we must always say what the rate is of, and it must always involve a relation. The rate 'one second per second' is not one second divided by one second, because a rate is a ratio or relation between two quantities[117], and therefore cannot be reducible to 'one'. Phillips' opponent will want to argue here that the rate 'one second per second' is not a relation between two different units, but rather a rate of one thing to itself.

To illustrate why Phillips' opponent believes his response may not work, let us consider how rates work. Let us think about any rate of exchange: how many euros can we exchange for how many pounds, for instance. Let us say that for every one euro, you will get one pound. What, then, is the ratio of euros to pounds? Surely, the answer cannot be 'one', as the question requires that the answer be a ratio; in other words, the question is asking what number of euros there are to what number of pounds. 'One', then, is not an acceptable answer, because the question requires that the answer be a relation between two quantities (for instance, 1 Euro to 1 Pound). 'One' is

[117] Phillips, 2009, pp503.

not an acceptable answer, but 'one to one' is acceptable. So, the rate of exchange is one euro per one pound, and it seems obvious that 'one euro per pound' cannot be reduced to simply 'one'. This, Phillips thinks, is analogous to the 'one second per second' answer; just as we need a rate of exchange between euros and pounds, we need a rate of exchange between seconds and seconds.

In the Euro to Pound example, we are exchanging two different units; Euros on one side of the exchange and Pounds on the other. Whereas, in the case of time, we are not comparing two different units. Rather, we are comparing one and the same unit. To put this another way, we are comparing a second of time to one and the same second of time. This is why we might take Olson seriously when he argues that they cancel each other out. There is not one second passing for every second, there is simply one second, or 'one', and this is not a rate. Unless we can give the *rate* of passage *as a rate,* Olson argues that there is no coherent rate.

In defence of Phillips' position that 'one second per second' cannot be reducible to 'one', there are two responses the passage proponent might offer. First, we might argue that we are not comparing one and the same second, but instead, we are measuring the pure passage of time against something in time. To borrow an example from Markosian (1993), imagine a runner, Bikila, running at a rate of one mile per five minutes. When we say that Bikila has run one mile in five minutes, we are saying that Bikila's position has changed by one mile, and the clock hand has changed

position by two and a half degrees[118]. However, as Markosian points out, clocks are a stand-in for the sun. The minute hand changing position by 2 and a half degrees, is really the sun changing position in our sky by roughly one degree. So, when we say that Bikila runs a mile in five minutes, we are really saying that for every one mile of Bikila's change in position, the sun changes position by one degree. We are comparing one change to another.

Markosian goes on to tell us that the passage proponent's interest isn't really in comparing the change in Bikila's position to the change in the sun's position. What we are really interested in is the change in Bikila's position compared to the pure passage of time.[119] By the 'pure passage of time', Markosian is referring to the process by which times and events change their A-series positions. (Though, as I explore in chapter 4, expressing time as changing A-series characteristics may be problematic). So, just as clocks act as stand-ins for the changing position of the sun, a clock could also act as a stand-in for the pure passage of time. We could then say that talk about the rate of the passage of time is a comparison between the pure passage of time and some change in time. For example, for every two and a half degrees the clock hand moves, five minutes of pure time has passed. Or, time changes at a rate of five minutes per one degree of the movement of the sun. Of course, changes in time happen at different

[118] Markosian, 1993, pp840.
[119] Markosian, 1993, pp840-841.

rates, so we would need to choose a change which was constant, such as the sun, or a clock[120].

The second possible response from the passage proponent would be to reassert Phillip's argument against the reducibility of 'one second per second', and then to claim a 'special case' for time. The passage proponent could accept that when we measure the rate of time, we are indeed measuring one thing against itself, but to deny that one thing to itself is reducible to 'one' specifically with regard to time.

To illustrate this, I shall compare the euros-to-pounds case and the runner's position case against the seconds-to-seconds case. In the euros to pounds case, we are giving a rate of *exchange* of one thing to another, whereas in the time case, we are giving a rate of *change*, and in particular a rate of the change of time. In Markosian's example of the change of a runner's position, the rate is given as a rate of change *in* time. Rates of exchange and rates of change in time are different kinds of rates to the change *of* time.

Changes, such as the runner's position, are given as a rate of change *in* time, but when discussing the rate of change *of* time we must admit that time is unique. Time does not change *in* time (and we had better accept that, or risk falling victim to the problems involved in invoking a second-order time series), and as such, it seems reasonable for the passage proponent to measure time by itself. If it is sensible to ask,

[120] Though these are not examples according to which changes are absolutely constant.

‘how much time has passed in the last second?’, the answer ‘one second has passed in the last second’ seems not only an acceptable answer but also the only acceptable answer. Therefore, that time passes at a rate of one second per second is the only possible answer to the question of the rate of passage.

The passage proponent can therefore deny the project of premise 2, either by arguing that 'one second per second’ is a rate of one change to another, or of one change to the pure passage of time. Alternatively, the passage proponent could plead a special case for the rate of passage and argue that the uniqueness of passage means that the irreducible rate of ‘one second per second’ is unusual, but not incoherent.

3.3 No Alternate Possibilities.

The third argument based on the ‘rate of passage’ question I shall consider is the NAP. This argument also concludes that time cannot pass because the rate of passage is incoherent. According to the NAP, the rate of passage is incoherent because coherent rates are rates which could be otherwise. As the rate of passage is necessarily fixed at ‘one second per second’ it is incoherent. I shall explore the NAP here thanks to Tallant (2016), Price (1996), and Raven (2011).

Tallant formulates the argument as follows:

"(NAP)

1. If x passes, then the rate at which x passes could be different.

2. Time cannot pass at a rate other than 1s/s.

Therefore,

3. Time does not pass."[121]

I follow Tallant in taking premise 2 to be widely (if not universally) accepted, and I will instead focus on premise 1. Premise 1 tells us that for passage to be coherent it cannot be fixed by necessity. In other words, for the rate of passage to be coherent, it must be possible for the rate to have different values. This premise is based on the notion that for any rate to be coherent that rate could have other values. So, if we challenge the underlying idea that a coherent rate could have other values, then premise 1 looks weak.

Raven (2011) challenges premise 1, arguing that there are ratios which are fixed by necessity, such as π, and that there is nothing incoherent about a ratio, which is also a rate, just because it is fixed by necessity. π is analogous to the passage of time, in that they are both ratios, which happen to be rates, and if π can be a coherent ratio

[121] Tallant, 2016, pp36.

fixed by necessity, then there is no reason to think that the rate of the passage of time, which is fixed by necessity, is incoherent.[122]

Maudlin (2007) attempts to show that there are rates which are fixed by necessity. Instead of the ever-changing euro to pound exchange, Maudlin invites us to consider the rate of exchange of units of one and the same currency.[123] It seems perhaps less controversial that the exchange rate of dollars to dollars is one dollar per dollar. One dollar per dollar, it is argued, is necessarily the only fair rate of exchange. Therefore, it seems as though Maudlin can offer a rate of exchange which is both coherent and fixed by necessity.

The obvious objection here is that a rate being fair does not mean that the rate could not be otherwise. It seems perfectly plausible that, though you might not consider it fair, I could exchange dollars with you at a rate of three dollars per dollar[124]. That the rate might be considered unfair is no reason to deny that three dollars per dollar is a coherent rate.

Raven (2011) also notes (though does not endorse) the obvious response that the rate of exchange suggested by Maudlin is not fixed by necessity and could be different[125], indeed the fact that this rate is *fair* suggests that there might be other rates, and those other rates are *unfair*. Though these other rates would be unfair, they

[122] Raven, 2011, pp459.
[123] Maudlin, 2007, pp112-3.
[124] Tallant, 2016, pp37.
[125] Raven, 2011, pp464.

would still be possible. It is important to note, however, that I am not attributing the claim to Maudlin that the rate of dollars to dollars could not be different, but rather that the *fair rate* of dollars to dollars is necessarily one to one, and so could not be different.

Tallant (2016) includes a footnote in his response to Maudlin, suggesting that it might be possible for there to be other fair rates. I follow Tallant's suggestion here and offer an example to counter Maudlin's position. I do not agree with Maudlin that even when only considering the *fair rate*, the exchange will be fixed at one dollar per dollar. What is fair might well depend on the circumstance, and on our individual conception of fairness. Collectors of rare coins, for example, would think it fair if they exchanged several thousands of dollars for one dollar, provided that the dollar in question was a rare minting. There are examples of rare one-dollar coins which have sold at auction for seven thousand dollars. In that circumstance, the fair rate of exchange is 1 dollar to 7000 dollars. So, even if we considered only Maudlin's *fair rate* of exchange, we would not conclude that the rate of one dollar per dollar was fixed by necessity.

3.3.1 Tallant's NAP

At this point, it seems that NAP fails to gain any traction. However, Tallant offers a defence of NAP, the force of which seems to be based on the notion that all kinds of coherent rates could have been otherwise. Tallant gives the following list of

different kinds of possible rates, (other than temporal rates) which he claims are exhaustive:

(a) "Cases where an entity changes its property/properties over time"[126].

(b) "Cases where finance is involved"[127].

(c) "Cases outside finance where the term seems to indicate a proportion".[128]

For any example we give for (a), (b), or (c), it seems that the rate could be different. If, for any example of a rate (other than in the temporal case), it is possible that the rate could be different, then it is reasonable to conclude that rates are not fixed of necessity. The idea seems to be that, given that all other rates are not fixed, and could be otherwise, we have a compelling reason to hold that rates are not fixed. Therefore, without a compelling reason to accept that rates could be fixed by necessity, there is no reason to accept that the rate of passage is fixed by necessity.

More formally, Tallant's argument is as follows:

[126] Tallant, 2016, pp41.
[127] Tallant, 2016, pp41.
[128] Tallant, 2016, pp41.

"NAP1*: All uncontroversial cases of rates are cases that 'could have other values'.

NAP2*: If all uncontroversial Fs have some property, G, then, if x is not G, then this gives us defeasible reason to think that x is not F.

NAP3*: The rate of time's passage could not have any value other than 1s/s.

NAP4*: We have defeasible reason to think that time does not pass at a rate."[129]

Provided we accept NAP1* - NAP4*, this leads us to:

"NAP5*: Time does not pass at a rate".[130]

"NAP6*: All uncontroversial cases of 'things that pass' are cases where those things pass at a rate".[131]

Of the first four premises, Tallant argues that his opponent should offer another use of the concept 'rate' and show that that rate could not have any other values. I do not challenge Tallant here. Instead, I accept NAP1* - NAP4*. Considering that uncontroversial rates could have other values, we do have a defeasible reason to believe that time does not pass at a rate. However, I argue that, despite the inductive

[129] Tallant, 2016, pp42.
[130] Tallant, 2016, pp42.
[131] Tallant, 2016, pp42.

argument, the passage of time can be expressed as a rate. It is a particular kind of rate. As I suggested in section 3.2, the change *of* time is uniquely different to changes *in* time. All changes *in* time are a measurement of the changes in some entity against time. The passage of time is the only measurement of the change *of* time itself.

The passage proponent could argue that time's passage fits into rate-type (a) in this list of rate usage. The passage of time is a rate of change (of time), and that rate of change is fixed at one second per second. I do agree with Tallant, that there is no other rate (at least not one which I can think of) which is fixed in this way. However, it seems to me that there is no other rate of change which we compare to itself, as we do with time. Price (1996) tells us that we must "live with the lack of other possibilities"[132] for the rate of passage, and although Price intends this as a negative for the passage proponent, I argue that this is simply a fact about time. For the passage proponent, there is simply nothing else that is akin to time, there is nothing that flows like time (even our metaphors fail to really capture this flow) so surely it should not be a surprise that the passage of time (and its rate) is unique.

I argue, then, that the rate of passage is unique and is indeed a rate despite being fixed. Tallant offers an argument discouraging the kind of special pleading case which I make for time. Tallant argues that if NAP1* is accepted then the move to NAP2* should be accepted. NAP2* seems to discourage special pleading cases because if NAP1* is correct it gives us good reason to accept NAP2*. To illustrate this, Tallant

[132] Price, 1996, pp13.

uses the example of all known swans being white, therefore when a black swan was discovered there was a defeasible reason to think that this was not a swan[133]. Of course, having a defeasible reason to think there is not an exception does not guarantee that there are no exceptions. I maintain that the reasons I have provided are good reasons to accept the passage of time as an exception.

3.4 The Rate of Passage and Temporal Dynamism

Throughout this chapter, I have offered responses on behalf of the proponent of the passage of time. The rate of passage arguments attempt to conclude, either that the rate of dynamic time is trivial, or that time cannot be dynamic. I hold that temporality is dynamic, and therefore aim to salvage theories of dynamic time from their various challenges. However, to conclude this chapter, I will revisit my earlier distinction from chapters 1 and 2 between the passage of time and temporal dynamism. I will offer a response to the rate of passage arguments on behalf of the proponent of temporal dynamism (as opposed to passage) and show why the question of the rate of passage cannot reasonably be applied to temporal dynamism.

First, I reject that the framing of the TRA can be applied to the temporal dynamism for which I argue. As Smart (1949) suggests, the metaphors we commonly

[133] Tallant, 2016, pp42.

use to discuss the passage of time are unhelpful, in that they suggest that one thing flows with respect to something else. These metaphors fail to capture temporal dynamism in part because they imply that passage involves multiple time dimensions. Even outside of metaphors, the passage of time is discussed in terms of some *thing*, time, along which some other element of time moves, for example, the property of presentness moves along successive time-slices.

In chapters 1 and 2, I argued that temporal dynamism is a concept distinct from passage. I began laying the groundwork for a version of presentism (thanks to Merricks and Tallant), according to which there is no time-slice that is the present moment. Instead, what it means to be present just is what it means to exist, and what exists changes. According to this understanding of temporal dynamism, as there is no time-slice, there is no *thing* that is time against which some change can be measured.

Therefore, even if my opponent maintains that the TRA poses a significant problem for the passage of time, I maintain that the framing of this argument does not apply to temporal dynamism, as the proponent of temporal dynamism will not understand temporal change in these terms. As the framing of this argument does not apply to temporal dynamism, the proponent of this kind of view will not propose a second-order time dimension, as there is no first-order time dimension which we need to measure.

Not only can the proponent of dynamism reject the framing of the rate of passage argument, avoiding the TRA, but I believe she can also reject the rate of passage problem altogether. The NRA and the NAP are based on the idea that if time passes, or flows, then we can reasonably ask for the rate of this passage. But according to the kind of dynamism I argue for, there is no 'thing', time, that flows. As I outlined in my response to the TRA, we think that there is a rate of passage because one of the ways we think of time's passing is as a rate of one thing changing in relation to another. Either events pass in relation to time, or in relation to some change, for instance, the movement of a clock, changes in relation to the pure passage of time. The other way we think of time's passing (as explored within this chapter) is as one thing passing in relation to itself.

However, the proponent of dynamism as outlined in chapters 1 and 2 will reject that these concepts apply to dynamism. As there is no thing that is time, time cannot pass in relation to something else, or in relation to itself. According to my understanding of dynamism, things exist, and what exists changes. There is no thing that is time to measure this change against. So, while it may make sense to ask for a rate of passage, it makes no sense to ask for a rate of dynamism as I understand it here.

My opponent in this may argue that, if what exists changes, then it makes sense to ask for a rate of these changes. But it is difficult to see how that is a challenge to what I argue for. My opponent cannot ask me to give a rate of the change of time,

because there is no thing that is time. All my opponent can reasonably ask me for is the rate of some change against something else, perhaps some other change. This would be unproblematic, though, because this rate would fall neatly into Tallant's concept of rate (a), above, which is an uncontroversial example of a rate.

Chapter Conclusion

In summary, the rate of passage argument is supposed to be a challenge to proponents of 'dynamic' views of time. Although, as shown in chapter 2, there is reason to believe that passage and dynamism are mistakenly conflated, I still considered this challenge on behalf of the passage proponent. I argue on behalf of the passage proponent, in part because passage and temporal dynamism have not previously been teased apart within the literature, and so I consider whether to arguments against passage apply to both passage and dynamism. Further, there has been criticism in the literature, for example, from Price (2011) as considered in chapter 2, that any theory which posits dynamic time is incoherent. I consider the rate of passage argument to show that there is reason to doubt the like of Price.

I argue that the passage proponent faces a real challenge in responding to these arguments. In response to the TRA, I argue that the passage proponent must simply accept triviality. In response to the NRA, the passage proponent needs to attempt to reject that 'one second per second' is reducible to 'one' maintaining that a

change *of* time is unique to passage, and therefore time has a unique rate. Finally, in the NAP case, I argue that the passage proponent needs to accept the NAP and accept that we do have a defeasible reason to think that time does not pass at a rate, and yet still argue that it does. Again, it seems the passage proponent must rely on the uniqueness of time as a controversial rate to argue that the fixed rate of 'one second per second' is a legitimate, if unusual, rate.

These positions are difficult for the passage proponent, and I would argue that the responses offered on their behalf are not particularly strong. On the other hand, the dynamism proponent need not attempt to answer the rate of passage question at all. Not only do they not need to attempt to answer it, but I would argue that it makes no sense to ask for a rate of passage on a theory which does not posit passage. As there is still change in what exists according to the dynamism proponent, we could ask what the rate of changes are, but the answer given can only be as one change in terms of another. This kind of answer would not be trivial, reducible, or controversial. Therefore, I argue that the proponent of the kind of view of dynamism offered within this thesis can maintain that what exists changes, and yet need not be concerned with the rate of passage argument.

Chapter 4:

McTaggart's Proof of The Unreality of Time

Chapter overview:

In this chapter, I look at arguably the most infamous argument against the passage of time: McTaggart's 'Proof of the Unreality of Time'. So much ink has been spilled over this problem, and as I shall show in this chapter, it is difficult to say if we are any closer to a solution. It remains a significant problem for those who posit the passage of time. I explore McTaggart's paradox here to show that there is a lingering concern that the passage of time cannot be true of reality and to show that the passage proponent faces further difficulties than those discussed in chapter 3.

Again, I consider here an argument against the passage proponent, despite arguing that passage and temporal dynamism have been inaccurately conflated. This is, in part, to consider significant arguments against passage, whether passage can be salvaged, and to consider the effectiveness of those arguments when applied to temporal dynamism.

Section 4.1 details McTaggart's argument for the unreality of time. First, in section 4.1.1 I lay out McTaggart's arguments for why we should view the A-series as essential to time and therefore why we cannot have time without the A-series. In

section 4.1.2, I will lay out McTaggart's argument that the A-series involves contradiction and therefore, as the A-series is essential for time, time is unreal.

I go on, in section 4.2, to consider various arguments against McTaggart, exploring responses from Gale (1966), Lowe (1987a, 1987b), and Le Poidevin and Mellor (1987). I conclude this section by arguing that these responses attempt to solve a metaphysical problem with a semantic solution, and, in doing so, fail to take McTaggart seriously.

In section 4.3, I outline a defence of McTaggart, due to Dummett (1960). Dummett shows that, even if we think the semantic solution offered in section 4.2 does alleviate some of the concerns of McTaggart's paradox, a significant point of tension remains. This tension is between the necessity of token-reflexive expressions and the belief that we can give, or want to give, a complete description of reality.

I will conclude this chapter by arguing that McTaggart's paradox is especially concerning to those theories which posit both the passage of time and the existence of more than one time. I go on, in my closing statements of this chapter, and in chapter 5, to argue that if we want to hold that time is dynamic, adopting a presentist position is the best solution to the significant problems in this chapter.

Chapter Introduction

In this chapter, I discuss McTaggart's infamous proof of the unreality of time. McTaggart distinguished positions, or events, in time in two ways. First, an event in time is earlier than, later than, or simultaneous with another event. Second, an event in time is past, present, or future. The former distinction sets out events in time as permanent relations to each other, so, some event M, which is earlier than event N, will always be earlier than event N. For example, the building of the Eiffel Tower in 1889 is earlier than the demolition of the Berlin Wall in 1989. The building of the Eiffel Tower was, and always will be, 100 years earlier than the demolition of the Berlin Wall. We refer to this permanent series of events as the B-series. The latter distinction forms what is referred to as the A-series. Events in the A-series are constantly changing, so some event which is in the far future becomes nearer in the future, then becomes present, and then moves ever further into the past. For example, the demolition of the Berlin Wall was once in the future, then it was present, and now it is in the past, and it will become ever further past.

McTaggart argued that both the A and B-series are essential to time, however, he believed that the A-series is more fundamental to time. This is because he thought that it is widely accepted that time necessarily involves change, and there is no change on the B-series. The relations of the B-series are permanent relations. The 100 year period between the Eiffel Tower being built and the Berlin Wall being demolished will always be a 100 year period, and that will never change. This is not the case for the A-

series, which is always changing. The demolition of the Berlin Wall happened 35 years in the past, and next year it will have happened 36 years in the past.

The changing of the A-series is why McTaggart believed the A-series is more fundamental to time. As I shall outline in this chapter, it is also why he concluded that time is unreal. In section 4.1.1 I will outline McTaggart's argument for the necessity of the A-series. In section 4.1.2, I will outline McTaggart's argument that there is inconsistency within the A-series, and therefore why it cannot be real.

4.1 McTaggart's Paradox

4.1.1 The Necessity of the A-series

The structure of McTaggart's argument is as follows:

1) "Time essentially involves change.

2) Change can only be explained in terms of A-series expressions.

3) A-series expressions involve contradiction and so cannot describe reality.

C) Therefore, time is unreal"[134].

[134] Lowe, 1987a, pp63.

I will look at each of these premises in turn and explain McTaggart's reasons for holding them. I will then explore how we might argue against McTaggart and salvage the passage of time.

McTaggart believed his first premise, that time necessarily involves change, would be universally accepted[135]. He took it as uncontroversial that a universe in which nothing changed would be a timeless universe. He reasoned that if nothing changed in the universe, not even the thoughts of the conscious beings in it, we would consider this a universe according to which there was no time. That there cannot be change without time, I believe, is widely accepted. For any change, there is some earlier and later, some way that the world was and some different way that the world now is. If I were to go for a walk, let us say I walk one mile, that mile-long walk takes time. I start at point A, and some time later, I arrive a mile away at point B. So, it seems uncontroversial to hold that there can be no change without time.

But can there be time without change? This question has attracted some debate, but it is largely accepted that time consists in change (one of the few notable exceptions being Shoemaker's 1969 'Time Without Change'[136]). Determining what that

[135] McTaggart, 1908, pp465.

[136] Shoemaker, 1969. *It is worth noting here that the kind of change that Shoemaker deals with in his paper is the change with respect to properties, rather than the kind of 'McTaggartian' change of the A-series. However, I have included it here as Shoemaker denies that the changing of A-series positions constitutes change, therefore making Shoemaker's paper a denial that time need involve change.*

change consists in is highly controversial, as we shall see in the following examinations of the other premises of McTaggart's argument.

Moving onto McTaggart's second premise, then, McTaggart believed that the A-series is necessary for time because change can only be explained in terms of A-series expressions. In other words, the only characteristic of an event that changes is the characteristic of being past, present, or future[137]. If this were not the case, and change could be explained elsewhere in reality, then it would be possible for the B-series to constitute time without an A-series. If this were the case, what is it that would change? Change, according to McTaggart, cannot be looked for in the B-series, as B-series relations are permanent. An event, M, which is earlier than event N, will always be earlier than event N. Nothing about this relation will change. McTaggart does consider and reject a variety of other options to account for change in reality without an A-series which I will explore here.

First, could an event cease to be an event, while another event began to be an event? If this were possible, then we could have change without an A-series. McTaggart argues that this is impossible. Events which form a B-series are permanently events within that series. They cannot lose their position within that series or cease to be an event within that series. For example, events M, N, O, ordered in a B-series are fixed in those positions, and in those relations. There is no way of

[137] McTaggart, 1908, pp460.

removing an event or making an event cease to be an event. Event N, which is part of that series, has always, and will always, hold its position as an event in that series[138].

Instead, then, could an event merge into another event? For instance, could event M merge into another event N, so that, rather than M ceasing to be an event, and N beginning to be an event, it would be the case that M has become N. Again, McTaggart argues that this is not possible. It cannot be the case that M and N have become the same event, because if they are one and the same event then nothing has changed. However, they also cannot be different events, because if they are different events then for M to merge into N, M must cease to be M and become N[139]. As we saw in the previous example, the B-series does not allow for this. The positions within a B-series are permanently fixed, so no event can cease to be an event, or cease to have a position within this series, and no event can begin to be an event, or begin to have a position within this series.

McTaggart is committed to the ideas that: (i) change must happen *to* events because change is necessary for time[140]; (ii) this change cannot be that an event begins or ceases to be an event[141]. Change, then, must be a change which does not prevent an event from being an event, and does not prevent an event from being one and the same event, either before or after the change. For McTaggart, there is therefore only

[138] McTaggart, 1908, pp459.
[139] McTaggart, 1908, pp460.
[140] McTaggart, 1908, pp460.
[141] McTaggart, 1908, pp460.

one characteristic of an event which can change while leaving the event the same event: the determination of the event in terms of the A-series:

> "Take any event-the death of Queen Anne, for example, and consider what change can take place in its characteristics. That it is a death, that it is the death of Anne Stuart, that it has such causes, that it has such effects - every characteristic of this sort never changes […] the event in question was a death of an English Queen […] the event in question will still be a death of an English Queen. And in every respect but one it is equally devoid of change. But in one respect it does change. It began by being a future event. It became every moment an event in the nearer future. At last it was present. Then it became past, and will always remain so, though every moment it becomes further and further past".[142]

All change, according to McTaggart, is the changing of A-series positions, the change of events from the far future, to the present, and ever further into the past.

[142] McTaggart, 1908, pp460.

4.1.2 The Inconsistency of the A-Series

Having concluded in the first part of his argument that the A-series is fundamental to time, McTaggart then moves on to the second part of his argument: showing why he believes the A-series is inherently contradictory, and therefore cannot be true of reality. This is the crux of McTaggart's argument and is the key point of tension for his opponents, so I will explore this in detail.

As outlined in the previous section, events in time form both an A-series and a B-series, with each being necessary for time. So, if time is real, the A-series must be true of time. However, McTaggart believed that the A-series involves contradiction, and therefore cannot exist, meaning that time cannot be real. The A-series involves change, namely events changing their A-series positions. For this change to occur, each event must be first future, then present, and then past. No event could be past, present *and* future, or hold more than one of these positions within the series simultaneously because then nothing would change[143]. If change consists of the changing of A-series characteristics, as McTaggart believed it does[144], then an event must change from future to present to past. It is necessary for change that an event possesses only one A-series characteristic at once, and that events change with regards to which A-series characteristic they possess. In other words, if change is to be understood only as an event first being future, then being present and then being past,

[143] McTaggart, 1908, pp468.
[144] Although this is not the only thing change can consist in, as I will explore in chapters 5, 6 and 7.

the event needs to possess each of these characteristics in turn. If some event M were to be past and present and future, then it cannot change from holding one of these characteristics to holding another, which is what McTaggart believed change consists in[145]. The characteristics of the A-series, then, are incompatible: each event must only have one in order for the A-series to deliver change, and therefore for time to exist.

There are objections to McTaggart's second premise, which I explore in section 4.2. For now, though, let us move on to exploring McTaggart's motivation for premise 3; the A-series involves contradiction and cannot be true of reality.

McTaggart argued that for change, each event cannot possess more than one A-series characteristic because the characteristics are incompatible. Yet, McTaggart argued, all events do possess all three characteristics. Some present event M, is present, has been future, and will be past[146]. Past, present and future are all characteristics which apply to M. This is true for any event, as for any event that is past, present, or future, it also was or will be past, present and future. For example, some event, M, which *is* present, *has been* future, and *will be* past.

McTaggart acknowledges the obvious response: it is never the case, the objection will go, that an event *is* past, present and future. Rather, events possess these three characteristics successively. For example, it is not the case that event M *is*

[145] McTaggart, 1908, pp468.
[146] McTaggart, 1908, pp468.

past, present and future, but rather, event M *is* present, *has been* future, and *will be* past[147].

This response, however, traps McTaggart's opponent in a vicious circle. The issue with the position that A-series characteristics are successive is that it assumes the existence of time in order to account for the existence of time[148]. In trying to account for how the A-series delivers change, we must already assume that time passes; the passage of time is what gives an event it's A-series characteristics successively. However, the changing of A-series characteristics is what gives us the change we need for time to exist. Time must be assumed to account for the A-series. But we have already assumed the A-series to account for time. We assume one to account for the other, or, to put this in other words, we assume the existence of time in order to account for the existence of time. This traps us within a vicious circle because we must pre-suppose the existence of the A-series to account for the existence of the A-series[149].

There is another way to put across this response, which is not circular, but which instead leads to an infinite regress. We can try to avoid the incompatibility of the A-series characteristics by saying that an event is present, has been future, and will be past. However, by making this move we are invoking a secondary A-series, within

[147] McTaggart, 1908, pp468.
[148] McTaggart, 1908, pp468-9.
[149] McTaggart, 1908, pp469.

which we are placing the first A-series[150]. Return to our example, event M, which is present, has been future, and will be past. By claiming that these characteristics are successive, we are stating the following:

Event M is:

Present in the present

Future in the past

Past in the future

There are several concerns with this, however. The first concern is that, for McTaggart, stating that some event, M, '*will be* present' is the same as saying that event M 'is future present'. In other words, for McTaggart we are saying that event M possesses the A-characteristics future and present[151].

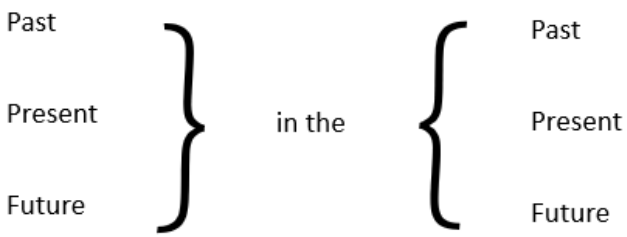
The second concern is that in attempting to avoid the incompatibility of the A-series, we have created an A-series in which our A-series passes. To put this another way, we have said that some event, M, has some position in the A-series in relation to some position in a secondary A-series. We have constructed a second-order A-series in

[150] McTaggart, 1908, pp469.
[151] McTaggart, 1908, pp469.

order to avoid the incompatibility of the (first-order) A-series[152]. Instead of saying that it is true of each event that it is past, present and future, we have instead said that it is true of every event that it is present in the present, future in the past, and past in the future.

The problem with making this move is that every event possesses the second-order A-characteristics past, present and future. This second-order A-series, then, suffers from the same incompatibility as the first-order A-series. No event can possess all second-order A-series characteristics because they are incompatible[153]. However, every event does possess all of them. Again, the response will be that no event possesses all of these second-order A-series characteristics but possesses them successively, i.e.,

Event M is:



[152] Dummett, 1960, pp498.
[153] McTaggart, 1908, pp469.

Fig 7: The nine characteristics of a second-order A-series[154].

Again, we assume a further A-series, a third-order A-series, to escape the contradiction within the second-order A-series. And, again, the third-order A-series is contradictory, and so on. In trying to rid ourselves of the contradiction we reproduce it in the explanation, adding ever further orders of A-series indefinitely, resulting in an infinite regress[155].

McTaggart concludes, then, that the A-series involves contradiction, and that any attempt to 'offset' this contradiction by arguing that events are not past and present *and* future will lead to the fallacies above. However, the vicious circle and infinite regress examples might suggest that if we need to assume the existence of time in order to account for the existence of time then, far from being untrue of reality, time is ultimate[156]. In other words, our seeming inability to avoid assuming the existence of time might be an indicator that time is a fundamental feature of reality. Though an attractive thought for the passage proponent, this does not help us to avoid these fallacies. Indeed, McTaggart himself quickly rejects the possibility of avoiding the infinite regress by arguing that time is ultimate. While an idea, such as time, may be true of reality even though it does not have a valid explanation, it cannot be true if it is

[154] Dummett, 1960, pp498.
[155] McTaggart, 1908, pp469.
[156] McTaggart, 1908, pp470.

internally contradictory, as the A-series is. Hence, McTaggart's conclusion is that time cannot be true of reality.

4.2 Arguments Against McTaggart

4.2.1 A Change in Things

I accept McTaggart's first premise, that time essentially involves (some kind of) change, and indeed this has largely been an uncontroversial assumption (examples include MacMurray, Braithwaite & Broad 1928, Gotshalk 1930, Smart 1949). Significantly more controversial is McTaggart's second premise; that change can exclusively be explained in terms of changing A-series characteristics. In this section, I shall look at an alternative account of change according to which change can happen to things, rather than to events.

Let us look again at McTaggart's search for change anywhere other than the A-series, in his example of the death of Queen Anne. The event is a death, the death of Queen Anne, the causes of the death, and the consequences of it, etc, all remain the same. The only characteristic which has changed is that the event was first future, then

became present, and then it was past and will continue to become ever further past[157].

Proponents of the view that change lies beyond changing A-series characteristics argue that McTaggart concentrates on rejecting the notion of changes in events and has overlooked the notion of changes in things. On this view, events do not change at all, events are changes which happen to things. To clarify, 'things', on this view, means that which exists in time to which events happen. Smart (1949) clarifies; "things change, events happen. The traffic light changes, but the changing of the traffic light cannot be said to change."[158]

According to this alternative account of change, things can have different qualities at different points of their history, and these differences in qualities are changes which can be expressed in terms of the B-series, for example:

'The poker is[159] hot on Monday'.

'The poker is not hot at times other than Monday'[160].

On this account of change, change consists in the difference between the poker on Monday, and every other day. The poker's being hot on Monday, and then cold the

[157] McTaggart, 1908, pg460.
[158] Smart, 1949, pp485.
[159] Note, underlining in this case denotes non-temporal, or tenseless meaning.
[160] Gale, 1966, pp148.

next day is a difference in qualities of the poker at different times. The poker has undergone a change in its qualities from one time to the next. This difference in qualities at different times is what constitutes change on this view.

However, in McTaggart's (1927) revised version of his argument on time, in 'The Nature of Existence Volume II', he addresses this objection and dismisses it as an account of change. If the poker is hot on Monday, and not hot at any other time, then it is a quality of the poker that it is hot on Monday, and a quality of the poker that it is not hot at any other time. Furthermore, these two qualities are always qualities which are true of the poker[161]. The points of the poker's history at which it is hot, and the points of the poker's history at which it is not hot are permanent, unchanging facts about the history of the poker. Therefore, nothing has changed about the poker, except it's A-series characteristics, for example, that the point at which the poker was hot is past.

The view that there is change in things has been put forward multiple times in the history of the debate surrounding McTaggart's unreality of time argument (examples include MacMurray, Braithwaite & Broad 1928, Gotshalk 1930, Smart 1949), but a particularly seminal paper by Gale (1966) pushes back against McTaggart's reply. Gale believes that McTaggart's reply fails to show that things do not change because McTaggart has changed tenseless language into a tensed statement. As Gale has it:

[161] McTaggart, 1927, pp15.

> "[McTaggart] argues that because the tenseless statement "The poker *is* hot on Monday is *always* true, i.e., true independently of time in the sense that the use of this sentence makes a true statement every time it is uttered, the state of affairs described by this statement must always, i.e. in the temporal sense of "always" be occurring or existent".[162]

Or, to put this another way, McTaggart has falsely equivocated the statements:

(i) "The poker <u>is</u> hot on Monday' is <u>always</u> true.

(ii) The poker <u>is</u> hot on Monday' is always true".[163]

Gale claims that McTaggart's reply fails because McTaggart is applying his own ideals of eternalistic ontology to what Gale claims is tenseless language[164].

(i) and (ii) are both claims referencing the B-characteristics of an object, which McTaggart claims are permanent and therefore cannot result in change. What Gale seems to be claiming here is that in (i) the state of the poker is permanent in the sense of fixed within a state of reference, and McTaggart has mistakenly assumed this 'permanence' to mean 'persisting in perpetuity'. To put this another way, McTaggart's

[162] Gale, 1966, pp148.
[163] Note: In these two examples, underlining denotes a tenseless reading.
[164] Gale, 1966, pp148.

interpretation of the use of the word 'always' in (ii) draws a metaphysical conclusion from what is supposed to be merely a semantic move (as in (i)).

This same point was also raised in an earlier paper by Mink (1960), who accepts that the different interpretations of 'permanent' may cause some confusion in certain cases, but that it makes no difference to McTaggart's conclusion. Mink claims that, regardless of how the permanence of the B-characteristics are interpreted, they are still permanent, and no interpretation can introduce change to these B-characteristics[165] which, if we have already accepted McTaggart's premise (1), is needed for time.

I follow Mink here in arguing that the B-characteristics are permanent regardless of how the language is interpreted. While Gale believes that McTaggart has confused tensed and tenseless language, I believe that Gale has misinterpreted the nature of McTaggart's argument. Gale argues that McTaggart is drawing a metaphysical conclusion from a semantic move, however, McTaggart's paradox is a metaphysical problem. In attempting to explain away the metaphysical problem using tenseless language, Gale is suggesting that the metaphysical problem can be resolved via a semantic move. However, regardless of whether the language is tensed or tenseless, the properties of the poker do not change on Gale's account.

[165] Mink, 1960, pp256.

Gale is far from the only critic of McTaggart to suggest that McTaggart has misunderstood tensed facts. Further examples include Broad (1938), Prior (1967), and a particularly seminal example from Lowe (1987). In the next section, I consider Lowe's criticism of McTaggart and detail how Lowe attempts to solve McTaggart's metaphysical problem via a semantic solution.

4.2.2 Arguments against McTaggart: Lowe on the Indexical Fallacy

Despite some resistance to McTaggart's second premise (as per Gale 1966, Gotshalk 1930, Smart 1948), Lowe (1987) is happy to accept this premise, or at least accept that it is plausible. Instead, Lowe denies the project of premise 3, arguing that McTaggart's reasons for believing that there is an inherent contradiction in the characteristics of the A-series are based on a mistake in the logic of indexicality, or token-reflexiveness.

Token-reflexive expressions are expressions which are true or false depending on the circumstances in which they are uttered and include expressions such as 'now', 'past', 'present', and 'future'. For example, the token-reflexive expression 'I am writing now' is true at the time of my writing, but later, when I am no longer writing, it will be false.

Lowe's proposed solution to McTaggart's paradox addresses only the semantics which arise from this problem. However, McTaggart's paradox is concerned with an issue in the metaphysics. So, if Lowe's provides a solution to some semantic problem, this still does not solve any issues with the underlying metaphysics. Further, I explore an unsolved problem of indexicality, thanks to Dummett (1960) which shows that, even if we think Lowe alleviates some of the difficulty for the passage proponent, a problem remains with regards to taking indexicality seriously.

I will explain the basis of Lowe's response to McTaggart and consider objections to Lowe, thanks to Le Poidevin and Mellor (1987). These objections show how Lowe's argument can be easily misinterpreted, so in response to LePoidevin and Mellor, I will offer clarification thanks to Lowe (1987b).

Lowe argues that the metaphysical problem of the inconsistency within the A-series arises because McTaggart views time *sub specie aeturnitatis*. When viewed from 'outside' time each event is past, present and future. That is, when we think about time from outside of our temporal perspective, we can say of each event that it is past for some future time, and future for some past time. Take, for example, 'I am writing now'. When I attempt to view my writing from outside of any temporal perspective, I think the event of my writing is present for the present time, future for some past time, and past for some future time.

However, Lowe believes that viewing time this way is to fail to take our temporal perspective seriously. When we take our temporal perspective seriously, as Lowe argues we must, we can only see time from within, and specifically from within our own temporal perspective. In this case, 'I am writing now' simply means I am writing now. I must take the token-reflexive term 'now' seriously because this is the only perspective available to me. As we must take our temporal perspective seriously, Lowe argues that events cannot be past, present *and* future, thereby rejecting McTaggart's third premise.

As Lowe rejects McTaggart's claim that there is an inconsistency within the A-series, he rejects that there is any requirement to invoke a hierarchy of A-series characteristics. So, while Lowe accepts that an event can described as 'past', Lowe rejects that we can describe an event as 'past in the future'. Importantly, Lowe frames his discussion around the *tenses*, past, present and future. The tenses, past, present and future are the simple tenses which we use to describe the temporal circumstances of an event, or when an event is. So, the tenses, past, present, and future refer to the A-characteristics of a time series. A simple tense, then, such as past, present, and future, describes the characteristics of an event on a first-order time series. If we posit a second-order time, we use higher-order tenses, which result in complex tenses such as 'past in the future'.

Lowe, then, invites us to consider whether we can make sense of higher order tenses, and asks, 'is it true to say of a future event that it will be present (is 'present in

the future')?'[166] McTaggart argued that every event has all three A-series characteristics so that we must say of a present event e, 'e is present in the present', 'e is past in the future' and 'e is future in the past'. This is the first step onto the infinite regress, but Lowe denies not only that we must take this step, but also that this step even makes sense. He invites us to consider whether we can make sense of this addition of a second-order time.

Lowe argues that we cannot, and instead offers an alternative:

> "What may be correct is something significantly (though not unmistakably) different, namely, that if e is a future event, then there will be a time when the sentence 'e is present' is true (expresses a true statement)"[167].

McTaggart argued that a statement such as 'e is future' means 'e is present in the future' which is contradictory. What Lowe does here is reject the coherence of complex tenses such as 'present in the future' in favour of simple tenses such as 'e is happening now'. For Lowe 'e will happen' does not imply, as McTaggart thought, that 'e is happening now in the future' but instead implies that there will be a time in the future at which the statement 'e is happening now' will be true.

[166] Lowe, 1987a, pp64.
[167] Lowe, 1987a, pp64.

McTaggart's mistake, according to Lowe, is in thinking that events can be present for some future time. Lowe points out that what McTaggart has overlooked is that there is an indexicality, or token-reflexiveness, which is ineliminable to the use of A-series expressions. We can no more use the term 'present' to refer to another time than we can use the term 'I' to refer to another person.

So, 'e is present' means 'e is happening now', and the truth of this statement is context-dependent. As Lowe has it:

> "the utterance of a token of the sentence 'e is happening now' is true if and only if the token is uttered at a time t such that e is happening at t (where the last three occurrences of 'is' are to be read tenselessly)".[168]

(However, Lowe makes it clear that he does not intend 'now' to mean 'at the time of utterance' because this is clearly false).

McTaggart's argument that an event which is future will become present and then will become past is incoherent in Lowe's view. Lowe is not saying that there *is* a future event *e* which will become present. Instead, Lowe is saying that if future event *e* will occur then it will be possible at some point in the future to make a true statement 'e is happening now'. What Lowe can say *now* about *e* is that '*e* will happen tomorrow',

[168] Lowe, 1987a, pp65.

but he would not be making a meaningful statement about the existence of *e*. He would instead be expressing the same as when he says tomorrow 'e is happening now'. Therefore, Lowe believed his account avoids McTaggart's problem that *e* is past, present, and future simultaneously[169].

4.2.2.1 Le Poidevin and Mellor on Lowe.

I will briefly look at a reply to Lowe, thanks to Le Poidevin and Mellor (1987), who argue that, in attempting to avoid McTaggart's infinite regress, Lowe creates another of his own. Ultimately, Le Poidevin and Mellor's reply to Lowe is based on a misunderstanding of what Lowe is doing. Though their reply to Lowe fails, it is an interesting inclusion here, because despite Lowe's forthright rejection of a view of time *sub specie aeternitatis*, Le Poidevin and Mellor assume a view *sub specie aeternitatis.* This is an example of the missteps we make when we assume this view of time, which I suggested in chapter 1.

Le Poidevin and Mellor argue that, in his rejection of compound tenses, Lowe condemns himself to an infinite regress as vicious as McTaggart's original regress. They restate McTaggart's original argument, that any event *e* must either be past (P), present (N) or future (F), which are incompatible predicates, and yet, every event can

[169] Lowe, 1987a, pp66.

have all three predicates applied to them: P*e* and N*e* and F*e*[170]. Any attempt to explain away this contradiction through complex tenses such as NN*e*, FP*e*, etc, merely leads to an infinite regress. They note that Lowe's attempt to escape this regress involves accepting simple tenses such as N*e* ('e is present') while rejecting complex tenses such as FN*e* ('e will be present').

Le Poidevin and Mellor argue that what Lowe has done is export the second component of the complex tense, F, by specifying when the simple tense N*e* is true[171]. This, they argue, can be done indefinitely, leading to regress. Take 'NT', 'PT' and 'FT' to mean 'is now true', 'was true' and 'will be true' and the regress will look as follows:

McTaggart	Lowe
NE	Ne
NNe	'Ne'NT
PFNe	'"Ne"FT'PT

[172]

Fig 8: Tenses in McTaggart vs Lowe.

[170] Le Poidevin and Mellor, 1987, pp535.
[171] Le Poidevin and Mellor, 1987, pp535.
[172] Le Poidevin and Mellor, 1987, pp535.

They argue that Lowe has replaced compound tenses with a hierarchy of simply tensed meta-languages[173]. The temporal truth condition of one simply tensed sentence is given by the sentence in the next language up, and this hierarchy of meta-languages leads to the same regress as the original compound tenses. Rather than each hierarchy being past, present, and future, in Lowe's case, each hierarchy has the incompatible properties true and false. All true tensed sentences are sometimes false, but the response which will follow will be analogous to the response in the original McTaggart account, namely that it will never be true that a tensed statement will be true and false at the same time. We can say when a tensed statement is true and when it is false by using meta-language to specify its truth conditions[174]. The statement N*e* is true, we might say, whenever N*e* is simultaneous with *e.* A truth-condition such as this is a B-series truth-condition and therefore expresses a tenseless truth. We cannot use a B-series truth condition in the Lowe account of time and change, however, as Lowe wants to accept McTaggart's premise (2), that A-series expressions account for change. Therefore, Lowe must give his tensed statements tensed truth conditions, which is what leads to the regress pictured above.

In Lowe's (1987b) reply to Le Poidevin and Mellor, he points out that they have not actually unearthed a problem with this account because they have attributed claims to Lowe which he does not make. Le Poidevin and Mellor's objection to Lowe seems to be based almost entirely on tensed facts. However, as Lowe points out in his

[173] Le Poidevin and Mellor, 1987, pp536.
[174] Le Poidevin and Mellor, 1987, pp536.

reply, his account does not make use of either tensed or tenseless facts. I believe that Le Poidevin and Mellor have not fully appreciated Lowe's position. Lowe argues that we should think about time from 'inside the box' so to speak, such that we cannot view time from outside of time. According to Lowe, it is through trying to adopt an eternalist, *sub specie aeturnitatis* view of time that McTaggart believes the A-series to involve contradiction. Similarly, it is through attempting to adopt the same view that Le Poidevin and Mellor mistakenly see Lowe as recreating a similar regress.

Lowe denies that his position results in infinite regress for the very same reason that he believes that McTaggart's A-series does not result in an infinite regress. If we view times from a God's eye view then we see every time as past and present and future from the perspective of every other time, as McTaggart suggests. However, Lowe seems to suggest that we adopt a view akin to perspectival realism, according to which one's perspective is taken seriously. In other words, when we say 'e is future' we do not mean 'e is present for some future time', we simply mean it is true that e is future. To say 'e is now, then' would make as little sense as saying 'you are here, there', you are not here over there, you are simply there[175].

By denying that we can view time *sub specie aeturnitatis* it seems, ostensibly, that Lowe offers us a way to avoid McTaggart's paradox. However, despite my wanting to agree with Lowe that we are too readily inclined to view time *sub specie aeturnitatis* and too readily accept the problems which come along with it, I am not convinced that

[175] Hare, 2010, pp762.

Lowe gets to the heart of the problem. McTaggart has unearthed a genuine metaphysical problem, and Lowe does not consider a solution to the metaphysics, opting instead to focus on a perceived semantic issue.

The knot that is McTaggart's paradox is a challenging one to unpick for the passage proponent. The solution Lowe offers attempts to tackle the semantic problems which arise from the metaphysical problem. But if we take McTaggart seriously and see the problem he unearths as a genuine problem for time, and not merely a problem in the language surrounding time, then fixing the semantic problem will not change the underlying metaphysics. By addressing only the language, then, Lowe attempts to fix a metaphysical problem by fixing the associated semantic problem. However, McTaggart never intended to suggest a semantic problem, focusing instead on revealing an objective problem within the metaphysics. Ingthorsson (2016) stresses this point, rejecting the notion that McTaggart is guilty of confusing a metaphysical problem for a semantic one. He details that McTaggart "is talking about the world, and only ever takes a step back to talk about our talk of the world when he thinks that his particular use of words invites the risk of misunderstanding"[176]. McTaggart's defenders, such as Ingthorsson, and Dummett (1960), argue that to assume McTaggart has made such a simple mistake is to neglect to take McTaggart seriously.

[176] Ingthorsson, 2016, pp90.

So, even if we take our temporal perspectives seriously when it comes to tense, and this changes the language we can sensibly use, it is unclear how this helps to solve the problem of the metaphysics. Lowe, then, cannot salvage the passage of time on behalf of the passage proponent. However, even if we thought Lowe could alleviate some of the problem, Dummett (1960) goes on to argue that McTaggart has genuinely unearthed a problem concerning indexical, or token-reflexive expressions. I shall go on to detail Dummett's argument and the unsolved tension present in this debate.

4.3 In Defence of McTaggart: Dummett and the Necessity of Token-Reflexive Expressions.

Famously, one of the main defenders of McTaggart, Dummett (1960) offers an analysis of McTaggart's paradox in which he argues that McTaggart's paradox rests upon the assumption that a complete description of reality is possible. It is this assumption, coupled with the incompatible, yet (Dummett argues) equally compelling assumption that time is real, in which the tension lies. In this section I explore Dummett's motivation for defending McTaggart and why I think Dummett shines further light on the importance of McTaggart's paradox and the difficulty this poses for the passage proponent. I will outline the details of Dummett's defence of McTaggart, showing how the passage proponent (particularly the passage proponent who posits

the existence of more than one time) faces a hard choice between the reality of time and a complete description of reality.

Dummett tells us that those who desire to challenge McTaggart's paradox may argue that it is the token-reflexive expressions, past, present, and future, which McTaggart uses which leads him to believe there is a contradiction when there is not. If we remove the token-reflexive expressions, the objection may go, then we see that there is no contradiction. As we saw in section 4.1.2, we can attempt to remove the contradiction by specifying the circumstances in which a predicate can be asserted of an event, i.e., to avoid 'e is past and present and future', we can say that 'e is past at a moment of future time'. The problem arises because the specification was in terms of token-reflexive expressions, creating an infinite regress of predicates of the same type[177]. Dummett claims that McTaggart's opponent must therefore reformulate their objection to remove the token-reflexive specifications as follows:

(i) A predicate in which a token-reflexive expression occurs essentially can apply to an entity if there are any circumstances in which it may truly be asserted of the entity.

(ii) Two such predicates are incompatible when there exist no circumstances in which they can both be truly asserted of any one entity.

[177] Dummett, 1960, pp499.

(iii) It is possible for two incompatible predicates to apply to one and the same entity.

(C) Therefore, McTaggart has not truly unearthed a contradiction[178].

Dummett, however, argues that it is objections such as this which show that McTaggart's argument is not always taken seriously, and if resolving the contradiction was simply a case of removing token-reflexive expressions, then it was neglectful of McTaggart that he did not apply his argument to space or personality[179]. If McTaggart's argument was made analogous to space and to personality then the same contradiction would have emerged, as every place would be both 'here' and 'there', and every person both 'I' and 'you', just as every moment is 'past', 'present' and 'future'. Of course, resolving the contradiction in the A-series is not as simple as removing token-reflexive expressions, as closer examination of the problem shows.

If we describe a series of objects in space using token-reflexive expressions we might describe an object as being 'here', or 'there', 'near', or 'far'. I might describe Nottingham as being nearby, or here, whereas Tokyo I would say is 'far away,' or 'there'. I can, of course, remove these token-reflexive expressions and still provide a description of where these places are, for instance, I can say that Nottingham is 9500

[178] Dummett, 1960, pp499.
[179] Dummett, 1960, pp500.

miles away from Tokyo. In other words, I can give a complete description of objects in space without including my own spatial perspective.

Dummett argues that McTaggart's point is that the same is not true for time. Temporally token-reflexive expressions enter into time essentially because the A-series is essential for time. Therefore, according to both Dummett and McTaggart, we cannot give a complete description of time without temporally token-reflexive expressions. If time were real (and the passage proponent, generally, wants to argue that it is) then we are unable to give a complete description of reality without temporally token-reflexive expressions. We would be able to give many different descriptions of reality, with some containing 'e is happening now', others containing 'e happened' and others containing 'e will happen'. Yet this is not a complete description of reality, because the question will remain: 'which event is occurring now?'[180].

It seems then that the objector must abandon this line of criticism, because, despite the apparent contradiction within the A-series, token-reflexive expressions are essential in providing a complete description of time. Dummett acknowledges that this might suggest, not that time is unreal, but rather that time is real, and so fundamental and irreducible that it cannot be explained away[181]. If this were true, and a complete description of time cannot be observer-independent, then it would suggest that a complete description of reality, i.e., an observer-independent description of reality,

[180] Dummett, 1960, pp501.
[181] Dummett, 1960, pp502.

cannot exist, which, Dummett asserts, is counterintuitive. Dummett shows, then, that McTaggart leaves the passage proponent with a choice of abandoning a commitment either to the reality of time, or to the belief that a complete description of reality is possible.[182]

If Dummett is correct, then positing the passage of time seems to require abandoning the possibility of a complete description of reality. This, combined with the difficult bullets the passage proponent already has to bite regarding the rate of passage argument in chapter 3, leaves the passage proponent in a very difficult position. The problems for the passage of time are mounting and a successful resolution to these problems which absolves passage has yet to be found. This provides further motivation to explore an alternative to the passage of time, and instead investigate temporal dynamism.

Chapter Conclusion

There are what I take to be two distinct suggestions, thanks to Lowe, which I would like to take forward. Lowe suggests, first, that to escape McTaggart's paradox, we might attempt to develop an alternative understanding of flux[183]. I have begun

[182] It is worth noting that the tension between the reality of time and a complete description of reality may also be a problem for the proponent of temporal dynamism. However, the problem would be different on such an account. For example, if the DEP proponent was asked to give a complete description reality, they could do so, but that description would be different whenever they were asked.
[183] Lowe, 1987, pp69-70.

laying the groundwork for this in chapters 1 and 2 and will return to this in the remaining chapters. Second, Lowe suggests that an escape from McTaggart's paradox is to "build on the idea that, while time is real, the future (and perhaps also the past) is not"[184]. An event can only be past, and present, and future, if past, present and future all exist. However, if we take the presentist view, that only the present exists, then it will not be the case that some event is past, present and future, because an event can only be present. I shall motivate presentism as a solution to both McTaggart's paradox and the rate of passage argument in the next chapter.

[184] Lowe, 1987a, pp69.

Chapter 5

Presentism

Chapter overview:

In this chapter, I argue for presentism as my preferred theory. First, in section 5.1, I argue that presentism is the theory which best avoids McTaggart's paradox. A significant motivation for presentism is that it is supposed to escape McTaggart's paradox, offering a way to preserve the dynamic aspect of time. However, I consider an argument thanks to Tallant (2010b), who argues that McTaggart's paradox can be reformulated so that it infects every version of presentism. I conclude this section by arguing that existence presentism is free from this concern. As existence presentism does not posit that there is a 'thing' time and is not a theory about time, but a theory about what exists, I can avoid the problem that Tallant proposes.

In section 5.2 I consider a problem for the presentist which I do need to provide a response to: the truth-maker challenge. As the presentist posits only the existence of the present, or presently existing things, and posits that the past did exist, or that things were another way, the presentist needs to make true propositions about the past. I introduce the truth-maker problem, and the specific nature of this problem for

presentists, in sections 5.2.1 and 5.2.2. In section 5.2.3 I consider a particular version of this challenge thanks to Leininger (2015), who proposes the 'one instant test'. In sections 5.2.3 – 5.2.6, I explore various responses to this challenge and argue that both the nefarious 'cheating' presentist, and the thisness presentist can meet Leininger's challenge.

I go on, in section 5.2.7 to explore a criticism of Leininger's one instant test thanks to Daniels (2022), and his subsequent argument against thisness presentism as a method for satisfying the underlying problem of the one instant test. I argue that Daniels is asking more of the presentist than is required.

I conclude that presentism, particularly existence presentism, is the best way to escape the problems outlined in both chapters 3 and 4. Further, I argue that the presentist can account for truths about the past by becoming a nefarious presentist, or by adopting the tools of non-rigid ontological dependence utilised by the thisness presentist.

Introduction

Presentism, broadly, is the view that only the present exists. More formally, always, only present things exist. I argue for presentism, both as my preferred theory and as an alternative theory which offers a dynamic account of time, and yet is not

such easy prey for those arguments against passage in chapter 4. The avoidance of McTaggart's paradox is one of the main motivations for presentism, as well as it being argued for as the common-sense view of time (Bigelow 1996, Sider 2001, Markosian 2004, Tallant 2009, Ingram 2019).

However, I do consider an argument, thanks to Tallant (2010b), who suggests that presentism can also fall victim to McTaggart's paradox. I outline Tallant's argument and acknowledge that this does pose some difficulty for the presentist. However, I conclude that, as my own preferred theory of presentism is really about existence, and not about time at all, then I do not believe that my understanding of presentism can be infected by this reformulation of McTaggart's paradox.

In exploring Tallant's argument, I also outline another problem for the presentist: that the presentist needs to account for, or make true, propositions about the past. This challenge disputes that there is any passage of time or dynamism on the presentist account. Unless the presentist can show that there were previous times (or previously existing things), unless they can account for the past, the present is reduced to a stuck moment. For the presentist to account for the passage of time (or for the presentist to posit dynamism) the presentist needs to account for the truth of how things *were*.

I will outline a particular version of the 'truth-maker' challenge, thanks to Leininger (2015) who argues the presentist cannot hold both that only the present

exists and that it changes. Leininger suggests a test, the 'one instant test', which determines whether the presentist can in fact account for past truths.

I will examine several presentist attempts to pass Leininger's test. The aim of these presentists is to account for passage by grounding past truths, many of which fail. However, there are two views, the cheat's grounding principle, and thisness presentism which pass Leininger's challenge.

5.1 Presentism and McTaggart's Paradox

In the previous chapter, I suggested presentism as a theory well placed to avoid some of the pitfalls facing the passage of time. This is not to say that presentism does not face its own challenges, however, as stated in chapters 1 and 2, I will argue for a non-standard version of presentism. As such, I shall not face all the same challenges as those faced by more conventional versions of presentism (I shall outline which challenges these are in chapter 8). My focus in this chapter, though, is to defend presentism from those arguments which attempt to prove time cannot pass or be dynamic.

In light of McTaggart's paradox, an attractive feature of presentism is that events cannot have incompatible A-properties if there is only the property of presentness. Generally, presentists deny the existence of past and future times, which

in turn means they reject that any existing thing can have the property of pastness or futurity. (Of course, the presentist wants to say that past things *did* exist and that future things *will* exist, but that they do not exist simpliciter. I will come back to this problem in section 5.2.) Presentists, generally, therefore deny the existence of two of the incompatible A-series properties, thereby, ostensibly, avoiding McTaggart's paradox.

It may seem, then, that McTaggart's paradox is of no concern to the presentist. Indeed, this has been argued for by presentists and non-presentists alike (Le Poidevin 2002, Craig 2001, Bourne 2006). However, Tallant (2010b) believes that there is a way of generating McTaggart's paradox so that it does indeed create a problem for presentism[185]. I will outline Tallant's argument, showing how a reformulation of McTaggart's paradox is a problem for more standard versions of presentism (those versions of presentism which posit a present moment). I will go on to discuss how the presentist can avoid Tallant's reformation of the paradox by adopting existence presentism.

Tallant (2010b) argues that all forms of presentism fall prey to a version of McTaggart's paradox. This is because the present is of non-zero duration, and

[185] Oaklander (2010) also formulates a version of McTaggart's paradox which infects presentism. However, as Oaklander aims this at ersatz presentism, and this is not a version of presentism I hold, I will not outline this argument here.

therefore has parts which are earlier than/later than other parts, and, as time passes, all three A-series properties are applicable to (different parts of) the present.

Tallant begins by asking us to suppose that the present has no duration, that it is akin to a point. As, given presentism, only the present, and presently existing things exist, then given that the present has no duration, everything that exists has no duration. However, Tallant argues that this cannot be the case. It is false, the argument goes, that nothing has any duration[186]. It seems I want to say, at the very least, that *I* have duration. So, how can the presentist account for this?

Tallant recognises one response from the presentist; that my duration consists in my existing, my having existed, and that I will exist[187]. One way the presentist can account for this is by positing abstract (ersatz) times which hold relations to one another and so make true propositions about duration over different times. However, Tallant offers two criticisms of this response; first, that claims concerning my duration ought to be about me, not about abstract representations of me. Second, that positing ersatz times does not satisfactorily account for the 'gap' between what exists and what did exist. I shall elaborate on both of Tallant's criticisms here, which are largely based on how the presentist can make true propositions about the past, and I shall then return to offer responses to the truth-maker problem in section 5.2.

[186] Tallant, 2010b, pp272.
[187] Tallant, 2010b, pp272.

To elaborate, the first criticism, thanks to Merricks (2007), that truths about my duration should be about me, and not some abstract representation of me, is a concern about what serves as an appropriate truth-maker. For a proposition to be made true, it should be made true by the thing it is about. Take, for example, the proposition <the cat is sitting on the laptop>. For this proposition to be made true, it must be made true by the cat. It cannot be made true by me, or by my pen. As ersatz times are not the past, merely some abstract representation of the past, then Merricks argues that appealing to ersatz times to make true some proposition is to fail to offer an appropriate truth-maker. So, Tallant concludes, as my duration is about me, not some representation of me, we cannot appeal to representations of me to ground the truth of my duration.

To elaborate on the second criticism, the thought is that a *representation* of how things were, cannot *necessitate* how things were. If we posit some abstract representation of the past, how can we possibly say that this representation necessitates that the past existed. For example, let us posit some abstract time, t1, and say that the abstract time t1 represents me reading yesterday. It seems that we might be able to posit this abstract time, and yet I was never reading yesterday. This is something the presentist needs to avoid in order for abstract times to make true propositions about the past. Again, in section 5.2 onwards, I will elaborate on these truth-maker problems, showing in more detail why the ersatz presentist fails, and what other options the presentist has instead.

However, the presentist has not avoided the problem yet. Tallant goes on to argue that, even if the presentist can account for duration, there is a further problem they must respond to; the problem concerning the duration of the present. To illustrate this problem, let us first look at a spatial analogy, thanks to Tallant;

> "In the case of a spatial region, it is true to say of that region that, if the region is composed of points, then the subtraction of a point from that region does not alter the volume of the region"[188].

If this is the case, then we can infer the following for the temporal case:

> "In the temporal case, if we subtract away a point from a persisting object, we shouldn't change the length of the duration of that object—on the assumption that the duration of the object is non-zero."[189]

This, Tallant tells us, is the consequence of temporal duration consisting of points, which, he argues, it must. If the present consisted of only one point (if it was of no duration), then when we subtract away a point from a persisting object, we would considerably change the duration of that object. Looking again at my duration, if my duration is non-zero, which I want to argue it is, then if we take away a point (a durationless present) from my duration, then, given presentism, I am destroyed[190].

[188] Tallant, 2010b, pp274.
[189] Tallant, 2010b, pp274.
[190] Tallant, 2010b, pp275.

Surely, the argument goes, it cannot be correct that if we remove a point of zero duration from an object with a non-zero duration, we destroy the object. Therefore, the present cannot be of no duration.

The present, then, must be extended. Which is to say that the present is, in some way, made up of smaller durations[191], the sum of which constitutes the present. Further, in order to generate a duration greater than each individual duration, temporal relations must hold between these smaller durations. To put this another way, there must be multiple portions of the present, which stand in earlier/later relations to one another. Of course, all of these parts are still 'the present', but the present is made up of a set of parts which all instantiate presentness.

Having established that there are many parts of the present which stand in earlier/later (B-theoretic) relations to each other, Tallant then brings us back to McTaggart. Consider two portions of the present, r1 and r2, where r1 Is earlier than r2[192]. When one portion of the present, r1, is present, then the next portion, r2, must be future. However, r2 is also present (as well as being future). When we consider some part of the present, r3, which is later than r2, r3 must be future. But r3 is also present, and so r2 is past (as well as being present and future) Thus, McTaggart's paradox infects presentism.

[191] Tallant notes that it makes no difference to the argument whether we understand the present to be of minimal duration, or to be extended so that it is comprised of gunky parts, etc.
[192] Tallant, 2010b, pp278.

In response to Tallant, I do see that this is a valid challenge for the presentist. However, I am not concerned that it heavily impacts my project here. To understand why, I consider a response on behalf of the presentist due to Gentry (2021). Gentry suggests that the presentist can avoid answering the problematic question of the duration of the present. This is because the presentist can adopt the view that time is nothing more than a model, or a tool, to measure change. In this way, time would be little different from a clock. The atomic clock, for example, is a tool constructed to measure the change in caesium atoms. Time, on this understanding, would be just another example of a constructed tool for measuring change. Further, according to Gentry, when we understand time in this way, we can define the present to suit our purposes[193].

Looking at Gentry's response, then, time is not a 'thing' which is made up of individual instants. There are no moments which construct time, and so there is no moment that is the present. As for questions of duration, when there is no 'thing' that is time, questions of duration no longer fall to the philosopher, but to the scientist. This is because, as presentism ceases to be a theory about a 'thing' that is time, duration becomes a tool for measuring change, which falls within the purview of the scientist[194].

[193] Gentry, 2021, pp9367.
[194] Gentry, 2021, pp9368.

As discussed throughout chapters 1-3, my preferred version of presentism, existence presentism, offers the presentist a similar solution to Gentry's. On my account of presentism, as I shall explain further in chapters 6, 7 and 8, the 'present' does not exist as a time. Instead, what we mean when we say that something is present is simply that it exists. Presentism, then, ceases to be a theory about time and becomes a theory about existence, just as Gentry suggests. I propose that there is no such thing as the present moment, and therefore there is no question as to the duration of the present moment. Asking such a question of my account does not make sense, and I cannot reasonably be asked to respond to it. Therefore, Tallant's reformation of McTaggart's paradox cannot find purchase on my account.

The version of presentism I argue for, then, is not infected by this revised version of McTaggart's paradox and can then serve as the best method for avoiding both McTaggart's paradox and Tallant's reformation of McTaggart's paradox. I will now return us to the problem of truth-making which I touched on earlier in this section. I will expand upon the presentists truth-making problem, and solutions offered, before detailing the tools of my preferred methods; the cheat's grounding principle, and thisness presentism.

5.2 Presentism and Truth-making

5.2.1 Truth-making

There are further problems that the presentist must contend with, and that I must answer for, even on my conception of presentism. That is, even if my version of presentism is about what exists, rather than about what exists *at the present*, I still want to be able to say that things did exist, other than what exists now. I want to be able to make true propositions about the past and make true that what exists changes.

The presentist, generally, holds that only the present, or only present things, exist. The past did exist but exists no longer. This leaves the presentist with a problem. If only the present exists, how can the presentist account for truths about the past? This problem is rooted in the widely held notion that what is true depends upon, or is made true by, what exists. There is some debate as to precisely how 'truth-making' should be understood[195], the details of which go beyond the scope of this thesis. As such, I will not be arguing for a particular theory of truth-making here. Instead, I shall assume the widely held position that, generally, for any true proposition,<p>, there exists some entity in virtue of which <p> is true[196].

For the presentist, accounting for the truth of a proposition such as <my cup contains coffee> is a straight-forward task. There are presently existing things, i.e., my

[195] This discussion is beyond the scope here, but see discussions by Daly in Beebee, H. 2005, chapter 6. These discussions concern variations in the strength of the truth-making principle.
[196] Rodriguez-Pereyra, 2005, pp18.

cup and the coffee inside it, which serve as truth-makers for this proposition. The difficulty for the presentist lies in accounting for truths about the past. The presentist wants to allow that past things did exist, but as they do not exist any longer, these things cannot ground truths about the past.

Take, for example, <Socrates was a philosopher>. According to the presentist, Socrates does not exist, so the presentist has a challenge before her. All she has available to her are present (existing) things, none of which include Socrates, and so none of which can make true <Socrates was a philosopher>. So, it seems that the presentist is in trouble because she only has truth makers for present truths. If she can only ground present truths, how can she make true propositions about any moment before this present moment?

It looks like the presentist's truth-maker problem becomes a problem of accounting for any temporal passage. After all, if she cannot provide truth-makers for anything previous to what presently exists, she faces the challenge of how to make true that anything else ever did exist. That is, if she cannot make it the case that any other time existed, then she cannot make it the case that the world was anything other than this present moment. She can make true only propositions about the now, as it is now, but cannot make it true that anything else ever existed, and therefore that time ever changed or passed. This is the basis of the presentist's problem of grounding past truths, which has been the subject of much exploration, for example, Leininger (2015), Keller (2004), Cameron (2011), Caplan & Sanson (2011), Baia (2012). I shall

explore the truth-making problem for the presentist thanks to Leininger (2015), who developed a test to determine whether the presentist can indeed make true propositions about the past.

I will outline Leininger's challenge to the presentist: that the presentist cannot ground truths about the past, and therefore, it cannot be the case that there was any moment before the present moment. Leininger argues that this leaves the presentist with a stuck present. She explores several options for the presentist to ground truths about the past in presently existing 'surrogates' for past things but argues ultimately that they fail.

I shall show that the presentist can ground truths about the past, and therefore on their account, it is the case that there were past times. The presentist can do so, providing that they allow for the existence of presently existing entities with a non-rigid ontological dependence upon that which they stand as surrogates for.

5.2.2 Truth-making Challenges for Presentism

There has been much debate as to precisely how presentism should be defined. The central claim of presentism, that only present objects exist, can be understood in a variety of different ways, and I shall not attempt here to define it in

such a way that will appeal to everyone. For this chapter, I shall understand presentism according to the two central ontological commitments outlined by Leininger:

> "The Present Thesis [PT]: Only the present exists: past and future moments do not exist.
>
> The Change Thesis [CT]: What is present changes: there is a difference in what exists from moment to moment."[197]

According to Leininger, the presentist cannot account for temporal passage because these two theses are incompatible. To better understand this alleged incompatibility, let us look more closely at CT by comparing presentism to the moving spotlight view.

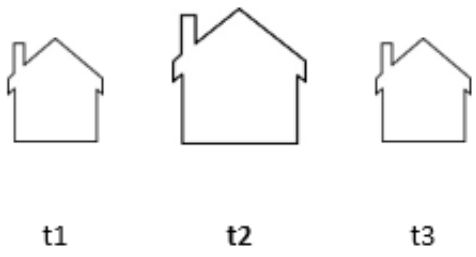


Fig 9. The Moving Spotlight.

[197] Leininger, 2015, pp726.

On this picture, we have different time-slices, t1, t2 and t3. T2 is 'lit up' by the spotlight, denoting that this moment is present, while t1 represents some past time, and t3 represents some future time. We can satisfy CT in Fig 9, establishing temporal change, by comparing the successive moments of the moving spotlight. For example, the present moment, t2, differs from the previous moment t1. However, PT tells us that what exists is only the present; therefore, a presentist world would not look like Fig 9, rather, it would contain only the present moment as in Fig 10.

t1

Fig 10. Presentism.

In this picture, only the present time (time-slice) exists, the presentist cannot point to any other moment and compare it to t1 because there is no other moment. Fig 10 satisfies PT, but there is no temporal change contained within it, and no way to include it. The presentist is thus committed to both PT (Fig 10) and CT (Fig 9), which are incompatible. To satisfy CT and establish temporal change, more than one moment is required.

5.2.3 The One Instant Test.

The presentist faces a problem then. She cannot account for temporal passage by comparing different successive moments, as in the case of, of example, the moving spotlight theorist. As she posits only the existence of the present moment, she must attempt to account for temporal change by appealing only to the present moment. Presentists, generally, try to achieve this by positing the existence of something in the present, known as 'surrogates'. These presently existing surrogates are supposed to represent past moments, serving as truth-makers, to make true propositions about the past, thereby establishing temporal change. For example, the presentist holds that some presently existing surrogates, A, B, and C, act as truth-makers for previously existing times, A*, B*, and C*. If A, B and C can act as truth-makers for A*, B* and C*, then the presentist can make true that previous times A*, B* and C* existed, thereby making it true that time has passed.

However, Leininger denies that the presentist's appeal to surrogates can successfully establish temporal change. Leininger argues that surrogates do not preclude the possibility of a one-instant-world[198]. In other words, that the existence of surrogates cannot show that the world is more than one instant, with nothing preceding or following that one instant. If it is the case that surrogates do not preclude the possibility of a one instant world, then the presentist cannot rely on surrogates to

[198] Leininger, 2015, pp732.

act as truth-makers for the past, because surrogates would exist without the past ever having existed.

Leininger proposes the One Instant Test (OIT):

> "Suppose that God creates only this one instant, exactly as it is NOW. Can he create – in this one instant – the relevant ingredients by which the presentist establishes temporal change?"[199]

To pass the OIT the presentist must answer 'No'. In the case of the presentist who appeals to surrogates, if God can create a one instant world which contains surrogates, then the presentist cannot appeal to surrogates to establish temporal change. If God were indeed able to create this one instant world, exactly as it is now, and create all of the surrogates which are supposed to act as truth-makers for past times, then these surrogates cannot make true that past times ever existed. If the surrogates do exist in a one instant world, then they cannot serve to necessitate that there were past times. Leininger investigates three surrogate accounts – past-tensed properties (Bigelow, 1996), temporal distributional properties (Cameron, 2011), and ersatz times (as understood by Bourne 2006, and Crisp 2007), and applies the OIT to these views, believing that they all fail. I shall briefly outline the views and why they fail the OIT. I then go on, in sections 5.2.4 and 5.2.5 to consider two further accounts – the cheat's

[199] Leininger, 2015, pp732.

grounding principle (Tallant, 2010c), and thisness presentism (Ingram, 2019), showing that these accounts pass the OIT.

The first view Leininger considers is that of Bigelow, who appeals to past-tensed properties as surrogates; for example, the truth of 'Tolkien wrote 'The Lord of the Rings'' is grounded by the world possessing the property *being such that Tolkien wrote 'The Lord of the Rings'*. For God to be able to create this past-tensed property in a one-instant-world, it would have to be the case that this property could exist without the event having happened. Although this sounds implausible, according to Leininger, that is precisely what the presentist must be committed to. It may seem that, if the past-tensed property exists, then the event which brough about the existence of the past-tensed property must have existed. However, this is to say that the event occurring in the past caused the past-tensed property to exist in the present. For example, Tolkien writing 'The Lord of the Rings' caused the world to possess the property *being such that Tolkien wrote 'The Lord of the Rings'*. The relation between the past event and the past-tensed property is a causal relation. The presentist fails the OIT because causal relationships require the existence of both of the relata. A relation is something which holds between (at least) two entities, it describes how those entities stand to each other, or the kind of connection they have to each other. Therefore, a relation cannot hold between an entity and a non-existent entity as an entity cannot have a connection, or stand in any way, to something non-existent.

However, the presentist wants to be able to keep past-tensed properties while denying the existence of the event. Therefore, past-tensed properties do not guarantee that another moment existed. There is no relation which can hold between the past and past-tensed properties on Bigelow's account, so past-tensed properties cannot necessitate that the past existed. This means that God can create past-tensed properties in a one instant world, and Bigelow's 'past-tensed property' presentism fails the OIT.

Leininger moves on to Cameron's appeal to temporal distributional properties to account for change. Temporal distributional properties fix how an object is across time. To understand how this works, let us look first at an analogous case of spatial distributional properties. Distributional properties set how things are across space, such as, to borrow Cameron's (2011) example, *being polka dotted*. An object which is white, with black spots has the distributional properties 'being polka dotted', or being white-with-black-spots, and this property sets how this object is across space[200].

In a similar way, temporal distributional properties set how things are over time, for example, I instantiate the property 'being-cool-and-then-being-warm', which makes it true that I am warm and that I was cool. Further, temporal distributional properties cannot be reduced to different properties at different times, so they must be distributed over time. The problem with this is that the region the presentist claims the property is distributed over does not exist. This conflicts with what Leininger calls

[200] Cameron, 2011, pp64.

the ‘distribution intuition’; the intuition that, for something to be distributed over multiple regions, we require the existence of those regions[201].

Cameron’s response to the ‘distribution intuition’ is that the presentist, who is committed to the existence of only the present time, already rejects this intuition. So, that temporal distributional properties conflict with this intuition is not an argument against this truth-making strategy for the presentist. For the presentist, then, temporal distributional properties do not require the existence of the regions they are distributed over.

However, it is this very point, Leininger argues, which is why this truth-making strategy fails. If a temporal distributional property does not require the existence of other regions to be distributed across, then they do not require that there are, or were, other times. In this case, God can create a one instant world and also create temporal distributional properties. Cameron’s truth-maker strategy of temporal distributional properties, then, fails the OIT.

Leininger claims that the ersatz presentist proposes the most successful strategy[202], because, for the ersatz presentist, the past exists. The ersatz presentist holds that the present is the only time which has a concrete existence, whereas other times exist as abstract entities which are not concrete. The past is an ersatz B-series, a

[201] Leininger, 2015, pp734.
[202] Leininger, 2015, pp734.

series of abstract times which accurately represents the past. At any present time, the ersatz B-series is supposed to give a description of all past times, thereby making true propositions about the past.

However, Leininger argues that this, too would fail the OIT. As the ersatz past is an abstract entity which is supposed to represent the past, it cannot necessitate that the past did exist. The abstract past could exist without there ever having been a concrete past. Therefore, God could create a one instant world and create an ersatz B-series as it does not require that another moment existed[203].

The ersatz presentist could respond to this by claiming that if God did create a complete ersatz B-series, then it wouldn't be the case that God had created a one-instant-world because God has created an ersatz B-series which is all the ersatz presentist requires for there to preclude a one instant world[204]. Putting aside that this response seems a bit of a cheat (I will return to why I think cheating may be permissible in the next section), how does the ersatz B-series accurately represent the past? If there is a representational relation, then the ersatz past must be related to a concrete past. If there is no representational relation, nor anything which necessitates that the concrete past had to exist in order for the abstract ersatz past to exist, then

[203] Leininger, 2015, pp735.
[204] Tallant, 2010b, pp274.

the ersatz past can exist independently of the concrete past. Therefore, the ersatz presentist fails the OIT[205].

Leininger suggests a possible response from the presentist might be to claim that God cannot make surrogates in a one-instant-world, and instead, that surrogates accurately reflect that the past is just a brute fact[206]. But, as Leininger points out, without explaining how surrogates accurately reflect the past, it seems miraculous that a presently existing surrogate might reflect the past despite being completely unconnected with some previously existing reality[207].

5.2.4 Rejecting the Grounding Intuition: Cheat's Grounding Principle.

Some presentists abandon the appeal to surrogates altogether and instead argue that they can account for temporal change simply by asserting that the past was a certain way. In other words, they deny a need to appeal to existing entities to ground truths about the past. Tallant (2010c) has outlined this as the Cheat's Grounding Principle (CGP):

[205] Leininger, 2015, pp735.
[206] Leininger, 2015, pp735.
[207] Leininger, 2015, pp736.

"CGP: For every proposition, that proposition is true iff it accurately characterises its subject matter."[208]

The cheater tells us that what it means for a past-tensed proposition to accurately characterise its subject matter is that some past-tensed property <x was the case> is true if and only if it used to be the case that x. In the cheater's case, then, for the past-tensed proposition <there were dinosaurs> to be true, they require only that there used to be dinosaurs. There needs to be no presently existing surrogate to make true the past existence of dinosaurs, because <there were dinosaurs> cannot be true unless it used to be the case that there were dinosaurs. The cheater believes he can pass the OIT because the cheater has no need of surrogates to make the past true to establish temporal change[209]. God cannot create a one instant world in which there is some true proposition <there were dinosaurs> because in a one instant world it is not the case that there were dinosaurs.

However, Leininger argues that the cheater does not pass the OIT. Leininger tells us that, for the cheater, holding that <there were dinosaurs> is true means also holding that <there are dinosaurs> had a truth-maker. But <there are dinosaurs had a truth-maker> is also a past-tensed proposition[210]. As the cheater does not need a truth-maker for this further past-tensed proposition, then this further past-tensed

[208] Tallant, 2010c, pp503.
[209] Leininger, 2015, pp737.
[210] Leininger, 2015, pp 737.

proposition requires yet another past-tensed proposition. The cheater will continue to add layers of past-tensed propositions to avoid committing themself to an existing truth-maker, resulting in an infinite regress of past-tensed propositions. While Leininger argues that this regress is not in itself problematic, she also argues that it does result in the cheater failing the OIT. This is because, Leininger claims, an infinite regress of past-tensed propositions is a state of affairs which God can create in a one-instant world, meaning that the cheater fails the OIT.

I am unconvinced by Leininger's claim that this fails the OIT. I believe that Leininger believes that the cheat steps onto the first stage of the infinite regress because she has missed just how nefarious the cheater is. In arguing that <there were dinosaurs> needs no truth-maker, but that <there are dinosaurs had a truth-maker> needs a truth-maker, Leininger seems to imply that the cheater does not require a truth-maker for past-tensed propositions but does require (or at least posit) a truth-maker for present propositions. If <there are dinosaurs had a truth-maker> is true, this implies that the truth of <there are dinosaurs> is grounded in some ontological truth-maker (at a time when there are dinosaurs). However, the cheater is more nefarious than this. The cheater holds 'no-ground' cheating; that no ontological ground is needed for any proposition to be true. So, as long as the proposition accurately characterises its subject matter and that characterisation is not one that calls for grounding, then the cheat is under no obligation to provide ground. The 'no-ground' cheating principle tells us that the cheater posits no ontological ground for past or

present propositions. The cheater, therefore, passes the OIT by denying the need for truth-makers altogether.

5.2.5 Thisness Presentism

Though Leininger thinks that the ersatz presentist has the best chance of passing the OIT, in my view, thisness presentism offers the tools to provide us with the best (or at least, most uncontroversial) chance of passing the OIT. Thisness presentism appeals to *haecceities*, or 'thisnesses' of entities, to account for the past.

Thisness presentism proposes, along with standard forms of presentism, that necessarily, it is always the case that only present entities exist. In addition, thisness presentism supplements presentism with an ontology of thisnesses, the idea being that for each entity that exists, there also exists a property of being (or being identical with) an entity[211]. This property of being (identical with) an entity is the thisness of that entity, so for every entity x, there exists x's thisness, which is the property of being (identical with) x.

The nature of thisnesses is such that the thisness of an entity depends on the initial existence of that entity; for example, my thisness could not exist if I had never existed, but when I came into existence, my thisness came into existence with me.

[211] Ingram, 2019, pp56.

Thisnesses ontologically depend upon the relevant entities. However, this dependence is such that a thisness depends only upon the initial existence of some entity, rather than the continued existence of that entity. In this way, thisnesses continue to exist after the entity it is dependent upon ceases to exist, or more formally, some thisness T non-rigidly ontologically depends on some entity, x, if, necessarily, x exists only if y exists or has existed, and it is not the case that, necessarily, x exists only if T has existed[212]. Put differently, some thisness, T, of some entity, x, comes into existence with x. T is instantiated by x throughout the existence of x, and when x ceases to exist, T continues to exist uninstantiated[213]. So, the presentist can account for truths about the past provided there is some presently existing surrogate or present fact, which non-rigidly ontologically depends upon some past thing having existed.

Thisness presentists believe they can pass the OIT because, at any moment, there exist present entities and thisnesses of past entities. Leininger claims that this fails the OIT because whatever caused the entities to exist also cause the thisnesses to exist. Therefore, there needs to be a causal connection between the past and the presently existing thisnesses.

Ingram (2019) argues that Leininger's dismissal of thisness presentism is based on a misunderstanding of the connection between an entity and the corresponding thisness. The connection between x and T is not causal. T comes into existence with x,

[212] Ingram, 2019, pp66-7.
[213] Ingram, 2019, pp57.

and T could not have come into existence without x, which is how we determine, from the existence of T, that x has existed[214]. Further, the continued existence of T does not require the continued existence of x, such that T can go on existing if x ceases to exist. The connection that Leininger suggests would lead the thisness presentist to fail the OIT does not need to exist. Ingram outlines the connection between an entity x and its thisness T as a non-rigid ontological dependence. For example, the thisness of Marie Curie presently exists, despite Marie Curie not presently existing. Marie Curie's thisness depends on the initial existence of Marie Curie, but once Marie Curie ceases to exist, the thisness of Marie Curie continues to exist[215].

Apply this non-rigid ontological connection between entities and their thisnesses to Leininger's OIT: Can God create a one-instant world and also create thisnesses of past entities? The thisness presentist can answer 'no' because the existence of a thisness necessarily requires the past existence of an entity. Therefore, any presentist can adopt thisness presentism to escape Leininger's OIT.

5.2.6 Non-Rigid Ontological Dependence and the OIT.

Let us look more closely at thisness presentism and how it passes the OIT. In passing the OIT, thisness presentism precludes the possibility of a one-instant world.

[214] Ingram, 2019, pp163.
[215] Ingram, 2019, pp163.

This alone tells us only that there must have existed at least one other time at which the state of things was different. For example, let us look at a present truth of the world:

M: Marie Curie existed.

What makes this true, and how the thisness presentist passes the OIT, is the existence of a presently existing thisness, T, being (identical with) Marie Curie. By appealing to presently existing thisnesses, the thisness presentist can account for every past entity. They can make true that Marie Curie existed.

What about accounting for:

N: Marie Curie won a Nobel Prize in 1901

Or accounting for a succession of past events, such as:

O: Marie Curie died 31 years after she won a Nobel Prize for physics.

How can the thisness presentist account for the truth of statements like this? Ingram argues for primitive past-tensed (Lucreatian) properties to do the work of making true the way the world was. So, the truth-maker for propositions such as <Marie Curie won a Nobel Prize in 1901> is that the world now instantiates *having been such that Marie Curie won a Nobel Prize in 1901*[216]. Of course, as we saw in section 5.2.3, Bigelow's

[216] Ingram, 2019, pp127.

past-tensed properties failed the OIT. So, it is important to note a distinction between Bigelow's account of past-tensed properties, and Ingram's. For Bigelow, the world is the bearer of past-tensed properties, which is what results in Bigelow failing the OIT. Ingram offers an alternative: it is thisnesses which are the bearers of past-tensed properties. As thisnesses necessitate that past times did exist, the thisness presentist can therefore make true all of the past times that existed, and therefore can successfully account for the passage of time.

Thisness presentism, then, successfully passes the OIT. That is not to say that I believe the presentist must adopt thisness presentism to pass the OIT and account for past truths. Thisness presentism does not pass the OIT because it posits the existence of thisnesses. It is not the thisnesses which are doing the work of passing the OIT. Instead, thisness presentism passes the OIT because thisnesses non-rigidly ontologically depend upon the entities they are thisnesses for. Therefore, potentially any presentist could pass the OIT and account for past truths if they posit that there is a non-rigid ontological dependence between their proposed surrogates and the entities which they are surrogates for. I believe there is also scope for the presentist to develop an alternative option, in which they could posit that there is a non-rigid dependence between past entities and the existence of relevant propositions, thereby treating truthmaking as a form of non-rigid dependence.

Non-rigid ontological dependence, then, gives presentists the tools to pass the OIT. However, I consider a response, due to Daniels (2022), that the OIT is not a good

test, and that passing it does not entail that the presentist has successfully accounted for truths about the past. I shall explore this in the next section.

5.2.7 Daniels on the Ineffectiveness of the OIT.

Throughout this chapter, I have taken Leininger's OIT to be a genuine challenge to the presentist, and I have offered a successful response on behalf of the presentist. However, it is worth briefly acknowledging a recent objection to the OIT, thanks to Daniels (2022). In their response to Leininger, Daniels argues that the one instant test is not a good test because it fails to trap the presentist as Leininger intends. The concern with the OIT is that the presentist can pass the test without addressing the underlying problem. In other words, contra Leininger, Daniels argues that the properties by which the presentist establishes temporal change cannot be found in a one instant world because the presentist's surrogates cannot 'get it wrong' regarding past events. In this way, the presentist can pass the OIT without addressing the issues of how temporal change is established.

Daniels argues that for a property to qualify as a surrogate, it must be of a kind that can only exist if the past it is a surrogate for existed[217]. According to Daniels this is what it means to be a surrogate. The existence of surrogates in some world, then,

[217] Daniels, 2022, pp374.

requires that that world had a past. If this is the case, then the presentist can maintain that a one instant world cannot feature surrogates. Therefore, the OIT is not a good test because God cannot create a one instant world which features surrogates.

I will accept Daniels' definition of surrogates; that they cannot get it wrong because their definition requires that there was a past time. This means that Daniels' criticism of Leininger's OIT does carry some weight, and the presentist can pass the OIT without addressing the underlying problem. In defence of the OIT, though, the challenge which the OIT intends to put to the presentist is clear, and so presentists aiming to respond to the OIT should (though admittedly do not have to) engage with the underlying problem.

Despite the argument that the OIT is not a good test, Daniels agrees with Leininger that the presentist must still address the underlying problem which the OIT intends to pose. The problem the presentist must address is to explain *how* surrogates make true the past, or, as Daniels has it, the presentist must explain the connection that surrogates bear to the past.

Daniels goes on to argue that thisness presentism, the account of surrogates for which I argued in sections 5.2.5 and 5.2.6, does not provide an explanation for how thisnesses make true the past. Daniels acknowledges that thisness presentism passes the OIT, because thisnesses could not exist without the initial existence of those past entities they are thisnesses for. However, Daniels tells us that, as thisness presentism

does not supply an explanation for how uninstantiated thisnesses correspond to (non-existent) past times, thisness presentism simply serves to show why the OIT is not a good test.

Thisness presentism, according to Daniels, does not have the same explanatory powers as other surrogate accounts, such as Bigelow's past-tensed properties. The presentist who posits past-tensed, or Lucretian, properties can explain how the world comes to instantiate the surrogates it does. This is because they can hold that there are intermediary properties instantiated by the world which connect presently existing surrogates with past times via their heritage. Intermediary properties refer to the properties the world 'picks up' as it persists.

Daniels gives the example of Julius Caesar crossing the Rubicon at time t. He tells us that, at t, the world instantiates the property *Julius Caesar crosses the Rubicon*. Therefore, at t, the world also instantiates the property p; *it will be the case that Julius Caesar crossed the Rubicon*. Daniels tells us that it is in virtue of p that at all times later than t the world instantiates the past-tensed property (the surrogate) *having been such that Julius Caesar crossed the Rubicon*. To put this another way, it is in virtue of intermediary properties such as p that surrogates cannot 'get it wrong'[218]. Properties such as p are supposed to ensure that there is a connection across (non-existent) times.

[218] Daniels, 2022, pp378.

I believe Daniels argument here is that there should be some necessary connection between the past and the present, and thisness presentism fails to provide that necessary connection. However, it is unclear why the presentist should hold that there should be a necessary connection between the past and the present. This has previously been discussed by Tallant and Ingram (2020) in response to Baron (2013). Baron suggests that presentists should endorse a modal correlation between how things were and how things are. For example, if Julius Caesar crossed the Rubicon, then the world should instantiate the Lucretian property *having been such that Julius Caesar crossed the Rubicon*. This principle is formalised thus (where Fs are present Lucretian properties, and Ss are those things which existed):

> "'N1': necessarily, the Fs exist or are instantiated only if the Ss existed or occurred".[219]

Baron further goes on to suggest that "N1 requires a necessary connexion between the past and the present"[220].

It is this further assertion thanks to Baron (that N1 requires a necessary connection between the past and the present) that I believe Daniels is also implying. However, I follow Tallant and Ingram in arguing against this. Though I accept N1, I see no reason why the present requires anything further than N1. If it is necessarily the case that surrogates (such as Lucretian properties, or thisnesses) exist only if the past

[219] Baron, 2013, pp11.
[220] Tallant and Ingram, 2020, pp682.

which are they surrogates for existed, then this is all the connection needed. The presentist can hold that the present existence of surrogates necessitates that the past existed, no further entity or connection is needed. Indeed, as the present posits that the past is non-existent, the presentist should not want to hold that there exists some further connection between the present and the (non-existent) past.

I therefore reject Daniels argument that thisness presentism lacks any explanatory power. It contains all the explanation a presentist requires for how the world comes to instantiate the surrogates it does, and how those surrogates make true how the world was.

Chapter Conclusion

To summarise, I take presentism to be the best theory which the proponent of passage can adopt in avoiding the pitfalls of McTaggart's paradox. Further, while I do accept that Tallant's reformation of McTaggart's paradox is a problem for presentism, I believe it is a problem for those versions of presentism which posit a present. As my account here does not posit a present, and is instead a theory about existence, rather than time, Tallant's argument does not apply.

In response to the truth-maker problem, I hold that the presentist is able to find tools to make true propositions about the past in both the CGP, and in non-rigid ontological dependence. I will refer back to these tools again in chapters 6, and 7, as well as expanding further on my own account. Before doing so, however, in chapter 6 I consider a prior attempt to formulate a fundamentally dynamic version of presentism, thanks to Golosz (2018).

Chapter 6:

Presentism and Golosz's Dynamic Reality

Chapter overview

Chapter 6 considers the work of Golosz (2017, 2018), who criticises presentism as a theory which claims to posit dynamism and yet counterintuitively starts from a static ontology. Golosz outlines two criticisms of standard forms of presentism. First, that presentism should imply the flow of time, yet does not. Second, that presentism is inhomogeneous.

In section 6.1, I consider Golosz's argument that presentism does not imply the flow of time. I argue that Golosz does not provide enough reason to accept that his criticism causes the presentist any problems. I further argue that by adopting the strategies explored in chapter 5 in accounting for the past, the presentist can offer some response to Golosz's criticism despite my argument that they may not need to. The strategies I argue for here are non-rigid ontological dependence as offered by thisness presentism, or no-ground truth-making as in the cheat's grounding principle. This response is partial because this applies only to the past and does not give any mechanism for how things continue to change.

This brings us to section 6.2, in which I consider Golosz's second criticism: that presentism is inhomogeneous because it posits both a static and a dynamic ontology. I note that Golosz offers little motivation for why this should be something the presentist should avoid. I then highlight that, although inhomogeneity is not damning for the presentist, neither does the presentist have good reason to posit the static ontology.

Finally, in section 6.3, I explore Golosz's 'dynamic reality'. Dynamic reality is a version of presentism proposed by Golosz which is supposed to free the presentist from Golosz's two criticisms outlined in sections 6.1 and 6.2. I consider 'dynamic reality' in light of Golosz's criticisms and conclude that Golosz's theory falls victim to both of his criticisms, thereby offering nothing further than standard forms of presentism.

Introduction

I aim to put forward an account of time and existence which is fundamentally dynamic. As discussed in previous chapters, I favour presentism as the basis for building this dynamic account of time. In this endeavour, it seems that I will be building on recent explorations thanks to Golosz (2017, 2018), who has dedicated several papers to the relationship between presentism, the flow of time, and dynamic existence.

In this chapter, I will focus primarily on Golosz's theory of presentism and dynamic reality. First, I will examine Golosz's arguments that standard forms of presentism do not imply the passage of time, and they can be true of a one instant world. I will explain why I disagree with how Golosz sets up this problem and argue that Golosz does not give sufficient reason why the presentist should accept this challenge.

Second, I will consider Golosz's argument that most standard forms of presentism are inhomogeneous in that they begin with a thesis which commits them to a static ontology and then attempts to add a further premise which commits them to a dynamic ontology. I consider thisness presentism as a possible response to both of Golosz's criticisms of presentism and show that thisness presentism has some potential to help the presentist escape these criticisms[221].

I will then look at Golosz's offer of a sensible move forward for presentism; a presentism which is dynamic rather than static. I show that Golosz's preferred form of presentism, 'dynamic reality', falls victim to both criticisms against standard forms of presentism and therefore cannot offer a more successful version of presentism than the standard forms. As this is the case, I then go on in chapter 7 to develop a

[221] Thisness presentism can be employed by presentist's adopting a more standard form of presentism, though it should be noted that proponents of DEP cannot posit thisnesses due to the static nature of thisnesses.

mechanism for dynamism that delivers a dynamic version of existence on my account of dynamic existence presentism.

6.1 Presentism and the Flow of Time

Golosz (2017) invites us to question whether presentism involves, or even entails, the flow of time or whether the flow of time is unnecessary or even impossible, given presentism. Golosz aims to show that the flow of time is necessary for presentism, and, further, that presentism does not imply the flow of time. I will briefly examine Golosz's argument and why Golosz demands more of the presentist than they need supply. I further argue that, despite not needing to rise to Golosz's challenge, the presentist is still able to go to some way to implying the flow of time. I argue that by adopting the tools outlined in chapter 5, thisness presentism and the CGP, the presentist can show that their view implies the flow of time.

In determining the relationship between presentism and the flow of time, Golosz considers Augustine's famous passage:

> "if nothing were passing, there would be no past time: and if nothing were coming, there should be no time to come: and if nothing were,

> there should now be no present time. Those two times, past and to come, in what sort are they, seeing the past is now no longer, and that to come is not yet? As for the present, should it always be present and never pass into times past, verily it should not be time but eternity. If then time present, to be time, only comes into existence because it passeth into time past; how can we say that also to be, whose cause of being is, that it shall not be, that we cannot, forsooth, affirm time is, but only because it is tending not to be?"[222]

Interpreting Augustine's passage here literally, i.e., assuming that Augustine is describing the flow of time as objective, Golosz takes this claim to support presentism: that the present exists, the past no longer exists, and the future does not exist yet. Further, Golosz argues that if the presentist accepts that the present exists, that there was a time when the present did not yet exist, and that what was present is no more, then the presentist must accept the existence of the objective flow of time[223]. The alternative is to accept the two-part relations of the B-theory, according to which events are earlier than, later than, and simultaneous with. Golosz tells us that this move would result in the eternalist picture of the static block universe, where all events exist tenselessly, and no event ever passes away or comes to be. This would be inconsistent with the earlier passage from Augustine, leading Golosz to conclude that

[222] Augustine, 1912, pp239.
[223] Golosz, 2017, pp287-8.

the presentist must admit to the objective passage of time as necessary for presentism. Or, as Golosz formalises it:

> "St Augustine's Condition (AC): Presentism has to admit the existence of the flow of time."[224]

Golosz argues that the central thesis which any presentist account is committed to must imply, or entail, the existence of the passage of time. Golosz goes on to claim that there are philosophers believe that the central thesis of all, or most, accounts of presentism imply the flow of time, but looks to Hestevold and Carter (2002) as an example. Hestevold and Carter (2002) argue that presentism, successfully formulated, implies what they call 'transient time':

> "Transient Time: It is possible that objects and events undergo (in some sense) temporal becoming; in an irreducibly non-tenseless sense, it is possible that there did exist or did occur objects or events that do not presently (or will not), respectively, exist or occur; and it is possible that there will exist or will occur objects or events that, respectively, do not presently exist (or have not yet existed) or do not presently occur (or have not yet occurred)."[225]

[224] Golosz, 2017, pp288.
[225] Hestevold and Carter, 2002, pp493.

I take transient time to be something akin to the flow of time or temporal passage. Hestevold and Carter believe that their preferred form of the presentist thesis implies transient time:

HC: "Necessarily, if x exists$_s$ [simpliciter], then x presently exists."[226]

Hestevold and Carter's argument that their preferred form of presentism does indeed imply transient time takes the following form:

1. "Presentism is correct, and Transient Time is incorrect. [assumption for *reductio ad absurdum*].
2. If Presentism is correct, then Mozart exists only in the sense that there did exist something that was Mozart.
3. If Transient Time is incorrect, then there is a sense in which Mozart exists other than the sense that there did exist something that was Mozart.
4. If Transient Time is correct, then Static Time is not correct.
5. Therefore, Mozart exists only in the sense that there did exist something that was Mozart. [from 1, 2]

[226] Hestevold and Carter, 2002, pp499.

6. Therefore, there is a sense in which Mozart exists other than the sense that there did exist something that was Mozart. [from 1, 3]

7. Therefore, Mozart exists only in the sense that there did exist something that was Mozart and there is a sense in which Mozart exists other than the sense that there did exist something that was Mozart. [from 5, 6]

8. Therefore, it is false that both Presentism is correct and Transient Time is incorrect. [from 1, 7]

9. Therefore, either Presentism is incorrect or Transient Time is correct. [from 8]

10. Therefore, if Presentism is correct, then Transient Time is correct. [from 9]

11. Therefore, if Presentism is correct, then Static Time is not correct. [from 4, 10]."[227]

Golosz argues that Hestevold and Carter's argument fails due to an apparent early misstep; there is no justification for premise 2[228]. Golosz illustrates this point:

[227] Hestevold and Carter, 2002, pp500-1.
[228] Golosz, 2017, pp289.

> "imagine a simple model of the possible world W* exactly similar to our present world W at some fixed moment t0, but such that in W* there existed nothing in the past of t0, and there will exist nothing in the future of t0. It would be a static world with a momentary present at t0 but without a flowing time, with no events and no things which existed in the past of t0, and similarly without events and things which will exist in the future of t0. It would be a ''frozen'' presentism, which, of course, is not in agreement with our experience, this is, however, not at issue. The point is that in the world W* Hestevold and Carter's presentism is true and that it does not allow the inference from the presentist assumption of the (past) existence of any past event and any past object like, for example, Mozart."[229]

Further, Golosz goes on to argue that all other forms of presentism suffer the same fate as Hestevold and Carter's presentism; that every other presentist thesis is true in W*. Let us look at the different presentist theses which Golosz considers:

P1: Only the present exists (Tallant, 2010).

P2: Only the present is real (Hinchliff, 1996).

[229] Golosz, 2017, pp289.

P3: The domain of our most unrestricted quantifiers only includes the present objects (Sider, 1999).

P4: Only present things exist simpliciter (Sider, 2006).

Each of these theses are true of W*, meaning that they do not imply the flow of time, and, therefore, do not adhere to Augustine's condition. This leads Golosz to conclude that none of these presentist theses are acceptable forms of presentism.

Though I share Golosz's concerns that presentism should not be compatible with the stuck world of W*, I disagree with Golosz's approach. To understand why, let us look again at the central commitments of presentism as outlined in chapters 1, 2, and 5. The presentist (generally), holds two central commitments, the A-Present thesis, and the A-Change thesis. The former is an ontic thesis, it tells us what exists, namely, present things. The latter is a change thesis, it tells us that what exists changes.

Golosz argues that the ontic thesis alone is true of a stuck world, W*, and, when the ontic thesis is considered wholly independent of any further commitments, Golosz is correct. The presentist requires something more to account for a world according to which time is dynamic, or time flows, hence, the presentist's commitment to the change thesis.

I believe Golosz missteps in arguing that the ontic thesis need entail, or necessitate, the change thesis. Certainly, the ontic thesis should not exclude, or be incompatible with, the change thesis if the presentist wants to include some dynamic time on their account. However, Golosz's insistence that the change thesis should be necessitated by the ontic thesis is under-motivated. Golosz has not provided any reason, beyond appealing to earlier writings by Augustine, why the presentist should accept this. Provided that there is no inconsistency between their two central theses, it is perfectly acceptable for the presentist to hold both the ontic thesis and the change thesis without the former entailing the latter.

Before moving on to considering Golosz's second criticism of the more standard forms of presentism, I would like to revisit two forms of presentism discussed in chapter 5, which I believe do imply the flow of time, and which Golosz does not consider: Thisness presentism and nefarious presentism. I argue that these responses imply the flow of time on the presentist account by accounting for truths about the past. I will first consider thisness presentism and then go on to consider nefarious presentism, showing that both imply the flow of time by positing non-rigid ontological dependence.

To briefly recap from chapter 5, x non-rigidly ontologically depends upon y if, necessarily, x exists only if y exists or has existed, and it is not the case that, necessarily, y exists only if x has existed[230]. So, the presentist can account for truths

[230] Ingram, 2019, pp67.

about the past provided there is some presently existing surrogate or present fact, which non-rigidly ontologically depends upon some past thing having existed.

This non-rigid ontologically dependent nature of thisnesses is the crucial feature of thisness presentism, which is important to consider for our purposes here. The central thesis of the standard forms of presentism, such as those spelled out in P1-P4, above, appear to fall victim to Golosz's criticism that they cannot imply the flow of time because, when considered independently of a change thesis, they are true of the possible world W*, which is stuck at some moment. Thisness presentism, however, offers the presentist an escape from such a criticism. Let us formalise the central thesis of thisness presentism thus:

> Thisness Presentism (TP): Necessarily, it is always the case that only present objects and thisnesses of present and past entities exist.

It is indeed possible for TP to be true of some possible world which is instantaneous, i.e. some possible world which is stuck at some moment t0, in which nothing existed before t0, and nothing exists after t0. In this world, there would exist the thisnesses of all the presently existing entities, but there would be no past entities for there to exist any thisnesses of. However, this is not quite the world Golosz asks us to imagine. In Golosz's example, we are asked to imagine some possible world W*, which is *exactly similar to our present world W.* If TP is true of our present world W, then W would consist of presently existing entities and their thisnesses, and the uninstantiated thisnesses of all previously existing past entities which have ceased to

exist. For example, our present world, W, contains ‘’The Lord of the Rings’, written by J.R.R. Tolkien’, and the thisness ‘being (identical with) ‘The Lord of the Rings’, written by J.R.R. Tolkien’, and it also contains the uninstantiated thisness ‘being (identical with) J.R.R. Tolkien writing ‘The Lord of the Rings’’.

Turning our attention to W*, at some moment, t0, which is exactly similar to our present world W, W* would consist of presently existing entities and their relevant thisnesses, and the same uninstantiated thisnesses in W. Such is the nature of thisnesses that each thisness non-rigidly ontologically depends upon the initial existence of that which it is a thisness of. This means that for the thisness ‘being (identical with) J.R.R. Tolkien’ to exist, J.R.R. Tolkien had to have come into existence. Therefore, in some possible world W*, which is exactly similar to our present world W, there exists the thisness ‘being (identical with) J.R.R. Tolkien’, and indeed, there exists every other uninstantiated thisness of entities which existed in the past in world W. These thisnesses cannot exist without the entities which they depend upon for their existence having existed. Therefore, in W*, some entities must have existed in moments previous to t0. As there are no moments previous to t0 in W*, TP cannot be true of W*. TP implies, then, that there is a present moment and that there did exist other moments at which the world was different, thereby implying passage.

The second option for presentism to imply the flow of time is nefarious presentism. Again, as outlined in chapter 5, the nefarious presentist holds the cheat’s grounding principle:

CGP: For every proposition, that proposition is true iff it accurately characterises its subject matter[231].

In this case, for the past-tensed proposition < J.R.R. Tolkien wrote 'The Lord of the Rings'> to be true, the nefarious presentist requires that J.R.R. Tolkien wrote 'The Lord of the Rings'. Further, the nefarious presentist can argue that the truth of < J.R.R. Tolkien wrote 'The Lord of the Rings'>, non-rigidly ontologically depends upon J.R.R. Tolkien having written 'The Lord of the Rings'.

The presentist need not commit themselves to TP or to the CGP. Instead, what this shows is that by committing themselves to some presently existing surrogate or past-tensed fact and arguing that this non-rigidly ontologically depends upon the previous existence of some appropriate object, the presentist can show that the past did exist. Therefore, presentism can imply the flow of time.

6.2. Presentism as Inhomogeneous

As explored in section 6.1, many more standard versions of presentism include commitments to both an ontic thesis and a change thesis. However, Golosz takes issue with this, suggesting that such accounts are inhomogeneous, using, or being

[231] Tallant, 2010c, pp503.

committed to, two ontological notions of a very different nature[232]. Broadly speaking, presentists are committed to the thesis that only the present exists or that only present objects exist. This thesis is a commitment to a static ontology, as we can see from Golosz's objection in section 6.1, as such a thesis can be true of the frozen world, W*. The presentist then holds a secondary thesis, positing some flow of time, some inclusion of a dynamic element to the present or to time. This secondary thesis is a commitment to a dynamic or process-like ontology. In this way, Golosz tells us, any account of presentism which posits two such commitments is inhomogeneous.

I concur with Golosz's criticism here, though I must note that this likely diverts from how presentism, broadly, is thought of. Despite this, I believe that Golosz's criticism is somewhat understated. Not only is this criticism important, but if it is to sway those who do not accept there is an issue, then further development of this criticism is required. Golosz does not precisely state in any detail why he takes inhomogeneity to be undesirable. He briefly notes that the inhomogeneity of positing both static and dynamic ontologies is why defining the flow of time as some 'movement' of the present is impossible. He does not elaborate beyond this, so I shall offer some elaboration.

If the present is a static moment, then attempting to determine dynamism, or flow, from the movement of a static moment which, (by definition) does not move, requires doing some work to 'add in' the dynamic aspect that the presentist needs. As

[232] Golosz, 2017, pp290.

stated in chapter 1, inhomogeneity does not invalidate a theory, so one can have an inhomogeneous, workable theory. My motivation to develop an account of a dynamic form of presentism is partly due to what I view as the counter-intuitive position of the presentist attempting to create a dynamic account of time by starting from a commitment to a static account of time. As I argued in chapter 1 during the discussion on Seibt, when we assume a static ontology to account for dynamic phenomena, we fall short of capturing the dynamism we profess to be positing. If, as the presentist professes, their account posits dynamic time, then why should not the presentist simply posit dynamic time or existence? When developing a theory of dynamic time, starting from a static time-slice will have to involve some extra work to create or 'add-in' dynamism. Some further metaphysical mechanism needs to be found and applied. Further, although, as I stress, there is nothing inherently problematic with a theory being inhomogeneous, we may want to reexamine that theory if its inhomogeneity results in that theory not being ontologically parsimonious.

Neither I, nor Golosz, are the first in recent history to criticise presentist accounts of time for attempting to build a dynamic world from a static starting point or to criticise the presentist's central thesis. For instance, Merricks voiced a concern about the presentist's primary thesis, stating that the way in which the present is viewed on the presentist account is merely as a slice of eternalism; that from the static block of the eternalist, if one 'shaves off' the past and the future, one arrives at the

present of presentism[233]. As presentism is supposed to be a dynamic account of time, very different from the eternalist's, Merricks argues that no presentist should accept this view of the present. I follow Merricks in this and argue not only should the presentist not want to accept this, but also that accepting this limits the presentist by stifling the potential of presentism to develop beyond the eternalist's framework.

I see Golosz's argument as a further development of the kind of criticism made by Merricks; not only should the presentist not want to accept this fundamentally static starting point for their accounts, but they also cannot do so if they hope to account for the dynamic thesis of presentism fully. The presentist is positing a static ontology that may not be required, committing themselves to a static ontology with some additional dynamic ontology rather than a fundamentally dynamic ontology. Further, by positing a static ontology, which the presentist may have no use for, they may be positing the existence of a framework which is unnecessary. I argue that to avoid this static starting point, the presentist should accept Merricks' thesis; they should exchange 'existing at a time' for just existing. However, Golosz takes a different approach, arguing instead for his own theory, 'dynamic reality'. I shall explain Golosz's dynamic reality and argue that it neither implies the flow of time, nor is it homogeneous.

[233] Merricks, 2007, pp125.

6.3. Golosz's Presentism

6.3.1 Golosz's Dynamic Reality

After criticising standard forms of presentism for not implying the flow of time, and for being inhomogeneous, Golosz attempts to develop an account of presentism which is fundamentally dynamic in an attempt to avoid both of these criticisms. The aim is to make presentism a dynamic theory of time by developing a concept of present existence according to which existence is fundamentally dynamic[234]. If successful, such an account of presentism would be homogeneous, according to Golosz's reasoning above, and therefore avoid the issue of being static in nature.

Golosz revisits Augustine's musing on time discussed earlier as a starting point for developing these ideas. As we have already seen, Golosz takes Augustine to be stating that presentism must imply the passage of time, as per AC.

> Augustine's Condition: Presentism has to admit the existence of the flow of time.[235]

Despite my rejection of Golosz's criticism, to avoid falling prey to his own criticism, Golosz's presentism must adhere to AC and imply the flow of time. A serviceable version of presentism for Golosz, then, needs to account for the existence of the present in a non-static manner, and account for the coming into and going out of

[234] Golosz, 2018, pp395.
[235] Golosz, 2018, pp398.

existence of past and future objects and events. Golosz states that this, too, is outlined in the above passage from Augustine, resulting in Golosz posing the following two questions of presentism, in addition to AC:

> "Q1: Those two times then, past and to come, how are they, seeing the past is now not, and that to come is not yet?"[236]

> "Q2: How can we say that the present is, if it only comes into existence for a moment and passes into time past, that is if it is tending not to be?"[237]

According to Augustine, presentism has one condition to meet and two issues to account for. Presentism must imply the flow of time, account for how objects and events come into and go out of existence, and explain the existence of the present, or of present objects and events, as coming into and going out of existence in a dynamic fashion.

Golosz attempts to develop a dynamic presentism which addresses all the issues above by appealing to (and adapting) the notion of becoming. For this, Golosz appeals to Broad's (1938) unanalysable notion of absolute becoming:

> "To "become present" is, in fact, just to "become", in an absolute sense; i.e., to "come to pass" in the Biblical phraseology, or, most

[236] Golosz, 2018, pp398.
[237] Golosz, 2018, pp398.

> simply, to "happen". Sentences like "This water became hot" or "This noise became louder" record facts of qualitative change. Sentences like "This event became present" record facts of absolute becoming."[238]

> "I do not suppose that so simple and fundamental a notion as that of absolute becoming can be analyzed, and I am quite certain that it cannot be analyzed in terms of a non-temporal copula and some kind of temporal predicate."[239]

The idea behind incorporating Broad's absolute becoming into presentism is to introduce real change, and real passage of time, into this account. Broad's absolute becoming offers an account according to which events come to pass, or actively come into existence. What is not intended by absolute becoming is the idea that some event x is located (statically, or tenselessly) at some time t. Rather, the absolute becoming of an event is akin to the dynamic existence which Golosz is driving towards; the coming into and going out of existence.

I note that absolute becoming is *akin* to the dynamism which Golosz aims for, because it is not quite fit for Golosz's purpose. Broad intended his notion of absolute

[238] Broad, 1938, pp280-1.
[239] Broad, 1938, pp281.

becoming to be applicable to the existence of events; that events will become, are becoming, and became. Golosz needs a form of absolute becoming which makes presentism dynamic, or, to put this another way, a form of absolute becoming which makes the present, presently existing things, or presently existing reality, dynamic. Unless this can be achieved, Golosz will either arrive back at an inhomogeneous form of presentism which is fundamentally static, with an additional commitment to absolute becoming in an attempt to include dynamism or will arrive at a form of presentism which is true of a frozen world such as W* in which the flow of time is not true.

Borrowing from, and adapting, Broad's absolute becoming, Golosz proposes the term 'dynamic existence', which differs from Broad's notion in that Golosz applies this unanalysable dynamic existence to objects, rather than only to events. Instead of an absolute becoming of events, Golosz argues that it is objects which dynamically become, or come into existence. Golosz states that the motivation behind this move is to bring 'becoming' in line with experience, and in line with our knowledge of the natural world. Golosz believes that events are equated with things gaining or losing properties[240], as he claims that events cannot possess, for example, mass or momentum, and that ascribing such things to events would be very difficult, if not impossible. Further, these things, or objects, exist dynamically; they come into

[240] Golosz, 2018, pp402.

existence, and endure. This, then, is the first step in Golosz's reimagined dynamic presentism: a commitment to substance ontology and enduring objects.

In addition to the commitment to substance ontology, Golosz also admits a commitment to the present; specifically, the present as defined by dynamically existing things and instantaneous events, the former coming into existence and enduring, and the latter coming into existence and then ceasing to be[241]. The present, therefore, is something which is continuously changing, and this dynamic existence is what we call the flow of time. Golosz claims that this understanding of presentism is consistent with Augustine's condition, AC, and can be formalised as Dynamic Reality:

> Dynamic Reality (DR): All of the objects that our world consists of exist dynamically.[242]

For this to be a serviceable form of presentism DR would have to be immune to Golosz's previous criticisms of presentism explored in sections 6.1 and 6.2. In other words, for DR to be taken seriously, it cannot be true of the possible world W*, and it must be homogeneous in that it must involve only an ontology of one particular nature; in this case a dynamic nature.

Let us start by determining if DR can be true of the possible world W*, as in section 6.1. If all the objects in our world exist dynamically, can DR be true of a 'frozen

[241] Golosz, 2018, pp404.
[242] Golosz, 2018, pp404.

world'? It is tempting to answer in the negative here. Some object or entity which exists dynamically surely should be doing something, some event must be occurring, and we tend to think of events as involving some kind of change. For example, an event might consist in an object losing or gaining a property, or of an object which is first in one position, and then in another. If it is indeed the case that dynamic existence consists in events perpetually occurring, then we might agree that DR cannot be true of W*.

However, Golosz does not define dynamic existence as events continually occurring. Rather, dynamic existence is defined as dynamic objects which endure through instantaneous events. Events according to DR are instantaneous, and an instantaneous event can surely exist in some instantaneous world, W*, for example, the coming into existence of the present moment.

Further, the dynamic existence of objects is simply the persisting of objects, or the 'becoming' of an object which does not cease to be. However, if an event can be instantaneous, then surely an object which persists can do so instantaneously. In which case, DR is true of W*, meaning that DR does not imply the passage of time as Golosz argued that it must.

Golosz's first criticism of current presentist accounts was that they fail to imply the flow of time. However, if Golosz's criticism can be applied, as he argues it can, to instantaneous events, i.e., if instantaneous events can be true of world W*, then

instantaneous events cannot imply the passage of time. Golosz's DR offers us instantaneous objects as an alternative; as a way of escaping his criticism. However, if instantaneous events can be true of world W*, Golosz needs to explain why he believes that instantaneous objects do not. Without such a defence, instantaneous objects can surely be as true of world W* as instantaneous events. DR, as it stands, then, fails to escape Golosz's criticism as it does not imply the flow of time.

6.3.2 Golosz's Dynamic Reality and Inhomogeneity

Let us now consider DR in light of Golosz's second criticism. Golosz supports the thesis DR because he believes it to be homogeneous. The motivation for preferring DR to standard forms of presentism is supposed to be that DR posits a thesis with a dynamic ontology only, rather than holding one thesis which posits a static ontology, and a second thesis which posits a dynamic ontology. DR holds only one central thesis, without the need to posit a second thesis of a different ontological nature, and Golosz argues that DR is, therefore homogeneous.

However, the thesis DR is inhomogeneous in much the same way as P1-P4. DR posits the existence of objects. This assumes a substance ontology, which is a fundamentally static ontology. Substances themselves do not change, they are that upon which properties are predicated, and which themselves stay the same through change, though the properties they bear are different before and after change. DR

posits objects, and then 'adds in' the notion of becoming. If Golosz were to posit processes instead of objects, then dynamic existence would be fundamentally dynamic; the primary nature of existence would be dynamic. However, Golosz does not argue for a process-first, dynamism-first existence. He posits static objects, or substances. Golosz then includes the additional notion that these (fundamentally static) substances exist dynamically. Golosz assumes a static ontology and then attempts to make it dynamic by adding in a dynamic ontology. That Golosz does so in one single thesis rather than two, as with most forms of presentism, does not make DR any less susceptible to the criticism that it is inhomogeneous.

Golosz states that the reason for positing objects and events within his theory of dynamic reality is that ascribing mass and momentum to events is extremely difficult, if not impossible[243]. It is far easier to take objects as primary and events as secondary. Unfortunately, any account which attempts to hold a dynamic ontology by starting first from a static ontology will always be inhomogeneous. This leaves those of us who believe that the world, or that time, is dynamic with the difficult task of rejecting a substance ontology in favour of a dynamic ontology.

[243] Golosz, 2018, pp403.

Chapter Conclusion

To conclude, presentism is an account which is supposed to posit dynamic time and therefore could be reworked to better reflect the dynamic nature it's proponents argue it has. Golosz offers his reworking of presentism: DR. I have shown, however, that DR falls victim to the same criticisms which Golosz makes of standard presentism. DR, therefore, cannot offer anything over and above standard forms of presentism. As this attempt at reworking presentism as a dynamic theory falls short, I will go on, in chapter 7, to explore a mechanism for dynamic existence which I argue is fundamentally dynamic.

Chapter 7

Making Time for Powers

Chapter overview

In chapter 6, I explored an attempt, thanks to Golosz, to understand presentism as a fundamentally dynamic and homogeneous theory. I rejected Golosz's theory, 'dynamic reality' as it offered neither of these proposed ingredients. In this chapter, I aim to explore a mechanism for dynamism on my preferred presentist view of existence presentism. My preferred mechanism is a version of powers ontology. The version of powers I explore here is a Neo-Aristotelian, 'anti-passivist' view, according to which powers are dynamic and process-like and cannot be reductively analysed.

In section 7.1, I will introduce dispositions and how they are reductively analysed as conditionals. I will explain this analysis in section 7.1.1 and go on to illustrate this in section 7.1.2 thanks to a more traditional view of powers due to Bird

(2012). In section 7.1.3, I will distinguish the dynamic, anti-passivist concept of powers I will be utilising as the mechanism for dynamism on my account. Finally, I will briefly consider, in section 7.1.4 whether anti-passivist powers are compatible with a static view of time.

In section 7.2.1 I consider criticisms thanks to Donati (2018) and Backmann (2019) that powers ontology is not straight-forwardly compatible with presentism. These criticisms focus on presentism being unable to accommodate the dynamic aspect of powers due to positing a single time-slice. I concur with these criticisms that the standard versions of presentism are not compatible with dynamic powers. As a response, in section 7.2.2 I show that a dynamic account of powers is compatible with existence presentism, and further, is able to serve as a mechanism for dynamism on this version of presentism.

In section 7.3.1 I explore further considerations of the powers view in conjunction with existence presentism. I posit pandispositionalism; the position that *all* properties are powers. In sections 7.3.2 and 7.3.3 I explain how a pandispositionalist view of dynamic powers can deliver a theory according to which presentism is homogeneous, and fundamentally dynamic. I conclude that, according to this theory, dynamism is intrinsic to what is present, and by virtue of existence presentism, to what exists.

Introduction

In chapter 6, I explored and rejected an attempt to formulate a view of presentism which is both dynamic and homogeneous, thanks to Golosz (2018). In this chapter, I shall explore and propose a mechanism for dynamism on my preferred view of existence presentism, resulting in my proposed theory of 'dynamic existence presentism'. A serviceable ontology for this mechanism would need to be dynamic in nature and avoid the sequence of static events one might find in, for example, a Humean account of existence. The possibility I will consider here is a version of the powers ontology thanks to anti-passivist powers proponents. This anti-passivist view conceptualises powers as fundamentally and irreducibly dynamic.

Previous attempts to reconcile the powers view with various accounts of time have shown that powers are not compatible with any of the prominent accounts of time. Donati (2018), and Backmann (2019) highlight that powers are, if not incompatible, at least not straight-forwardly compatible with any of the prominent theories of time. As my focus is on paving a new way forward for presentism, I will focus specifically on the arguments against the compatibility of powers and presentism here. I agree with Donati and Backmann's assessment that powers are not straight-forwardly compatible with presentism as these ideas are commonly understood. However, I intend to show that powers as understood by the dynamic powers view are compatible with existence presentism.

There are several variations on the powers view, so to clarify, I will adopt a neo-Aristotelian view of powers which emphasises an irreducibly dynamic understanding of powers. There are a variety of different theories which fall under this dynamic view of powers, which I will refer to as the anti-passivist view. I will not argue for any one particular anti-passivist position, but I argue for anti-passivist powers generally as a mechanism for dynamism.

I shall distinguish the kind of powers view I will posit by contrasting it with a conditional analysis of powers thanks to Bird's (2012) classical view of powers and dispositions. I will show how these classic concepts of powers can be reduced to a conditional view of powers. I then go on to explain the non-reductive, anti-passivist powers view, thanks to Groff (2012), Mumford (2004), Mumford & Anjum (2011), and Ellis (2001).

These latter accounts, though they all vary in some way, share a common theme: they stress the dynamic aspect of powers ontology. This family of views is consolidated and outlined by Backmann, who offers a summary of powers which, though not all proponents of the powers view will adhere to, does offer an apparently fundamentally dynamic account, or, as Backmann puts it, "the proponents of the powers view place a big emphasis on the dynamism that their view, in contrast to Humeanism, is allegedly able to capture"[244].

[244] Backmann, 2019, pp980.

7.1. Powers.

Though there seems to be no consensus on a precise definition of a powers ontology, proponents of the view take the position, roughly, to be that there are certain properties which bestow a particular power on their bearer. In other words, powers are properties that are dispositional in nature[245]. Generally, an object which possesses some power is disposed to behave in a certain manner in certain circumstances. For example, a glass which possesses the property of being fragile is disposed to break when dropped.

I will explore Alexander Bird's (2012) dispositional essentialism, which is a classic example of the powers view. I shall briefly explain the ideas behind dispositional essentialism to provide a background from which to contrast the anti-passivist view. I will then explain why the anti-passivists reject dispositional essentialism, as they believe it delivers something akin to the reductive view offered by the conditional analysis of dispositions.

To clarify this kind of view, I will first clarify the kind of view I am rejecting; a Humean dispositionalist view, which reduces dispositions to subjunctive conditionals.

[245] Bird, 2016, pp341.

On this view dispositions are not powerful, they cannot bring about any change in the world, they merely state the conditions under which certain events come about.

7.1.1 The Conditional Analysis of Dispositions

It is important, before continuing, to be clear on the kind of dispositionalism I am aiming for, and the kind of position I am rejecting. For clarity, I am not taking the position of those who view dispositions from a Humean background (e.g., Ryle 1963). Those who take this view argue that dispositions are not genuinely powerful properties possessed by objects, or even properties at all. On this view, dispositional ascriptions do not refer to properties of entities, they refer to the potential, or actual, behaviour of an entity when that entity is exposed to some stimuli. For example, when we say of the glass that it is fragile, on a non-dynamic view we are merely stating the behaviour of the glass if the glass were subjected to certain conditions. There have been many different accounts which analyse dispositional ascriptions in this way, and I cannot hope to detail them all here. Instead, I shall give a summary of the main argument: the conditional analysis of dispositions. Further, there have been several iterations of the conditional analysis of dispositions, and several counter arguments to this reducible analysis, however, as these are all aimed at a kind of (Humean) dispositionalist theory which I am not advocating, I will not explore them here. I shall instead sketch the problem, detail how this might be a worry for Bird's understanding

of both dispositions and powers, before proposing a move towards an irreducibly dynamic account of powers.

Though there are several accounts which reduce dispositions to conditionals, I shall look at an early example, due to Ryle (1963). Ryle argued that when we say that some entity has a certain disposition, we are not saying that entity has a genuinely powerful property, we are instead asserting the truth of a subjunctive conditional. According to this analysis of dispositions, when we make a statement such as 'the glass is fragile' we are not saying that the glass has some powerful property of 'fragility', we are saying that if we were to drop the glass on the floor then the glass would break. The breaking of the glass is an event which depends upon some prior event, e.g., the glass being dropped. Dispositional ascriptions are nothing more than "if-then"[246] sentences, so, to say of a glass that it is fragile is simply to say that if the condition of the glass being dropped is satisfied, then this is sufficient for the glass to break. There are no hidden, mysterious, powerful properties which bring about some change in the world or contain some causal force which pushes the world forward. There are simply events which meet the sufficient conditions for further events.

[246] Ryle, 1963, pp127.

7.1.2. Classic Dispositionalism.

According to Bird (2012), 'powers' and 'dispositions' are terms often, and mistakenly, used interchangeably. Dispositional predicates are familiar features of our language; we use them when we anticipate the behaviour of, or predict some change in, things or people. When we make statements such as 'glass is *fragile'*, or 'paper is *flammable'*, we are saying that the glass is prone to breaking, or the paper is likely to burn. Dispositions are entities which correspond to those predicates, for example, fragility. Dispositional properties, then, are properties which make their bearer disposed towards some change when exposed to some stimuli. For example, a glass which is fragile is disposed to break when dropped onto a hard surface.

Bird describes his account of powers as properties which *necessarily* give their bearer a certain dispositional character where that property is instantiated. For example, necessarily, a glass which has the power of 'fragility' will be disposed to break when dropped onto a hard surface. In this way, powers seem to give their bearer some real 'potency'[247]; 'fragility' is a property which has the power to bring about some change in the world. In this case, it brings about, or is responsible for, the breaking of the glass when the glass hits some hard surface.

However, for powers proponents who reject a Humean understanding of powers, Bird's powers are reductive. One such example of this criticism is thanks to

[247] Bird, 2012, pp27.

Cartwright and Pemberton (2013), who argue that causal accounts of powers, such as Bird's, can be reduced to pairs of conditionals[248]. On this reductive, conditional reading, powers are analysed as such: "x is disposed to ϕ iff, were x subjected to the manifest conditions m, it would ϕ."[249] Let us compare this to Bird's notation of powers; the dispositional essence D of a property P is characterised by the fact that a certain manifestation M is brought about if a certain stimulus S is present.[250]

The only difference between those accounts of dispositions which can be reduced to conditionals, and Bird's description of powers, is that Bird's powers grant their bearer the same dispositional character in every metaphysically possible world where that property is instantiated[251]. However, for the anti-passivist, this is not enough to avoid the Humean 'one-thing-and-then-another' reduction of powers because the necessity of some manifestation does not imply the key dynamic element which the anti-passivist argues for.

Having outlined a more traditional version of the powers view, which is not dynamic, and therefore cannot serve as a mechanism for dynamism on my view, I will now outline the anti-passivist position which will form part of my final view.

[248] Cartwright and Pemberton, 2013, pp109.
[249] Backmann, 2019, pp985.
[250] Backmann, 2019, pp985.
[251] Backmann, 2019, pp985.

7.1.3 Anti-Passivist Powers.

Proponents of the anti-passivist powers view, for example Ellis (2001) and Mumford & Anjum (2011)[252], reject the conditional analyses of powers. Bird's definition of powers can still be seen as reductive and can be characterised in terms of a causal, Humean account. In essence, classic versions of powers are rejected on the basis that they are fundamentally lacking in some key dynamic element. The proponents I follow argue for an *anti-passivist* account of powers, challenging "the dead world of mechanism"[253], in which Bird's account falls. Ellis describes such a world as being such that "inanimate matter is essentially passive, never intrinsically active".[254]

Anti-passivists argue that, not only are powers real properties of objects, but that powers bestow activity on their bearers, and that this activity, or dynamism, cannot be reduced to a sequence of events. Rather, they argue, powers are irreducibly dynamic. For instance, Ellis identified causal interactions as 'process kinds', and argued that these process kinds are underpinned by dispositional properties[255]. These process-kinds are not a sequence of events, and so cannot be analysed in terms of sequences of static parts. Powers, then, are dynamic in that they cannot be defined merely in terms of stimulus-response sequences, they are not merely an antecedent

[252] Note: Ellis, and Mumford & Anjum do not defend quite the same version of powers ontology, however I group them together here for their similar commitments to anti-passivism.
[253] Groff, 2012 pp211.
[254] Ellis, 2002, pp59-60.
[255] Backmann, 2019, pp986.

condition. Rather, dynamic powers are that in virtue of which a stimulus is a stimulus[256].

According to Ellis' view, then, a power being manifested is the occurring of an irreducible process, and powers are fundamentally dynamic. In contrast with the reductive accounts, the anti-passivist rejects the manifestation of powers as a one-thing-and-then-another understanding of causation. The process of a power being manifested is not, and cannot be, broken down in such a way. The manifestation of powers is process-like, indeed, powers themselves should be thought of as dynamic. They are not passive information waiting to be activated by some stimuli, rather they are always, and fundamentally active.

Of course, a lot rests on precisely how we understand dynamism here, so I will offer some clarification, due to Groff (2012). Groff proposes that 'dynamism' and 'anti-passivism' belong in a family of terms which also includes 'powerful', 'potent', 'active', and 'forceful' and claims that these terms all point to a shared referent[257]. Groff goes on to suggest that, in recognising these terms as a family, the anti-passivist is approaching a real definition of what they mean by dynamism; they are approaching a "conceptual demarcation of a kind-essence"[258].

[256] Groff, 2012, pp214.
[257] Groff, 2012, pp214-215.
[258] Groff, 2012, pp215.

However, I will acknowledge two potential problems with this approach to defining dynamism as the anti-passivist does. First, as Groff points out, opponents of this view may argue that to define any term in this family of terms by pointing to any other term in the family is circular[259]. Second, as the anti-passivists suggest that these terms point to a shared referent, the reductivist could simply argue that this family of terms points to a different referent. By making this move, the reductivist could use any of these terms, 'dynamic', 'powerful', 'active' etc, to describe their position. Further, as a result, the reductivist could even go so far as to argue that there is no difference between their view and the anti-passivist's view because in using terms such as 'dynamic' as the reductivist understands it, the anti-passivist is saying nothing different to the reductivist.

In response to the first potential criticism, I acknowledge that defining any one term by pointing at others in its family is circular. However, Groff does not argue that doing so gives a definition of these terms, only that the anti-passivist can *approach* a definition. Much more work has yet to be done to understand dynamism, what it is and what it might consist in. Groff, though, seems to suggest that to understand dynamism, it is almost as important to define it in terms of what it is not. We have a clearer understanding of what it means for something to be static, than for something to be dynamic. We know that to be dynamic is not to be static, therefore, to say that what we mean for something to be dynamic is, at the very least, for it not to be static,

[259] Groff, 2012, pp215.

then we have a conceptual demarcation of the essence of process-kinds[260]. If we cannot define or understand what it is to be static without pointing to a family of terms, then the anti-passivist has no more cause for concern than the reductivist.

To the second criticism: though the reductivist may argue that this family of terms points to a different referent, the anti-passivist will not agree to this. Nor do I believe that the reductivist would be content to allow that such terms point towards powers as process-like properties. When the anti-passivist points to a family of terms such as 'dynamic', 'powerful', etc, they will define and understand those terms in such a way that the reductivist will undoubtedly reject. Regardless of whether they admit the same terms, the anti-passivist and the reductivist simply do not accept that the same concept underpins those terms. In short, the reductivist and the anti-passivist are asserting that the same terms apply to very different concepts. Despite this, in the world of the anti-passivist the definition of a process-kind always involves the family-terms as they are understood by the anti-passivist[261].

These later versions of the powers view, which deny that a process can be analysed as a sequence of static events, are the kind of views of powers that I want to adopt within my own view. I take it that it is clear why I might prefer such a non-reductive (what I will call 'anti-passivist') account, over an early iteration such as Bird's

[260] It may seem that I am arguing that there is a binary between being static and being dynamic. I would like to clarify two points. First, in some sense, there may be, in that to be dynamic is to not be static. However, I hold there is a spectrum to dynamism, and that to be dynamic is to exist somewhere on that spectrum.
[261] Groff, 2012, pp215.

view. The aim in anti-passivist views is to reject the claim that processes are in any way static events, and instead hold that processes are fundamentally dynamic and continuous happenings. While this view is open to the criticism that it is imprecisely formulated and does not offer an explanation of this dynamism (a criticism which I hold some degree of sympathy for), I believe that proponents of such a view will hold that dynamism is primitive and unanalysable. As Groff suggests, this dynamism cannot be discussed in terms that the reductivist will accept, as any discussion of an irreducibly dynamic concept will require the use of dynamic language[262]. Even if, as suggested above, the reductivist repurposes the language, the concepts being discussed will significantly differ, and the opposing sides will speak past each other.

Try as the reductivist might to reduce this dynamism, it simply cannot be reduced on this account. The anti-passivist aims to take dynamism seriously, and were we to reduce it down, we would lose that dynamic aspect. Change, on the anti-passivist account must be primitive and unanalysable.

On this dynamic reading of the powers view, then, proponents hold that powers are properties which, when manifested, bring about some irreducibly dynamic process. For example, the cup which has the property of being fragile: when hitting a hard surface, the fragility of the cup manifests as the cup breaking apart. The breaking of the cup is a continuous process which cannot be reduced to the cup being whole at time t1, and then being in separate pieces at time t2. To further illustrate this point,

[262] Groff, 2012, pp215-216.

Backmann uses an example from the philosophy of action; when I exercise my power to dance, the manifestation of this power brings about my dancing. This is one continuous process, which cannot be reduced to my foot being some position x at t1, and some other position y at t2[263]. Backmann formulates this reading of a power as "a non-metaphorically active, irreducibly dynamic property with a dispositional essence, the manifestation of which gives rise to an irreducible change process"[264].

Having shown that the anti-passivist can give an account of irreducibly dynamic powers, I will go on, in section 7.2, to link this back to my project, in order to show how anti-passivist powers can form the basis of dynamism on my view. First, though, I will consider whether anti-passivist powers could be compatible with a static view of time because, if this were possible, this may raise doubts about the suitability of the view to act as a mechanism for dynamism.

7.1.4 Anti-Passivist Powers and Static Eternalism

My aim here is to find an ontology compatible with a dynamic form of presentism, and therefore the only theory we need examine here is presentism, though it may be worth first briefly saying something about the compatibility (or lack thereof) between the neo-Aristotelian powers view and eternalism. While I am not

[263] Backmann, 2019, pp988.
[264] Backmann, 2019, pp989.

claiming that any ontology which is compatible with a static temporal theory must be rejected, I would have reservations about any theory which claims to be fundamentally dynamic if it were compatible with a static theory of time, such as a B-theory.

Backmann (2019) aims to show that this reading of the powers view is not straight-forwardly compatible with any of the most prominent theories of time in their standard forms, namely, eternalism, the moving spotlight view, the growing block theory, and presentism.

I take it to be fairly obvious why this version of the powers view is incompatible with eternalism (to say nothing of the compatibility of other versions of the powers view as compatible with eternalism). Eternalism is a static view of time, according to which all times exist on par and all events exist eternally. Facts are eternal, and nothing new is ever brought about or created. According to the static eternalist, for some event x to produce event y, means that x is temporally earlier than y. As Backmann points out, it is not quite this simple. The eternalist, may, for instance, argue that event x necessarily causes event y[265]. Regardless, this would fall short of how the dynamic powers proponent understands production. According to the kind of powers view I am advocating for, powers produce something new, they bring something into existence. This is not supposed to mean 'production' as understood by the static eternalist.

[265] Backmann, 2019, pp13.

As Frebe (2018) argues, dynamic powers produce something new at an instant (though, as I shall go on to argue in section 7.2, I do not hold that something new is produced *at an instant*, as there are no *instants of time* on my view). To put this another way, the dynamic powers proponent holds that powers bring something new into existence, so, for x to have the power to bring about y, x brings y into existence. Depending on the individual dynamic powers proponent, this could mean either that x produces y to exist *presently*, or that x produces y to exist *simpliciter*. According to static eternalism, there is no objective present, and everything that exists, exists equally simpliciter. This understanding of production is not possible on the static eternalist view. On the static eternalist view, this would need to be reduced to, either, some new fact is produced presently (where presently means a time present relative to itself), or all facts exist equally simpliciter[266]. This is precisely the kind of reduction that the dynamic powers proponent is arguing against.

7.2 Presentism

7.2.1 Powers and Standard Presentism.

In Backmann's (2019) exploration of the compatibility between non-reductive dynamic powers and presentism, Backmann argues that a Priorian presentism, which views objects and their properties as the occupants of times, is the most likely version

[266] Backmann, 2019, pp15.

of presentism that the powers metaphysicians in question would accept. As the proponents of this kind of powers view reject the view that there exists a succession of events, an alternative is the Priorian idea of change as objects having different properties at different times. This version of presentism combined with the dynamic powers view results in the following thesis:

> Powers Presentism (PP): "All that exists are present objects and their powers"[267].

On this version of presentism, change occurs when powers are manifested. These powers change which properties are instantiated by an object.

The incompatibility between an anti-passivist powers view and eternalism is clear, which may, at first glance, make it seem that an anti-passivist powers view is more readily compatible with a view of time which has some dynamic element, such as presentism. However, Backmann argues that powers and presentism are at least not straight-forwardly compatible. Two reasons are offered by Backmann to support this conclusion, and both depend on how change, or activity, is analysed.

The first reason to think that powers and presentism are incompatible is because of a criticism of presentism offered by Backmann. Backmann claims that the anti-passivist powers metaphysician would most likely support a Priorian presentism.

[267] Backmann, 2019, pp1001.

On this version of presentism, the present is understood as a time at which objects (and their properties) are located. This is opposed to the kind of view which understands the present as being comprised of present events. The anti-passivist is committed to the existence of dynamically existing objects and their properties, so ostensibly this may seem an appropriate version of presentism to consider (though in section 7.2.2 I show that it is existence presentism which is compatible with anti-passivist powers).

On the Priorian account of presentism, then, change becomes analysed as objects having different properties at different times. An object which has some property at one moment, may have lost or gained a property in the next moment. For example, 'the glass was dropped at t1 and broken at t2'. However, as detailed in section 7.1, the anti-passivist will adamantly reject that change can be reduced in this way (or at all). This example is much more akin to a reductivist's one-thing-and-then-another view. For presentism to be compatible with a dynamic powers view it needs to deliver something which cannot be reduced to having different properties at different times.

The second reason Backmann gives for the incompatibility of powers and presentism is that activity requires reference to more than one time. This criticism is very closely linked to the first criticism, above. However, I do take them to be subtly different. The former argues that the version of presentism which seems most compatible with powers is incompatible. This second criticism focuses on activity being

impossible only in the present moment. For example, when I am cycling, I am moving the pedals, pushing the bike forward, which happens over time. If we were to consider my cycling at only one time I would not be cycling, but rather, I would be on my bike in a particular location. The activity of cycling therefore requires that I am located differently at different times. Backmann tells us that this poses a problem for the presentist. For the presentist only one time, the present, is real. There are no past (or future) times which exist. For me to be cycling, as opposed to simply being located in a particular place, we need to reference past times. However, there are no past times according to presentism and therefore, my cycling, or indeed any activity, cannot be said to be happening.

The problem is that we require that activity is something beyond a succession of states over a succession of times. Activity, it seems, must happen in the present moment, so it needs to be intrinsic to objects *at a time*[268]. It seems that in saying this, we may be committing ourselves to a temporally extended present.

However, the presentist will want to deny that the present can be temporally extended. For any duration longer than an instant, if we can say of it, 'this point was earlier than that point', we have identified different temporal instants. For the present to be temporally extended, to allow for activity, the present would involve some passage of time in itself. Some earlier/later distinction, or some temporal parts, would need to exist within that present moment. In this way, the present could not be *a*

[268] Backmann, 2019, pp1003.

moment in time, but several moments in time. Further, if we reject that to be temporally extended implies that the present consists in multiple instants, the presentist still would not accept this analysis of presentism. According to discussions thanks to Le Poidevin (2002), Craig (2000), and Pezet (2020), the presentist would simply deny that, according to their ontology, a temporally extended present is possible.

To conclude this section, these problems bring Backmann to the conclusion that powers and presentism are not compatible, or at least not straight-forwardly compatible. For these ideas to be compatible, we either need to defend presentism against Backmann's criticisms, or find a different way of spelling out presentism. Backmann does not go on to consider these alternatives, so I will offer a solution for the presentist. My solution is to spell out presentism as existence presentism and show how this version of presentism provides responses to Backmann's criticisms above.

7.2.2 Powers and Existence Presentism

Backmann suggests we could choose an alternative version of presentism in an attempt to avoid his worries outlined in section 7.2.1. The issue appears to be that it is incompatible for only the present time to exist, and for an object to be intrinsically

active, or (to use my own language) to be dynamic. It is worth exploring, then, what happens if we reject the idea that there is any such thing as a present *time*.

The reimagining of presentism which I am proposing involves returning us to chapter 1, and to the position that, for presentism, there are no times. To remind the reader of this, I borrow from Merricks' view that the presentist should not accept the way in which the present is commonly thought of; as a slice of eternalism, and instead hold that there is nothing like time-slices:

> "Since they do not believe in a region called the 'present time', presentists cannot reduce *existing at the present time* to being located at that region. I think presentists should, instead, say that *existing at the present time* just is *existing"*[269].

If Merricks is correct here, we can no longer agree with Backmann's assertion that for activity to be non-reductive, objects need to be intrinsically active 'at a time', because there is no (slice of) time which the objects are located at. Perhaps slightly harder to understand is precisely what the alternative is. I laid the groundwork for this alternative in chapter 1, in the discussion of Merricks (2007), which I shall now remind the reader of, before developing this idea further in section 7.3.

[269] Merricks, 2007, pp126.

Merricks suggests that instead of existing at a time, things just exist. There are different ways of spelling this out formally, for example:

> "Existing at the present time just is now existing"[270].

This is, of course, trivially true, and so tells us nothing interesting about what existence presentism might be.

My preferred way of formally spelling out existence presentism is thanks to Tallant (2014):

> "EP: Presence is existence."[271]

According to this, to be present does not mean to exist at the present (time). Instead to be present *just is* to exist. This completely discounts any possibility of existing *at a time*, which discounts the notion of having a property *at a time*.

Revisiting Backmann's argument, that activity needs to be intrinsic to an object at a time, let us see what this claim looks like when viewed in light of EP. If we take away activity being intrinsic to an object *at a time*, what we are left with is simply activity being intrinsic to an existing object. Activity cannot be reduced to an object

[270] Tallant, 2014, pp 493.
[271] Tallant, 2014, pp494.

having different properties at different times if there are no times. When combining EP and the anti-passivist powers view, we commit ourselves to:

PP*: All that exists are objects and their powers.

Note that this is different from PP in that we no longer specify '*present*' objects. I suggest that what we are left with on this picture, is not a succession of times, over which objects change their properties. Rather, just as with PP, change occurs when powers are manifested and these powers change which properties are instantiated by an object. In this way what exists changes. To put this another way, I am not treating the present as a time, but instead I say that presence and existence are one and the same. Activity is intrinsic to what exists, and by virtue of EP, to what is present.

7.3. Pandispositionalism

7.3.1 All Properties are Powers

So far, I have shown that there is a version of the powers view which is compatible with a version of presentism. In this section I go on to detail what I require from a powers view for it to deliver a fundamentally dynamic account of change on the existence presentism view, and how the powers view can deliver this.

I have previously stated that powers, or dispositional properties, are the mechanism by which things change on my view of dynamic existence presentism. Presence is existence, and existence is dynamic because that which exists has powerful properties which bring about change. On this view, change is brought about through the process which occurs when some dispositional property, or power, is manifested. As change is what is 'pushing' the world into some future state, then *all* change occurs in this way, meaning that all properties must be powerful. This tells us that the commitment of the kind of powers view we need here is to a pandispositional powers view.

Pandispositionalism is a theory of dispositional properties which combines two views:

1. Dispositions are real, irreducible features of reality.

2. All properties are irreducibly dispositional in nature[272].

Pandispositionalism, then, is the view that all properties are dispositional properties, they all have some causal role to play and have the potential to bring about change in the world. All properties, then, have causal potential. The '*fragility'* of an entity causes breakage, the '*brokenness'* of an entity causes '*cut skin'*, which in turn causes

[272] Tugby, 2011, pp165.

'*bleeding*', etc. Pandispositionalism paints the picture of a world in which all properties form what Mumford (2004) calls "an interconnected web"[273], with every property having the power to bring about a further property, and each of those properties having the power to bring about some further property, etc.

It is this interconnected web of powers; dispositional properties bringing about further dispositional properties, which forms the mechanism of change on dynamic existence presentism. The powers are bringing about some irreducibly, fundamentally dynamic process into the world, leading to some new powerful properties, which bring about some further powerful properties. This irreducibly dynamic web of processes, of powerful properties leading to other powerful properties, is changing the world, and changing what exists. Further, as my commitment to existence presentism tells us, what exists just is what is present, or, in other worlds, presence is existence. Therefore, dispositional properties changing what exists, must be changing what is present.

7.3.2 Inhomogeneity.

In chapter 6, I explored a claim of inhomogeneity on the presentist account, due to Golosz (2017). While I clarified that homogeneity is not a requirement for some theory to be true of reality, I did argue that inhomogeneity may be the result of the

[273] Mumford, 2004, pp182.

presentist adopting static eternalist ontology. As such, I argue for exploring a fundamentally dynamic version of presentism free from this inhomogeneity.

I argued that Golosz's attempt to understand presentism in these terms, via his theory of 'dynamic reality', rests upon a substance ontology. To recap, he suggests that objects exist dynamically, making him fall prey to the very same thing he criticises the presentist for; inhomogeneity. He proposes the existence of objects (which are static substances), and then adds to this static reality a commitment to dynamism, making his position inhomogeneous.

By adopting pandispositionalism, I believe that my position is less likely to fall victim to this criticism than Golosz's. Golosz's 'dynamic objects', I argue, are inhomogeneous. However, let us suppose for a moment that we accept that Golosz is proposing a genuinely dynamic existence, free from any static ontology. Golosz makes no argument as to the kind of properties these objects have, and so it is reasonable to assume the most orthodox view of properties, which are static properties. So even *if* we were to allow that Golosz's objects are dynamic (which I deny), the properties these objects possess are static, which, again, leaves Golosz open to a criticism of inhomogeneity.

When we compare this to dynamic existence presentism, according to which *all* properties are irreducibly dispositional (or powerful) in nature, we see that on my theory there are no static properties. This commitment to pandispositionalism reduces

the sting of the inhomogeneity criticism because there are no static properties on my view. Of course, the bearers of those dispositional properties still fall somewhat within the realm of substance ontology, which my opponent in this may argue leaves me in the same position of inhomogeneity as Golosz. However, I do think this is not quite as damning a worry as it may ostensibly appear.

According to the theory I am proposing, objects are bundles of properties. All of those properties are irreducibly and fundamentally dynamic in nature. Some, or all, of those properties will be intrinsic to their possessor. It therefore follows that these entities cannot be separated from their dynamic nature. To illustrate this, imagine some possible world, W*, which is an empty world in which time does not pass. Now imagine that we take an object which is a bundle of dispositional properties and place it into W*. As this object is a bundle of dispositional properties which is fundamentally dynamic in nature, W* can be said to be fundamentally dynamic in nature. Further, as the nature of these dispositional properties is future directed, it follows that W* becomes future directed.

I believe this avoids the inhomogeneity argument because, unlike Golosz's objects (or static substances) which he claims exist dynamically, but possess static properties, the objects according to my theory are themselves bundles of dynamic properties. Again, to stress this point, this means that activity is intrinsic to existence, and thereby intrinsic to presence.

7.3.3 Unmanifested Powers.

Throughout the previous two sections I have relied heavily on the manifestation of dispositional properties to account for change in what exists. A criticism of this kind of view, and one which previous dispositionalists have faced, is the problem of unmanifested properties. If every property is a dispositional property, then it is implausible to suppose that every dispositional property will be manifested. The fragile glass may never break, but pandispositionalists still want to say that the glass has the dispositional property of fragility. Any philosopher who is a realist about dispositions must accept that some dispositions will never be manifested. This is not to say that dispositions are not powerful, the manifestation of some disposition may be potential, but the disposition is actual[274].

It may seem at first glance that allowing for unmanifested dispositions may leave my account in some difficulty. The mechanism of change on my account is the manifestation of dispositional properties giving rise to processes which bring new dispositional properties into being. If properties are unmanifested, it may seem that change does not occur. In the actual world, in which we have a complex interconnected web of dispositional properties, this is not really a worry. However, take for example, some possible world, in which there exists only a shelf with a glass

[274] Tugby, 2011, pp169.

resting on the edge of it. The glass has the dispositional property of 'fragility', and as we have seen above, dispositional properties are modally fixed, therefore the glass will necessarily smash under the appropriate manifest conditions, in this case, if it falls from the shelf. In this possible world, however, imagine there are no other dispositional properties which will bring about the appropriate manifest conditions; there is nothing that will cause the glass to fall, meaning that the glass rests on the shelf indefinitely.

According to my view, existence presentism is true, and pandispositionalism is the mechanism by which what is present (what exists) changes. In this 'stuck world' case above, both existence presentism is true, and pandispositionalism is true, and yet nothing changes. I argue that, despite appearances, this 'stuck world' is still dynamic. Although the conditions have not arisen to bring about changes in properties, the dispositional properties still have the *power* to bring about change, to bring about process, and as long as they have the power to do so, the world is still in some sense dynamic.

Chapter Conclusion

To conclude this chapter, I present the two main commitments of my preferred theory; existence presentism and dynamic powers. On this view, existence is fundamentally dynamic in virtue of objects being understood as bundles of dynamic

properties (powers), thereby making dynamism intrinsic to what exists. Further, in virtue of existence presentism, presence just is existence, therefore, as dynamism is intrinsic to what exists, dynamism is intrinsic to what is present.

Chapter 8:

In Defence of Dynamic Existence Presentism

Chapter overview

In chapter 8, I offer some motivation for my view of dynamic existence presentism (DEP). First, in section 8.1, I consider which questions presentism is supposed to answer, thanks to Tallant and Ingram (2023). I argue that more standard forms of presentism fail to provide answers to the questions they should be addressing. I further argue, in sections 8.1.3 and 8.1.4 that DEP not only answers these

questions but also offers further development of the concept of dynamism on the presentist view.

In section 8.2, I distinguish between which challenges can reasonably be raised against DEP, in comparison to more standard versions of presentism. I revisit those challenges from chapters 3, 4 and 5 in sections 8.2.1 – 8.2.3. I go on to consider a problem for DEP from relativity in section 8.2.4. I then revisit the problem of unmanifested powers in section 8.2.5.

Finally, in section 8.3 I acknowledge that DEP may be considered an unusual version of presentism and defend its place among presentist accounts, by considering Tallant and Ingram (2021) and their argument that there is no theoretic core to presentism.

Chapter Introduction

In this final chapter, I offer some motivation for the account of dynamic existence presentism (DEP) presented in this thesis. I consider suggestions, thanks to Tallant and Ingram (2023), that the questions that standard versions of presentism attempt to answer are not philosophically interesting. They propose alternative questions which are philosophically interesting, and show how it is existence presentism, rather than standard presentism, which provides answers to these

questions. They then suggest that more work needs to be done by the existence presentist to flesh out precisely what is meant by 'dynamism' on this theory. I argue that my version of existence presentism, DEP, outlined within this thesis provides a suitable account of dynamism which makes existence, and therefore presence, fundamentally dynamic.

Throughout chapter 8, I make a deliberate departure from the narrative flow typically found in previous sections. This stems from the chapter's summary nature, designed to provide a condensed overview of key arguments and responses. This will be particularly noticeable in section 8.2, in which I consider challenges raised against presentist accounts, some of which remind the reader of challenges raised throughout the thesis. I discuss which of these challenges the proponents of DEP can reasonably be asked to respond to. These include those challenges raised in chapters 3, 4, and 5 (the rate of passage, McTaggart's paradox and truth-making), as well as presentism's compatibility issue with the special theory of relativity, and the problem of unmanifested powers.

In the final section of this chapter, I defend DEP's place among other presentist accounts. I follow Tallant and Ingram (2021) in showing that there is no theoretical core uniting all of the many different presentist accounts. Therefore, that DEP does not conform to a more conventional understanding of presentism does not preclude it from being a presentist account.

8.1. If presentism is the answer, what is the question?

In developing any philosophical theory, it is important to keep in mind what our theory is supposed to do. Our theories are intended to answer certain philosophical questions. We may feel sure we have some good answers, but we sometimes lose sight of the questions we are trying to answer. In this section, I will consider, thanks to Tallant and Ingram (2023), which questions presentism answers, and which questions presentism is supposed to be answering. I follow Tallant and Ingram in arguing that presentism, broadly understood, answers questions which are not philosophically interesting. I then consider the alternative questions offered by Tallant and Ingram and show that dynamic existence presentism does provide an answer to these philosophically interesting questions in a way that the more broadly understood versions of presentism do not.

Tallant and Ingram (2023) remind us that we can lose sight of the questions which our theories are supposed to be answering and offer some suggestions of the questions we should be answering. In their paper, they look at a variety of claims made by different versions of presentism and ponder which philosophical questions these claims are supposed to answer. For example, 'only present objects exist', they tell us, is ostensibly an ontological thesis about what exists; present objects exist, but past and

future objects do not. Hence, Tallant and Ingram argue, 'only present objects exist' is thought to be an answer to the question 'When, in time, do objects exist?'[275].

I will examine the two questions Tallant and Ingram believe that presentism attempts to answer, and why they hold that these questions are not philosophically interesting. I shall then consider the two questions they put forward as alternatives, which are the questions our theories should be trying to answer. I examine their claim that standard versions of presentism do not answer these questions. I agree with Tallant and Ingram that 'existence presentism' is the one version of presentism which answers their questions most thoroughly. Finally, I look in more detail at Tallant and Ingram's closing remarks; that more work is needed to determine the nature of dynamism in presentism, and I go on to argue that the version of existence presentism I have outlined here can give an account of this dynamism.

8.1.1 Only present objects exist.

Tallant and Ingram (2023) examine the central theses of standard versions of presentism and ask, if presentism is supposed to be the answer to some philosophical question(s), which question(s) is it the answer to? They begin with the thesis 'only present objects exist'(examples of presentism in this form include Zimmerman 2008

[275] Tallant and Ingram, 2023, pp 197.

and Deasy 2017) and tell us that, ostensibly, this appears to be an ontological thesis. In other words, 'only present objects exist' is supposed to answer a question about *what exists*[276]. However, upon closer examination of the presentist's position, the presentist is telling us that present objects exist, and past and future objects do not. Framed in this way, it seems that 'only present objects exist' is giving us an answer to the question 'when, in time, do objects exist?'.

According to Tallant and Ingram, this is a *locative* question. It asks a question, the answer to which requires us to give a (temporal) location at which objects exist. However, locative questions do not normally fall within the purview of philosophy. This is not to say that a philosopher could not give you a reasonable answer to some locative question, of course. Rather, philosophical methodology does not lend itself well to answering locative questions. To borrow an example from Tallant and Ingram, if we say that mental states are brain states, we are implying that mental states are located wherever brain states are located. Despite this having locative implications, the question philosophers ask about mental states is not 'where are they located?', but 'what are they?'. As Tallant and Ingram point out, the methodologies of philosophy (e.g., a priori, inductive, or deductive reasoning, conceptual analysis, etc) are not methodologies which help us to answer locative questions[277].

[276] Tallant and Ingram (2023), pp197.
[277] Tallant and Ingram, 2023, pp198.

As locative questions are not within the purview of philosophy, Tallant and Ingram suggest that 'only present objects exist' should not be considered an answer to a locative question. Instead, 'only present objects exist' is answering a different sort of question, found frequently in philosophy: a kind-based question. To put this another way, when presentists say 'only present objects exist', we are saying something about the kind of temporal objects that exist. A more appropriate question, then, is 'of what temporal-kind are existing objects'[278].

This is undeniably a question that philosophical methodologies are equipped to answer. However, this question puts an expectation upon the presentist to explain why they answer as they do; why do only present objects exist? Why are existing objects not past, or future? Why are existing objects of the temporal kind that they are? Or, to put this another way, the question the presentist should be trying to answer, according to Tallant and Ingram, is "why does existence have the temporal duration that it does?"[279].

I will go on to explore the second of Tallant and Ingram's proposed questions for the presentist in the next section. In section 8.1.3 I will show how the theory I defend in this thesis can provide answers to both questions posed.

[278] Tallant and Ingram, 2023, pp198.
[279] Tallant and Ingram, 2023, pp203.

8.1.2 Dynamism

One of the standard presentist's central theses, the thesis that what exists changes, has historically been somewhat difficult to pin down. A-theoretic accounts of time hold, in some form or other, a commitment to the flow, or passage of time, or that something really changes. I shall understand this, broadly, as a commitment to 'dynamism'. As Tallant and Ingram note, further investigation by presentists into the nature of dynamism on their account is needed. I will come back to how my account delivers this in more detail in sections 8.1.3 and 8.1.4. For the purposes in this section, I will examine the presentist's commitment to change following Tallant and Ingram: Deasy's transientism.

While Deasy's transientism is not the only way of spelling out change on a presentist account, it does seem to be a good example to consider. First, Deasy is quite clear on which questions transientism is supposed to answer: 'do things begin to exist?', and 'do things cease to exist?'. Second, because, at first glance, transientism does appear to be a good example of what the standard presentist is trying to communicate:

> "There is an absolute, objective present instant… & sometimes, something begins to exist and sometimes, something ceases to exist"[280].

[280] Deasy, 2017, pp391.

The thought here is that transientism is supposed to capture what the standard presentist means because as the present changes from one instant to the next, some objects which were present go out of existence, and some objects which did not exist come into existence. However, there are two issues which Tallant and Ingram raise with Deasy's transientism. First, Tallant (2019) shows us how transientism fails to capture presentism, and second, the questions which Deasy's transientism answers are not philosophically interesting questions.

Tallant (2019) shows that transientism cannot appropriately capture presentism because there are other models of time, incompatible with presentism, which transientism accurately describes. One model of time offered as an example of this is the 'trundling block' model:

> "For the first 1000 years of the trundling block world it appears exactly as would a growing block world. There is a steady accretion of events, adding to the block. However, after having existed for 1000 years in the body of this growing block, events cease to exist. 1000 years of existing is all that events do within the body of the block; then their time is up, and they cease to be. For the first 1000 years of its life, this scenario appears to be a growing block world. After 1000 years, though, the block stays the same 'size', carrying on

> gaining new events, but now losing them, too. The block ceases growing and starts trundling through time, shedding events as it goes. So much for the gloss, now let me be more formal. This is a world where: there is an absolute, objective present instant and sometimes, something begins to exist, and when it does so it is objectively present. It then continues to exist for 1000 years, then it ceases to exist."[281]

On this trundling block model of time there is one moment which is objectively present, and sometimes something begins to exist, and sometimes something ceases to exist. As this is precisely how Deasy defines presentism, as per transientism, then it follows that transientism does not capture presentism.

However, it is the second worry which Tallant and Ingram raise which I would like to focus on here. The worry is that the questions which Deasy's transientism is attempting to answer are not particularly philosophically interesting, or at least, that there are more philosophically interesting questions that would tell us more about time. Deasy's questions, 'do things begin to exist?', and 'do things cease to exist?', ask whether the list of what exists increases and decreases. Tallant and Ingram argue that, in and of itself, such inquiry lacks the explanatory aspect in which philosophy is

[281] Tallant, 2019, pp412-13.

particularly interested. In other words, 'do things begin and/or cease to exist' tells us nothing about why or how something might begin and/or cease to exist.

Rather than asking, 'do objects begin and/or cease to exist?', presentists should instead be asking the more philosophically interesting question, 'why do objects begin and/or cease to exist?'. Or, as Tallant and Ingram put it, 'why do objects have the (particular degree) of permanence that they do?'[282]. This is the second of the questions Tallant and Ingram offer as questions presentism should be trying to answer. I shall go on to summarise and consider both questions and explain how the version of existence presentism I defend can supply answers to both of these questions.

8.1.3 Providing the answers: Existence Presentism.

The two alternative questions offered by Tallant and Ingram, then, are as follows:

1*) Why does *existence* have the temporal duration that it does?

2*) Why do objects have the (particular degree) of *permanence* that they do?[283]

[282] Tallant and Ingram, 2023, pp203.
[283] Tallant and Ingram, 2023, pp203.

So, we have questions, 1* and 2* which are philosophically interesting, and which, when answered, should tell us something about the nature of reality and why objects in time exist the way they do.

Tallant and Ingram suggest that standard versions of presentism do not answer 1* or 2*. I concur with their assessment. The presentist tells us that 'only present things exist' which, first, as Tallant and Ingram point out, is the answer to a locative question. Second, as I explored in section 1.5.3.3, arguing that 'only present objects exist' reduces the presentist to exchanging lists of existing things with their opponent. It is a position which tells us what exists, and where it exists, but not *why* existence is confined only to the present. The presentist, therefore, is not providing an answer to 1*.

Similarly, the presentist fails to provide an answer to 2*, because the presentist tells us that objects have a particular degree of permanence, but not *why* objects have this degree of permanence. 'Sometimes, something begins to exist and sometimes, something ceases to exist" tells us that objects have a limited degree of permanence, but not *why* this is the case, not *why* they have that particular degree of permanence.

Standard forms of presentism, then, do not provide us with answers to the philosophically interesting questions 1* and 2*. However, Tallant and Ingram argue, and I concur, that existence presentism answers both questions.

To recap, existence presentism equates being present with existing:

"Presence is existence."[284]

In short, existence presentism tells us that what it is to be present *just is* what it is to exist. I take it to be clear why this position successfully answers 1*. If presence is existence, then everything that exists is present, hence, the reason that existence has the temporal duration that it does is because to not be present is to not exist. It is only possible for an object to exist if that object is present, because to exist is to be present. Therefore, existence presentism is able to provide an appropriate answer to 1*.

Existence presentism provides an answer to 1*, which standard presentism falls short of. While the standard presentist could frame their answer to 1* as 'existence has the temporal duration it does because the present is the only time which exists' this is still providing locative information. It tells us that what exists is located at the present moment. Existence presentism, however, is not providing a locative answer. Nothing is located at the present moment because there is no present moment to be located at.

Tallant and Ingram also believe that existence presentism can answer 2*. I shall outline their reason for believing why existence presentism can do so, though I also add something further, which I shall come back to in section 8.1.4. As for why objects have the (particular degree) of permanence that they do, again, this seems fairly

[284] Tallant, 2014, pp496.

straight-forward on the existence presentism view. Any object which is present, also exists, and when an object is not present, it no longer exists. Dinosaurs are not present, and to be present just is to exist, so to exist dinosaurs must be present. Therefore, dinosaurs no longer exist. They had the degree of permanence they had because if existence just is presence, then they can only possibly exist when they are present.

Again, existence presentism provides an answer to 2*, where standard presentism falls short. This is because existence presentism tells us not only that objects have a particular degree of existence, but why. Standard presentism lacks the explanatory aspect provided by the existence presentist.

This is not to suggest that existence presentism is the only theory of time which can answer 1* and 2*, and certainly Tallant and Ingram do not suggest that it is. Rather, existence presentism seems to be the only version of presentism which attempts to answer these questions and is able to do so clearly and concisely. While that may not be reason enough to convince all presentists to adopt existence presentism, it is a strength of that particular theory.

8.1.4 Dynamism and Existence Presentism

Tallant and Ingram's concluding remarks include a suggestion that far more work needs to be done on the claims of 'dynamism', both by presentists generally, and by existence presentists specifically. They claim that further work needs to be done to understand precisely how and why objects (or time) are dynamic, as opposed to static, and that such work would constitute "an important development in the philosophy of time"[285]. Currently, as Tallant and Ingram point out, many philosophers who advocate for dynamic theories of time do so merely on the grounds that they are dynamic[286]. It seems that these philosophers are attempting to answer the question 'do objects really (dynamically) change?'. However, in light of Tallant and Ingram's line of inquiry, here, perhaps the questions that A-theoretic proponents should be answering are:

3*) how do objects change?

4*) why do objects change?

The existence presentist can answer 1* and 2*, merely in virtue of their "existence is presence" claim. However, further work is needed to answer 3* and 4*. I shall attempt to do some of that work here and offer answers to 3* and 4* on behalf of the existence presentist.

[285] Tallant and Ingram, 2023, pp208.
[286] Tallant and Ingram, 2023, pp208.

Existence presentism in and of itself is not enough to deliver dynamism. EP tells us that presence is existence, not that either presence or existence are dynamic. So, just as the standard presentist needs to do more work to add dynamism into the picture, so too does the existence presentist. On the version of existence presentism which I defend here, DEP, I hold that, not only is it true that what it means to exist is the same as what it means to be present, but also, that to be dynamic is intrinsic to existence.

As outlined in chapter 7, DEP includes a commitment to a particular understanding of powers ontology. To recap briefly, the view I adopt is a version of powers ontology which holds that powers bestow activity on their bearers, and that this activity, or dynamism, cannot be reduced to a sequence of events. Powers are irreducibly dynamic and, when manifested, an irreducibly dynamic process occurs. I propose that every existing object has some intrinsic property (or properties), some dynamic power, which makes all existing objects intrinsically dynamic in nature. Further, that dynamism is non-reductive, non-analysable, primitive change. On this view, dynamic powers bestow activity to objects, and objects are bundles of dynamic powers, so it follows that objects are intrinsically dynamic.

When we combine this commitment with existence presentism the resulting theory has two main theses:

Existence Presentism (EP): Presence is existence.

Dynamic Powers (DP): All properties are intrinsic, non-reducibly dynamic powers which are directed towards a future state.

In this way, both presence and dynamism are wrapped up in what it means to exist. Existence is presence, and to exist (to be present) is to be dynamic.

I believe this view does two things in reference to Tallant and Ingram's paper. First, although I believe existence presentism alone answers 2*, i.e. existence presentism tells us that objects have the degree of permanence they do because to exist is to be present, I believe my version provides some additional explanatory information. DEP explains not only *why* objects have the degree of permanence they do, but also *how.* Objects have the degree of permanence they have because to exist is to be present, and therefore to no longer be present is to no longer exist. An object might no longer exist (no longer be present) because some power was manifested which caused the object to change (or cease to exist). In this way an object no longer exists (or no longer exists in the same way) and is no longer present. To put this another way, EP tells us why an object has the degree of permanence that it does, and DP gives us the mechanics of that degree of permanence.

The second benefit that DEP has is that it addresses Tallant and Ingram's final remarks concerning the need for presentists to explain how their theories are dynamic. I take this to mean that proponents of dynamic theories of time need to

develop, or put forward, the mechanics of that dynamism. In combining EP and DP, I can also push this line of inquiry forward. DEP offers a dynamic version of presentism which answers 1*, 2* and also 3* and 4*, by providing the mechanics of that dynamism.

On my version of existence presentism, then, the explanatory power of the mechanics of dynamism lies within the existence of objects which are bundles of dynamic powers. The version of existence presentism I defend, then, answers not only 1*-4*, but also provides the mechanics of dynamism, all of which can reasonably be asked of the presentist, yet more standard forms of presentism do not provide these answers. In the next section, I go on to outline which further questions can reasonably be asked of my account.

8.2 What else can reasonably be asked?

In this section, I consider further challenges confronting proponents of my preferred theory, particularly distinguishing those challenges which can reasonably be put forward, from those which cannot. First, I will briefly recap those challenges considered in chapters 3, 4, and 5. Throughout those chapters, I examined various challenges posed to theories according to which time passes, and theories according to which only the present exists. Chapter 3 considered three versions of the 'rate of passage' argument, chapter 4 looked at an argument against the reality of time, thanks

to McTaggart, and chapter 5 raised concerns about accounting for the past as a presentist. I offered responses for each of these challenges, both on behalf of the passage proponent, and the proponent of temporal dynamism. As a reminder to the reader, I will briefly recap these challenges and responses, highlighting which aspects of these challenges can reasonably be put to proponents of DEP.

I will then consider two further challenges which could be put to proponents of DEP. First, I consider a well-known concern for the presentist. Presentism is not compatible with our best scientific theories, in this case, the special theory of relativity. I show how this does pose a reasonable and serious challenge for my view, though no more than any other presentist account. Second, I consider two examples of models which challenge the nature of dynamism according to DEP. These are 'stuck world' and 'empty world' cases, in which dynamic powers cannot manifest, or there exist no powers which could be manifest. I show how my opponent may utilise these cases to show that my account can be true of a static world, and further, how these cases fall short of raising a concerning challenge.

8.2.1 DEP and the Rate of Passage

In chapter 3, I explored and responded to three versions of the 'rate of passage' argument. To briefly recap, the 'rate of passage' arguments aim to show either that the rate of passage is trivial, or that it is incoherent. The TRA argues that to

say of time that it passes at a rate of 'one second per second' is trivial, it tells us nothing interesting or informative about time. The NRA and NAP tell us that a rate of '1 second per second' is no rate at all, or at least is an incoherent rate. All three of these arguments aim to show that time can only be said to pass at a rate of one second per second, which is not an acceptable answer due to being either trivial or incoherent. Therefore, we must conclude that time cannot pass. In short, these three arguments are all aimed against accounts which posit the passage of time.

Throughout this thesis is a discourse which aims to disentangle the notion of temporal dynamism from that of the passage of time. That which exists (that which is present) exists dynamically, rather than existing *in time.* Time, then, cannot be said to pass on my account. As those arguments from the rate of passage in chapter 3 focus on the absence of an informative and coherent answer to the rate of the passage of time, and as according to my account, DEP, there is no such thing as the passage of time, it would be unreasonable to pose the question of the rate of passage to proponents of my account.

8.2.2 DEP and McTaggart's Paradox

In chapter 4, I explored McTaggart's argument for the unreality of time. McTaggart argued that the A-theory is essential for time, but is inherently contradictory, and therefore cannot be true. In short, McTaggart tells us that time

essentially involves change, and that change can only be explained in terms of the A-series expressions, past, present, or future. However, these A-series expressions, past, present, and future, involve contradiction, and therefore, time is unreal.

In response, I acknowledged that McTaggart's paradox is a significant challenge to any proponent of the passage of time, and that I do not believe there is an easy escape in sight for many passage proponents. I offered the move to presentism, following those who argue that presentism is the one A-theoretic account which does offer an escape from the paradox (Le Poidevin 2002, Craig 2001, Bourne 2006). The motivation behind this move is that if we do not posit the existence of the past or future, then an event cannot be past or future, thereby removing the contradiction in the A-series.

However, I went on, in chapter 5, to outline a challenge to this move to presentism as an escape from McTaggart's paradox, thanks to Tallant (2010b). According to Tallant, McTaggart's paradox can be reformulated so that it does indeed apply to presentism. This reformulation is based on the notion that the present moment must be temporally extended or have duration. This duration of the present moment means that each part of the present moment possesses all three A-series expressions, which is incoherent.

In response, I argue that, although this may be a challenge for most versions of presentism, I do not take it to be a challenge to DEP. There is no present moment

posited on the DEP account, so there is no moment to slice into parts, so that each part can possess A-properties. There is no present moment, or present existence, which can be temporally extended. DEP is not a thesis about time, but about existence. I hold, then, that as the argument stands, proponents of DEP cannot reasonably be asked to respond to McTaggart's paradox, or Tallant's reformation of the paradox.

8.2.3 DEP and Truth-making

The second challenge to the presentist in chapter 5 is thanks to Leininger (2015) and Daniels (2022). This is, essentially, the truth-maker problem, a challenge which will be well-known to any presentist. To recap, presentists hold that only the present exists, and the past no longer exists, but the presentist still wants to say that the past did exist. So, how can the presentist account for truths about the past? Though I do not posit the existence of a present moment, I do posit that presence is existence, so nothing which is past exists. DEP proponents, however, want to allow that other objects, or state of affairs, *did* exist, or that what exists changes. The question of how to account for truths about the past is, then, one which can reasonably be asked of me and is a challenge that any proponent of DEP must respond to.

To remind the reader, in chapter 5, I offered two responses to this challenge. One response, nefarious presentism, which posits the CGP: for every proposition, that proposition is true iff it accurately characterises its subject matter[287]. The CGP allows the existence presentist to account for past truths by arguing that some past proposition x is true if it was the case that x, for example, <dinosaurs existed> is true because it used to be the case that dinosaurs existed.

I acknowledge that the nefarious nature of this method of holding a no-ground principle may not be appealing to all. As an alternative, I considered thisness presentism. Specifically, I argued that, thanks to the non-rigid ontological dependence between entities and their thisnesses, the thisness presentist can necessitate that the past was a certain way, thereby grounding truths about the past in presently existing surrogates. I do think that one need not posit thisnesses specifically, as holding a non-rigid ontological dependence between entities and some other surrogate for those entities may also serve to ground past truths.

The truth-maker problem, then, is a challenge which can reasonably be put to proponents of DEP. However, I have shown that this is a challenge that DEP is equipped to meet.

[287] Tallant, 2010c, pp503.

8.2.4 DEP and Relativity

Another challenge which is familiar to the presentist is the incompatibility of presentism with modern physics. Specifically, presentism is infamous for its incompatibility with the special theory of relativity. The special theory of relativity (STR) tells us that there is no such thing as absolute simultaneity, and instead that simultaneity is relative. To put this another way, STR tells us that what is present is relative to a frame of reference, so that what may be present for you, could be past for me. I take it to be obvious why this is a problem for presentism: the presentist holds that there is an absolute present moment, that everything that exists is present and (according to most, but not all, versions of presentism) that non-present objects do not exist. This incompatibility between presentism and STR is a significant concern for the presentist. Sider (2001), for instance, argued that this incompatibility is a "fatal blow to presentism"[288], and that there is no compromise between the two theories.

Though DEP does not posit the existence of a present moment, or of things existing at the present (slice of) time, this incompatibility is no less of a concern for proponents of DEP. According to DEP simultaneity is absolute because everything that exists, exists simultaneously. Therefore, simultaneity cannot be relative, as dictated by STR. The compatibility problem between presentism and STR is a challenge which I can reasonably be expected to answer. Unfortunately, a drawback of DEP, as with many

[288] Sider, 2001, pp42.

other versions of presentism, is that it remains incompatible with STR. I do take this to be a serious challenge to presentism, and one which the presentist has yet to find a satisfactory response to. Though I cannot currently offer any further hope of a resolution concerning the incompatibility between existence presentism and STR, the proponent of DEP is in no worse a position than any other form of presentism. A weak defence, perhaps, but much more work needs to be done to explore the tensions between presentism and STR, and such a considerable undertaking is beyond the scope of this thesis.

8.2.5 DEP and Unmanifested Powers.

With regards to the dynamic nature of DEP, I anticipate two examples of cases which my opponent may utilise: 'stuck world' cases, and 'empty world' cases. It seems that in our world, where dispositions form "an interconnected web"[289] of activity, it is perhaps easy to account for dynamism and activity throughout the world. However, there may be examples of worlds in which this dynamism is less obvious.

First, let us imagine a 'stuck world', in which there exists only a shelf, upon which rests a single book. No powers are being manifested, and the interconnected web of powers cannot manifest. It is perhaps less obvious that this world is dynamic,

[289] Mumford, 2004, pp182.

and my opponent in this may argue that, because this world is 'stuck' and no powers are being manifested, this world cannot be dynamic.

Though I allow that this world is less obviously dynamic, I argue that it is still dynamic for two reasons. First, because I argue for a kind of powers ontology which is anti-passivist, nothing that exists is passive. The shelf, and the book, still have the power to be dynamic, , and therefore are not static. Second, DEP is a pandispositional theory; according to DP, all properties are dispositional in nature, and the shelf, and the book are bundles of dynamic properties. This means that the properties of the shelf, and the book, are being manifested, for example, the colour, shape, or mass of these objects. The powers which are being manifested might not be the hive of activity that we see in our world, so I would acknowledge that perhaps the 'stuck' world is not *as* dynamic as our world. However, that does not mean that it is a static world.

In the second counter example, the 'empty world' example, there is a world which contains no objects at all, nothing which possesses dispositional properties. My opponent may offer this as an example of a world which is not dynamic. In response to this example, I see no tension in agreeing with my would-be opponent. In this empty world, there are no objects, no bundles of properties, no manifestations (or even potential manifestations of powers) and so there is no change and nothing dynamic occurs, can occur, or even exists. According to DEP, presence just is existence,

so if nothing exists, then nothing is present. I would characterise this world as a non-temporal world, therefore I need not be concerned about an 'empty world' case.

8.3 No Present in Existence Presentism

In this final section, I turn away from direct challenges and responses to DEP and consider the 'presentism' aspect of DEP. Throughout this thesis, I have given several definitions of what I have referred to as 'standard presentism'. I then argued for existence presentism as a 'non-standard' version of presentism. I anticipate some resistance from presentists in accepting that DEP is a version of presentism. DEP does not posit a present moment, which, according to the 'standard' versions of presentism I discussed in chapters 1 and 5, is a key commitment of many presentist accounts. Although the criticism that DEP may not be a version of presentism is not a problematic one, I would like to defend its place among presentist accounts, showing that DEP is not only an attractive account, but specifically an attractive account for the presentist.

The 'standard' version of presentism I have described throughout this thesis posits, broadly, that only the present moment exists. This can, and has, been spelled out in a variety of different ways, including, but far from limited to, the following uncontroversial examples:

"Only present objects exists", thanks to Markosian (2004).

"Only the present time is real", thanks to Merricks (2006).

"All reality is confined to the present", thanks to Zimmerman (2005).

I take these examples to be uncontroversial versions of presentism because, as I have suggested, these versions of presentism can all be understood as positing the existence of some present time, or present moment. Further, these examples of presentism are thought to represent 'standard' version of presentism because they are how presentism is generally understood, and how presentism is introduced when discussed in general terms (there are very many examples of this, including, but far from limited to, Tallant 2017, Baron 2013, Ingram 2016, Leininger 2015). Markosian and Zimmerman's versions posit that there exists a present moment at which all objects, or all reality, are exclusively located. Merricks' version posits that there is some present moment, and that is the only moment which exists.

In contrast, existence presentism, and therefore DEP, does not hold those commitments which ostensibly appear to form the core of presentism. As such, it may seem not to be a version of presentism. Again, while this may not be a concerning criticism of DEP, it may make DEP less attractive to presentists, which, as I shall show, would be unwarranted. I shall show that it is not the case that DEP cannot be considered a version of presentism on the grounds that it does not adhere to a 'standard' version of presentism, because there is no 'standard' or 'core' to

presentism. In this, I follow Tallant and Ingram (2021), who argue that there is no theoretical 'core' to presentism, that presentism encompasses a wide variety of different views which do not capture a single view. I will explore Tallant and Ingram's reasoning to show why my version of existence presentism should indeed be considered a presentist view.

Tallant and Ingram (2021) consider a variety of different presentist views, which attempt to answer a variety of different questions. They show that all these different versions of presentism have no common core. There are different, incompatible ways of defining presentism and therefore, there is no one family of views which forms the presentist view. Further, that there is not really a 'standard' form of presentism, according to which there is a commitment to the present time. I have utilised this misinterpretation of the 'standard' version of presentism within this thesis in order to easily distinguish my version from the broadly accepted generalisation of presentism. However, as Tallant and Ingram argue, this distinction does not accurately capture any theoretical core of presentism.

Tallant and Ingram identify 15 different versions of presentism, which I shall consider here. Though this list is not supposed to be exhaustive, it does show that there are versions of presentism which are incompatible with one another. Some of these versions differ only slightly, some differ significantly. I will give a brief outline of these different versions, which will show that there is no underlying core commitment which captures the presentist view.

First, as explored above, presentism can be understood as a theory about when objects exist. For instance:

(1). "Only present objects exist".[290]

Proponents of (1) are telling us a story about when objects exist. All objects are temporally located at the present.

This version of presentism, however, is not as simple as just (1), because those presentists who posit (1) can be distinguished further. For instance, there are versions of presentism which believe (1) applies only to concrete objects (Tooley 2012, Cameron 2015):

(2) Only present (physical/concrete) objects exist.[291]

Whereas others (Tallant 2014, Craig 1997) also posit the present existence of abstracta. I do not consider this a particularly large difference, it is merely a minor disagreement between whether (1) includes only concrete objects, or both concrete objects and abstract entities. However, despite there not being a gulf between these distinctions, they are both positing slightly different versions of presentism, in that one may hold (1) but not (2).

[290] Tallant and Ingram, 2021, pp3975.
[291] Tallant and Ingram, 2021, pp3975.

Tallant and Ingram then highlight Zimmerman (2011), who offers a further distinction, according to which all times exist, but no non-present objects exist. On this view, time spans the past, present and future, but existence, or existing objects, are located only at the present moment. Thus:

> (3). "All times exist and only present (physical/concrete) objects exist".[292]

Versions of presentism which hold (3) are in contrast with those versions which hold that the only moment of time which exists is the present moment, as in Cameron (2015):

> (4). "Only the present time exists".[293]

Again, one can posit either (3), or (4), but not both, as they are incompatible. One accepts that non-present times exist, and the other does not.

Versions (1) – (4) focus on describing presentism as a thesis about what exists (and when things exist). Rather than framing presentism as a thesis about existence, there are presentists who prefer to frame presentism as a thesis about what is real. Such examples include Merricks (2006), and Zimmerman (2005), whose views can be roughly summarised thus:

[292] Tallant and Ingram, 2021, pp3976.
[293] Tallant and Ingram, 2021, pp3976.

(5). “Only the present time is real”.[294]

Tallant and Ingram argue that while (4) and (5) look the same, there is a distinction between them. To assume there are the same is to assume that only real things exist. That this assumption should be called into question becomes clearer in light of ‘Meinongian’ presentism, thanks to an example from Paolini Paoletti (2016):

(6) “Only present objects exist and there are non-existent non-present objects”.[295]

In contrast to (6), one might also regard presentism as a thesis about real objects, such as Sider (2001):

(7). All times exist and only present (physical/concrete) objects are real[296].

Again, (6) and (7) are incompatible versions of presentism.

Tallant and Ingram also include a definition thanks to Prior (1972), who is generally regarded as a presentist. Prior holds that only the present is real and that the past and future are unreal. However, Prior distinguishes between the unreality of the past and the future, noting that they are different ‘species’ of unreal:

[294] Tallant and Ingram, 2021, pp3976.
[295] Tallant and Ingram, 2021, pp3977.
[296] Tallant and Ingram, 2021, pp3977.

(8). “The present is real, the past is unreal (in one sense), and the future is unreal (in another sense).”[297]

This is subtly distinct from (5) in that proponents of (5) hold that the past and future are not real, whereas (8) specifies that there is a difference between the unreality of the past and the unreality of the future. One could hold (5) but reject (8).

Existence presentism, which I defend in this thesis, is also included in the definitions of presentism. As explained in chapters 1 and 6, this was first suggested thanks to Merricks (2007), who argues that presentists should not posit a present time, and later developed thanks to Tallant (2014), thus:

(9). “Existence is presence”.[298]

This is plainly inconsistent with all the above versions which posit a present time, or the existence of a present. A very different kind of claim is being made in (9). It is not about locating when in time things exist, or even what times or things are real. Instead, (9) is about what it is to exist.

While it may seem so far that (9) is an outlier, there are versions of presentism which deviate from the notion in (1) – (9), that no non-present objects exist. There are

[297] Tallant and Ingram, 2021, pp3977.
[298] Tallant and Ingram, 2021, pp3978.

'moderate' versions of presentism, first thanks to Orilia (2016), who posits that both present and non-present times and objects exist, but non-present events do not exist:

> (10). "Only present events (and objects), non-present times, and past (and perhaps future) objects exist".[299]

Also, thanks to Smith (2002), who claims that that which is present and that which is non-present exist to different degrees:

> (11). "Only present objects exist maximally; non-present objects exist less than maximally".[300]

As Tallant and Ingram note, (10) and (11) are incompatible with (1), (4) and (9). Further, (10) and (11) are incompatible as (11) posits degrees of existence, whereas (10) does not.

Thanks to Smith (1993), there is a somewhat unique version of presentism which combines a metaphysical claim with a semantic claim:

> (12). "Every possibly true sentence includes presentness in its semantic content and ascribes present-ness to its subject."[301]

[299] Tallant and Ingram, 2021, pp3978.
[300] Tallant and Ingram, 2021, pp3979.
[301] Tallant and Ingram, 2021, pp979.

(1) – (11) all make metaphysical claims, with (12) being the first so far to include a semantic claim, giving us a further version of presentism which is distinct from the others.

Baron (2015) suggests a version of presentism according to which present objects exist fundamentally, and non-present objects are grounded in present objects:

(13). "Only present entities exist fundamentally; non-present entities exist derivatively"[302].

There are two further examples of presentism offered by Tallant and Ingram, both of which are somewhat unique. First, thanks to Fiocco (2007), who stresses the metaphysical importance of the now:

(14). "There is something metaphysically distinctive (qualitatively or ontologically) about the now"[303].

Fiocco suggests that (14), in conjunction with some further theses, may deliver a version of presentism. If this were the case, we might be able to take (14) as the core of presentism. However, I do not agree. (14) implies the existence or reality of some time that is 'the now'. This is incompatible with (9); existence presentism, and could be incompatible with further versions, such as (1), (2), (6)–(8), (11)–(13). Though these

[302] Tallant and Ingram, 2021, pp3979.
[303] Tallant and Ingram, 2021, pp3980.

versions imply the existence of a present time, as Tallant and Ingram note, they do not *require* the existence of a present time.

Second, there is an unusual version of presentism thanks to Fine (2005), whose theory was briefly examined in chapter 2. To remind the reader, according to Fine's presentism reality consists in fragmented parts which overlap, but which do not cohere as a single whole[304]. Each fragment contains a set of internally consistent facts and a set of facts which are inconsistent with some of the facts in other fragments. Each fragment contains tensed facts, so that one fragment may contain the facts, 'I am writing', and 'there were dinosaurs', and another fragment may contain the facts 'I was writing' and 'there were dinosaurs'. This fragmented reality contains tensed facts which are oriented towards the present. Thus:

(15) "Past, present, and future facts exist, but are all oriented towards the present"[305].

The versions of presentism explored by Tallant and Ingram are many and varied, and often incompatible. There is nothing which unites any of these versions into a cohesive family of accounts which have some common theoretical core. It could be argued that some of these versions of presentism are somewhat usual due to their uniqueness, for instance, (9), (12), (14) and (15). Indeed, I have characterised them as

[304] Fine, 2005, pp262.
[305] Tallant and Ingram, 2021, pp3980.

such here. However, there is no theoretical core which all of the other versions of presentism adhere to and the more unusual versions do not.

Some critics may argue that some of these versions share a theoretical core, meaning that those versions fall within some definition of presentism, and other versions are not genuinely presentism. There may indeed be ways of grouping (1) – (15) in various different ways. However, this would not form a true theoretical core of presentism. There are numerous different ways of grouping different versions of presentism under different theoretical core ideas. Which version is the 'true' or 'correct' theoretical core will vary depending on personal preference or intuition.

As such, there is no one theoretical core which all versions of presentism share. Therefore, there is no good reason why existence presentism, and DEP should not be considered a presentist account merely on the basis that it does not posit the existence or reality of a present time. As stated at the outset of this section, even if DEP is not considered a version of presentism, it would not be problematic. However, including DEP within the category of presentist accounts will increase the attractiveness of DEP for other presentists.

Thesis Conclusion

In conclusion, I shall briefly summarise the main claims which I have argued for in each chapter. Finally, I end by highlighting suggestions for further research based on the ideas explored in this thesis.

The project of chapter 1 was twofold. First, I suggested that there is a bias towards an eternalist ontology which influences our theories of time, especially my preferred theory of presentism. I argued that this influence has a restrictive impact on presentism. I suggested that as the presentist frees herself from this influence, she can develop a theory which reinvents what it means to be present, and what it means to exist. I argued for existence presentism, that what it is to be present just is what it is to exist.

In chapter 2, I began to tease apart the concepts of the passage of time from that of temporal dynamism. I considered three common features of A-theoretic accounts, a privileged present, an objective direction, and dynamism. I then determined which of these were the key difference makers for passage, and which were the key difference makers for temporal dynamism. I concluded that a privileged present moment was not a key difference maker for temporal dynamism. Further, I concluded that, although an objective direction was not a key difference maker for whether a theory was dynamic, it was a key feature of dynamic theories. Lastly, I

concluded that dynamism, on an existence presentism model, involved what exists, (maximally) changing.

In chapter 3, I outlined three versions of the rate of passage argument, showing that a benefit of adopting DEP, and positing temporal dynamism instead of passage, is that one can avoid answering the rate of passage question at all. The question of the rate of the passage of time cannot reasonably be asked when one does not posit the passage of time.

Chapter 4 focused on McTaggart's paradox, from which I argued that there is currently no escape for many proponents of accounts which posit that time is dynamic. However, the move to presentism can avoid the sting of McTaggart's paradox. A further move to existence presentism then side steps Tallant's reformation of the paradox which conventional presentism falls prey to.

Presentists will be very familiar with the truth-maker challenge posed in chapter 5. I concluded that, whether one adopts a more conventional version of presentism, or existence presentism/DEP, there are responses available which make true propositions about the past. The nefarious presentist might cheat, arguing that there is no need for a ground, providing a proposition accurately characterises its subject matter. A more upstanding presentist can utilise the tools provided by the thisness presentist, positing a non-rigid ontological dependence between some past entity and some presently existing surrogate.

In chapter 6 I examined a presentist account suggested by Golosz, whose project bears strong similarities to my own. I stated my sympathy with Golosz's criticisms of presentism; that presentism should imply the flow of time (or temporal dynamism), and that presentism should ideally be homogeneous. However, I concluded that Golosz's theory of dynamic reality offers no escape from these criticisms.

Chapter 7 unveiled the mechanisms of change on DEP: a version of pandispositionalism according to which powers are irreducibly dynamic, and objects are bundles of dynamic powers. I then combined this pandispositionalism with existence presentism, developing a theory according to which objects are bundles of dynamic properties, at least some of which are intrinsic properties. These properties are irreducibly and fundamentally dynamic in nature, and therefore dynamism is intrinsic to what exists, and, because existence just is presence, dynamism is intrinsic to what is present.

Chapter 8 offered motivation for DEP, first by explaining that DEP answers philosophically interesting questions which more conventional versions of presentism fall short of answering. Second, because DEP posits clear mechanisms of dynamism, which, again, more conventional versions of presentism need more work to develop. I concluded by affirming the place of DEP among the many other presentist accounts by showing that there is no theoretical core of presentism which DEP can be said to be deviating from.

I end with several suggestions for further research. First, as I suggested in chapter 1, and as suggested by Seibt (1997), there is reason to believe that our best theories are influenced by underlying biases. Theories of time may suffer from a bias which presupposes an eternalist ontology, and theories of existence in time may suffer from a bias which presupposes substance ontology. Both Seibt and I have made some suggestions as to how that bias impacts some philosophical theories. However, more research should be done to explore how much of our ontology is being restricted by unquestioned presuppositions. If, for example, the world is more process-like than our presuppositions allow for, then our ontologies may need re-examining.

A further point from chapter 1 which would merit further exploration is the GE version of the growing block theory. To remind the reader, Perovic (2021) suggests a growing block theory which captures the notion of dynamicity$_{OE.}$ This understanding of dynamicity refers to the irreducible dynamic character of ongoing events, which cannot be derived from static slices.[306] This theory is still very much in its infancy but may involve something akin to the fundamental dynamism which I aim to capture in this thesis. As my focus here was on my preferred theory of presentism, such an exploration is beyond the scope of this thesis, however, there is scope to develop this theory further in future.

As stated, chapter 2 was not intended to deliver a full conceptual analysis of the necessary and sufficient conditions for the passage of time. Such an undertaking

[306] Perovic, 2021, pp639.

could, I believe, form a full thesis by itself. However, I do believe that such an undertaking would be worthwhile. There are many debates between different theories of time, involving disagreements about the nature of passage, and change. Determining the necessary and sufficient conditions for the passage of time would allow for more precise development of our theories involving passage.

Finally, I have chosen presentism as my preferred theory of time within this thesis, and I appeal, in part, to my own intuitions to motivate this. However, there are those presentists who argue that presentism represents the 'intuitive', or 'common sense' view of time (Bigelow 1996, Sider 2001, Markosian 2004, Tallant 2009, Ingram 2019). However, little work has been done to determine what the common-sense, *folk* concept of time is. In recent years there has been some progress made in this area, for example, Latham, Miller & Norton (2021, 2023) engage in experimental philosophy investigating the folk concept of time. Miller, Baron & Tallant (2022) have also begun laying significant groundwork in this area. However, if we are to motivate our theories based upon the common-sense, folk concept(s) of time, then much more work needs to be done to engage the folk on what their concept of time is. This is a research area I would like to engage with going forward.

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