

ETERNALISM AND THE PASSAGE OF TIME

By

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Abstract

This thesis considers the relationship between the ontology of time and the passage of time, and concludes that the best way to understand this relationship is found in the combination of eternalism with the view that the passage of time is an objective, irreducible fact about the spatio-temporal world.

The steps I take to reach this conclusion are as follows: first, I propose that eternalism is the best ontological basis from which to consider temporal passage; second, I argue that the moving spotlight theory, which attempts to reconcile eternalism with temporal passage, is an inadequate representation of the relationship between eternalism and temporal passage; third, I suggest that temporal passage is best understood as a mind-independent phenomenon.

I argue that eternalism is preferable to presentism insofar as presentism suffers from inconsistencies that eternalism both avoids and easily solves. I then defend the rejection of the moving spotlight theory by an appeal to the incoherency of the moving *now*. Finally, I dismiss mind-dependent temporal passage in favour of mind-independent temporal passage based on the irreducibility of temporal passage in and of itself.

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List of Abbreviations

Abbreviation	Meaning	Page
CNP	contradictory nature of the presentist theory	9
GFP	genuine frozen presentism	9
EFP	eternalist frozen presentism	10
STP	strong truthmaker principle	15
TSB	truth supervenes on being	15
WTP	weak truthmaker principle	15
HP	haecceity presentist	23

CHAPTER 1: INTRODUCTION

Influenced by McTaggart's (1908) writings on time, philosophers have historically divided into two opposing camps when it comes to the semantics and ontology of time: The A-theory and the B-theory. Starting with the semantics of time, the A-theory includes the view that tensed language (past, present, and future tense) is semantically irreducible. The B-theory, on the other hand, presents the semantic view that tensed language is semantically reducible to a tenseless meta-language (earlier/later than relations)¹. Although the distinction between the A-theory and the B-theory resulted from McTaggart's early twentieth century work on time, the ontology of time has been a lively area of philosophic debate since the days of ancient Greece. Greatly influenced by the ancient Greek tradition, philosophers such as Augustine² have helped to shape contemporary discourse surrounding the ontology of time. As noted by Keller (2004),

...these days, those who agree with Augustine's conclusions about time call themselves presentists. Presentism is the belief that only present things exist. If something doesn't exist now, says the presentist, then it doesn't exist at all. The most popular alternative to presentism says that past, present, and future things all exist; the universe, on this view, is a four-dimensional space-time manifold. (p.260)

¹ For more on the distinction between the semantics of A-theory and the B-theory see, for instance, Farkas (2008).

² See Augustine (1998).

Defining the ontological stance of the A-theory, presentism holds that only the present is real, the past and the future simply do not exist³. In contrast to presentism, eternalism is the name often given to the ontological stance of the B-theory. Eternalism holds that all times exist, and thus past, present, and future are all real⁴. While present events and things may be epistemically privileged according to eternalism, present events and things are not metaphysically privileged. Conversely, present events and things are both epistemically and metaphysically privileged according to presentism.

What these two camps have to say about the passage of time assists the explanation of both the reality of temporal passage and the experience of temporal passage. Broadly speaking, A-Theorists have traditionally supported objective temporal passage (see Bigelow 1991, Markosian 1992 and 1993, Prior 1962), and B-theorists have traditionally not supported objective temporal passage (see Smart 1963, Mellor 1981 and 1998, Williams 1951)⁵. As connected to the debate between eternalism and presentism, there are three predominant metaphysical stances on temporal passage:

- *The Presentist Theory*: Advocated by philosophers such as Craig (1997, 2000), this view incorporates presentism, and typically defends the objective passage of time.

³ I will focus on the version of the A-theory that is supported by presentism. Although presentism dominated the literature on time prior to the nineteenth century, it fell out of favour throughout most of the past century. Presentism has enjoyed a resurgence of support from contemporary philosophers (see Bigelow 1996, Dainton 2010). There are, however, various versions of the A-theory to be found. Bourne (2006a and 2006b), for instance, argues for a branching model, which holds that the present exists, while the past and the future consist of ersatz possibilities.

⁴ Use of the terms ‘the past’, ‘the present’, or ‘the future’ is meant, coinciding with the different usages, to denote a temporally non-relative distinction between times. Use of the terms ‘past’, ‘present’, and ‘future’ is not meant to signify a temporally non-relative distinction between times.

⁵ This distinction is not always the case. See, for example, Beer (1988), Maudlin (2007), or Mozersky (2013).

- *The Moving Spotlight Theory*: Advocated by philosophers such as Skow (2009, 2012)⁶, this view incorporates eternalism, and defends the objective passage of time.
- *The Block Universe Theory*: Advocated by philosophers such as Prosser (2007), this view incorporates eternalism, and does not typically defend the objective passage of time⁷.

Arguably two of the most influential views within the philosophy of time, the block universe theory and the presentist theory unambiguously divide along B-theoretic and A-theoretic lines respectively. The moving spotlight theory (see Skow Ibid, Smith 2011, Zimmerman 2008)⁸, on the other hand, steps out of confinement to either the A-theory or the B-theory, for the moving spotlight theory combines the ontology of the B-theory with aspects of the A-theory⁹.

Working within the framework provided by the A-theory and the B-theory, I have, generally speaking, two aims. The first is to determine the best ontological basis from which to consider the passage of time. The second is to decipher the relationship between the ontology of time and the passage of time. The steps I take to achieve these aims are listed below.

Chapter 2 focuses on *the presentist theory*. Two objections against the presentist theory will be considered. The first objection argues that the presentist theory is self-contradictory. The second objection surrounds the notion that presentism underdetermines past and future events and things. In order to avoid the objections, I suggest that the presentist theory must rely on eternalism.

⁶ Skow supports the moving spotlight theory, yet changes certain aspects of it. See footnote 29.

⁷ A version of the block universe theory that supports the objective passage of time will be both presented and argued for in chapter 4.

⁸ Although Skow, Smith, and Zimmerman all discuss the moving spotlight theory, Skow is an A-theorist who argues in favour of a version of the moving spotlight theory, Smith is a B-theorist who argues against the moving spotlight theory, and Zimmerman is an A-theorist who does not support the moving spotlight theory.

⁹ There have been other attempts to combine the A-theory and the B-theory. Tooley (1997), for example, supports a hybrid tensed/tenseless theory in which only the past and the present exist.

Chapter 3 considers *the moving spotlight theory*. I begin with a closer look at the passage of time. Toward this end, the moving *now* theory is introduced, and I discuss the association between the moving *now* and eternalism. I suggest that, at first sight, eternalism and the moving *now* are not well-suited to each other. In an effort to test this claim, I break the moving spotlight theory down into its component parts. This analysis demonstrates that the moving *now*, which depends on the A-theoretical thesis for its existence, is incoherent. I conclude that the moving spotlight theory is an unsatisfactory account.

Chapter 4 looks at *the block universe theory*. Two ways, aside from the moving spotlight theory, to combine eternalism and the passage of time are considered. Representing the anti-realist response, the passage of time may be held to be dependent on the mind. Representing the realist response, the passage of time may be held to be a fact about the structure of the spatio-temporal world. I propose, contrary to traditional block theoretic wisdom, that the best way to understand the relationship between eternalism and the passage of time is found in the combination of eternalism with the view that the passage of time is an irreducible fact about the structure of the spatio-temporal world.

CHAPTER 2: THE PRESENTIST THEORY

There is no past that we can bring back by longing for it. There is only an eternally new now that builds and creates itself out of the Best as the past withdraws.

Johann Wolfgang von Goethe

2.1. Introduction

In this chapter I argue that the presentist theory is incorrect. It may be helpful to stress a point regarding the terminology that will be used. Use of the terms ‘presentism’ and ‘the presentist’ are meant to refer to the view, or those who support the view, that only the present exists. Use of the term ‘presentist theory’ is meant to refer to the theory that includes both presentism and the thesis that there is objective temporal passage. Presentism, then, stands in contrast to eternalism, and the presentist theory stands in contrast to the block universe theory. Although I will not address the block universe theory in this chapter¹⁰, I maintain that any theory that relies on presentism is vitally flawed, and this means that the presentist theory is vitally flawed.

I focus on two objections against the presentist theory. Brought out by the renewal of the present, the first objection argues that there is a contradiction at the heart of the presentist theory. A direct result of presentism, the second objection argues that the lack of determinacy regarding both the past and the future is damaging to the presentist theory. While a thorough positive

¹⁰ See chapter 4 for a discussion of the block universe theory.

account of eternalism will not be given, I suggest that eternalism provides a solution to the problems that plague presentism, and therefore the burden falls on the opponent of eternalism to argue that there is either a critical flaw in eternalism or that presentism does not in fact fall victim to the proposed objections.

2.2. The First Objection: The contradictory nature of the presentist theory

Before outlining the first objection, a point of explanation regarding the present might be useful. I will assume that the present has duration. The reason for this is that if the present is taken to be a durationless point, then there would in fact be no present. If there is no present, then there is no presentism. Hence, in an effort to address the presentist theory from the best vantage point, I take it for granted that the present has a duration that is both finite and brief. Defining the present in this way leaves the exact duration of the present unspecified. Nonetheless, it allows for the strongest reading of the presentist theory insofar as it allows the present to have some sort of temporal existence that is clearly distinguishable from the past and the future (see Dainton 2010).

It seems important to mention that there are potential issues with assuming that the present has duration. For example, if the present has duration, it may be argued that the present can be divided into a number of co-presents. Dividing the present into a number of co-presents, it would be impossible to pick out the present from among the co-presents. On the other hand, since the present itself stands for the absolute present, it may not be possible to divide the present in the first place. With the above concerns noted¹¹, the reasoning behind the first objection is as follows:

¹¹ See Bergman (1960), Maclachlan (2010), Mundle (1966), or Prosser (2012) for more on the discussion of whether or not the present has duration.

(P1) Only the present exists, which means that there is an absolute present. (Presentism)

(P2) In order for time to pass, the present must continually renew itself. (Temporal passage¹²)

(P3) If (P2), then the present must change. (Assumption)

(P4) If the present must change, then the present is not absolute. (From (P2) and (P3))

(P5) The present is not absolute (From (P3) and (P4))

(C) If (P1), then not (P1).

If the present is the only time that exists, although there would be an absolute present, there would neither be a past nor a future that could be said to exist in any absolute sense. What the presentist needs to do, then, is derive temporal non-relativity from the claim that the past and the future are absolutely non-existent, while the present is absolutely existent. Even with an absolutely non-existent past and future, however, the presentist theory must still deal with (C).

Figure 1 highlights the dilemma.

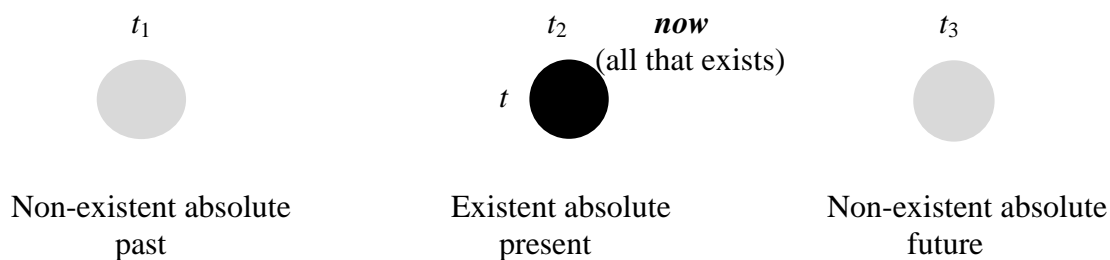


Figure 1. Presentism and the renewal of the present¹³

¹² In the context of the presentist theory, unless otherwise stated, all talk of ‘temporal passage’ refers to the objective passage of time.

¹³ Technically, t_1 and t_3 should show non-existence.

Representing the presentist's timeline, t is composed of only the events and things that exist at t_2 . There is nothing contradictory in supposing that all events and things exist at t_2 . The problem starts when one realizes that in order to retain the renewal of the present – the only time that exists – there must be a giving and taking of temporally absolute status. This is because it is by way of the giving and taking of temporally absolute existence and temporally absolute non-existence that the present renews itself. It is important to note that, even though the present renews itself, events and things will only ever exist at one time. This means that events and things will only ever exist in the “version(s)” of the present that contains them. As different versions of the present come into being and go out of being, so will the collection of events and things that exist in the present. In connection to the status of time,

t_1 had absolute existence and has absolute non-existence

t_2 has absolute existence and did have/will have absolute non-existence

t_3 has absolute non-existence and will have absolute existence

The renewal of the present brings out the contradictory nature of the presentist theory insofar as it highlights the switching of a time, for instance t_2 , from absolute non-existence to absolute existence, and back to absolute non-existence¹⁴. To put it another way, the renewal of

¹⁴ Although not speaking directly to the presentist theory, as a part of the argument for the unreality of time, the general inconsistency of the A-theory, for which the presentist theory is a component, was first noted by McTaggart (1908). McTaggart argued that (1) Time requires change, (2) There is no change without the A-properties of pastness, presentness, and futurity, since moments and events must be future, then become present, and then become past, (3) The A-properties are contradictory, and yet every time must have all three, (4) It follows from (1) – (3) that there can be no change (since it leads to a contradiction), and therefore there is no time. See Horwich (1987), Price (2011), or Smith (2011) for more on the inconsistency of the A-theory, and see Oaklander (2002) for more on the contradictory nature of presentism in particular. See Prior (1967) or Lowe (1987 and 1993) for A-theorist responses to McTaggart.

the present brings out a contradiction since it highlights the continual changing of that which is in theory temporally absolute. This contradiction may be summarized as:

CNP (contradictory nature of the presentist theory): Relying on the renewal of the present for objective temporal passage results in the contradiction that the present must be both temporally absolute and non-absolute.

It seems that there are two ways to avoid CNP:

- (i) Posit that the present does not renew itself.
- (ii) Get rid of the idea that times have both temporally absolute non-existence and temporally absolute existence.

The first option implies that time does not pass. The second option means that past, present, and future are relative terms.

2.2.1. What if time does not pass?

Choosing the first option, one could concede that the present does not renew itself. Deprived of the renewal of the present, the presentist theory is left with a frozen version of presentism (see Price 2011). There are two versions of frozen presentism. According to the first version, all that exists is the present, and the present does not renew itself. Call this version Genuine Frozen Presentism (GFP). Attempting to salvage some sense of passage, according to the second

version, the present is dividable into the earlier than and later than relations of the B-series. Call this version Eternalist Frozen Presentism (EFP).

The first version maintains that there is no need for the present to continuously renew itself. This means that GFP does not have to deal with CNP. However, insofar as the present would be static, there would be no way for the frozen presentist to account for the objective passage of time. The frozen presentist could hold that the passage of time is dependent on the mind, and that in reality there is only one moment *of* time, which events and things *in* time cannot escape. For a view that has traditionally been attractive since it purports to account for the genuine passing of time (see Mozersky 2006, Prosser 2012, Smith 2011), this seems to be a high price to pay to avoid CNP. As expressed by Zimmerman (2008), who is a presentist, a large part of the appeal of the presentist theory rests in the claim that it helps to explain the common-sense view of temporal passage:

Everyone knows that when events and things “recede into the past” they are very different from the way they are when present; and that the future is a “realm of possibilities”, not realities. (p.221)

How exactly does the presentist theory explain this common-sense view of temporal passage?

The answer is found in:

...another sensible sounding claim: the event of your reading the final sentence in this paper does not exist; nor do the positrons that will be created by proton fusion within the sun later today. And that is just what it is for an event or thing to “move” from the future

into the present, and from the present into the past: It is to come into existence and then go out of existence. (Ibid, p.212)

One of the self-professed advantages of the presentist theory, then, is that it accounts for the everyday way that humans view the passage of time. By allowing events and things to come into existence and go out of existence, the renewal of the present gives credence to the common-sense view that the past is always receding away, the future drawing nearer, and the present continuously changing. Seeing as GFP cannot account for the renewal of the present, which in the context of the presentist theory allows for temporal passage, GFP is unlikely to be a satisfactory version of the presentist theory. Keeping some sort of temporal passage, there may be an alternative way to view the first option.

Given that ‘now’, ‘earlier than now’, and ‘later than now’ can be seen as equivalent to present, past, and future¹⁵ (see Horwich 1987), if the present is divisible, the frozen presentist may be able to get some type of temporal passage by dividing the present into earlier than and later than segments. According to EFP, then, the present would be divided into existent past and future events and things. This move makes aspects of the presentist theory look very similar to the eternalist thesis insofar as past, present, and future events and things would exist (they would just inaptly exist under the name of ‘the present’). The present, as a frozen present, would lose any meaning it previously had according to the presentist theory. All moments of time in the remodeled present would exist, and would be dividable into the relational earlier than and later than moments that compose the temporal continuum proposed by the eternalist. Seeing as the remodeled absolute present would have to be finite, it would be turned into an eternalist temporal continuum that is bounded on both ends.

¹⁵ As a reminder, ‘past’, ‘present’, and ‘future’, denote non-absolute distinctions between times.

Based on the above, there would be an issue for both GFP and EFP surrounding what to do with the past and the future. If the renewal of the present is not somehow ushering events and things from the non-existent future to the non-existent past, then no event or thing can ever be said to be part of either the non-existent past or the non-existent future. If this is the case, it is unclear exactly what the job of the past and the future would be according to frozen presentism. The reason for this is that, according to both GFP and EFP, the present is all that exists, and the present itself does not change¹⁶. This means that nothing either “joins” or “leaves” the present. The renewal of the present, consequently, cannot usher events and things from the future into the present, and from the present into the past. Accordingly, the past and the future would be non-changing, non-existing times that neither interact with nor influence the existing static present. GFP and EFP may as well get rid of the past and the future, as well as all reference to the past and the future.

Bringing out more difficulties than it does solutions, positing that the present does not renew itself is not a promising way to avoid CNP. Getting rid of the absolute existent present, the absolute non-existent past, and the absolute non-existent future may be a better option.

2.2.2. *What if the present is not absolute?*

Choosing the second option, one could hold that there are no non-relative facts about the status of times. This, though, runs in direct contradiction to the presentist theory, and may be said to turn presentism completely into eternalism. While the second option provides a solution to CNP, it does so at the price of presentism itself. By getting rid of the temporally absolute status of times, there is nothing to cause CNP. Yet, with no temporally absolute facts, the past, the present, and the future collapse into the relational terms of the B-series. The reason for this is

¹⁶ EFP can hold that events and things *in* the present undergo change.

that, since there would be no way to demarcate the existent present from the non-existent past and the non-existent future, there would not be any way to section off times that exist as the present from times that exist as the future and the past. Seeing as there would not be one absolute present that encompasses all existent events and things, there would have to be a number of existent presents that encompass all existent events and things. Time itself would have to be made up of a sequence of presents that all have events and things that fall before and after them. That which is temporally earlier than one present may be temporally later than another present; however, what is temporally later than one present will be another present, and what is temporally earlier than a different present will be yet another present. Importantly, this means that there is no longer any way to demarcate the absolute, objective present.

In the context of the presentist theory, the *now* is interchangeable with the objective, absolute present. On the second option, with no present around which to define the *now*, the *now* can no longer be said to be an objective time that holds for all observers. No longer serving to carve out the temporally existent aspects of time itself, the *now* collapses into a marker in time that represents a time relative to which events and things that fall before ‘now’¹⁷ may be said to be ‘earlier than now’, and events and things which fall after ‘now’ may be said to be ‘later than now’. Granted the assumption that the relata of a relation exist given the existence of the relation itself¹⁸, every present will exist. Since present is equivalent to ‘now’, the reality of time will be made up of a sequence of ‘nows’, all of which can be said to be ‘now’ in their own right, and all of which will have events and things that fall in a permanent earlier than and later than relation to

¹⁷ ‘now’ denotes a non-absolute, objective present.

¹⁸ If the relata exist at any point in time, then they will always exist according to eternalism. This is not the case for the presentist theory.

them on a continuum of temporal existence¹⁹. In short, one way of getting out of CNP is to hold, in accord with eternalism, that there is no objective, absolute present – a reality that holds for all observers. Instead, present events and things belong to a permanent continuum of countless existent events and things, all of which can, from various temporal perspectives, be said to be ‘now’²⁰.

Getting rid of the absolute distinction between times, eternalism offers a solution to CNP. If wishing to remain a presentist, the proponent of the presentist theory clearly cannot endorse this solution. Unlike GFP and EFP, though, eternalism does not leave one with a useless absolute past and absolute future. As a result, although eternalism and both versions of frozen presentism provide a solution to CNP, eternalism does not suffer from the complications that afflict GFP and EFP. Eternalism, then, is the best solution to the first problem that plagues the presentist theory.

There is a further objection to the presentist theory that focuses solely on presentism. Seeing as the presentist theory relies on presentism, this objection is aimed at the foundation of the presentist theory.

2.3. The Second Objection: The grounding objection against presentism

As it will be formulated here, there are three main ideas behind the second objection:

- (1) Truth depends upon what exists.
- (2) What exists in the present underdetermines truths about the past and the future.

¹⁹ This continuum may be infinite or bounded. However, unlike the difficulty presented by the finite continuum in the first option, here there is no non-existent past and non-existent future for the continuum to “take up”.

²⁰ It may be argued, then, that ‘now’ is a temporal indexical. For more on temporal indexicals see Beer (1988), Corazza (2002), Farkas (2008), Kaplan (1977), or Perry (1993).

(3) There are determinate truths about the past and the future.

Before outlining what is typically called the ‘grounding objection’, I will do two things. First, I will consider both the reasons for and implications of (1). Second, I will consider the plausibility of both (2) and (3).

(1) rests on the notion that truth must be grounded. To say that truth must be grounded is to say that truth depends upon the world. Hence, there can be no “free-floating” truths. The grounding requirement is often specified as the truthmaker principle. In its general form, this principle holds that for a particular truth there must be some existent portion of reality in light of which that particular truth is true (see Armstrong 2004). Although philosophers commonly agree that truth must depend upon what exists, there is disagreement surrounding the specifics of what this entails (see Crisp 2007, Sider 2001). This disagreement divides into two separate ways of understanding the truthmaker principle. The stronger interpretation is that for every true proposition there is a truthmaker that exists and grounds its truth (see Oaklander 2002). Call this the Strong Truthmaker Principle (STP). On the weaker interpretation, the truthmaker principle is understood as the claim that truth supervenes on being (TSB) (See Bigelow 1996, Lewis 2001). Call this the Weak Truthmaker Principle (WTP). According to WTP, no two worlds can differ in regard to what is true in them unless they differ in regard to what exists in them, and this means that it captures a:

...philosophical picture according to which reality is made up of all and only the things that exist, and contingent propositions derive their truth or falsity from the relations in which they stand to existing things. (Keller, 2004, p.261)

Stated in terms of one world, the difference between STP and WTP amounts to the following: STP stipulates that for every true proposition P there must be something that exists in the world and makes it so that P is true; WTP holds that what exists in the world determines the truth of propositions about the world, and thus if it were the case that what exists in the world were to be different, then what is true in the world would also be different.

Negative existentials present a potential problem for STP (see Lewis 1992, Sider 2001). The problem is that, if STP is true, there must be something that exists and necessitates the truth of every true proposition. Seeing as it seems to be true, for instance, that *there are no leviathans*, it follows that there must be a truthmaker that makes it true that there are no leviathans. Since it is not obvious what existing thing makes it so that there are no leviathans, it is not obvious how STP should deal with negative existentials²¹. Although one may be willing to posit negative facts and states of affairs that serve as truthmakers for negative existentials, one may have a difficult time explaining what entity is fit to serve as a truthmaker for these negative facts and states of affairs (see Baia 2012, Mozerky 2011). One may decide to tackle the problem of negative existentials in an effort to keep STP. This, though, is not necessary, for WTP, while maintaining the heart of the truthmaker principle, does not share this complication with STP.

WTP holds that there is a fundamental relationship between truth and existence. This relationship, as mentioned above, is captured by the notion that truth depends on what exists. Stated in terms of possible worlds, according to Baia (2012) WTP may be read as the claim that:

(TSB) For any proposition P and any worlds W_1 and W_2 , if P is true in W_1 but not in W_2 , then either something exists in one world but not the other, or else some object instantiates a property or a relation in one world but not the other. (p. 342)

²¹ For more on negative existentials see Cartwright (1960).

Insofar as, according to TSB, what is true rests counterfactually on what exists, WTP does not have to deal with the problem of negative existentials. If it were the case that what is true in W_1 were to be different from what is true in W_2 , then it would be the case that what exists in W_1 is different from what exists in W_2 . Hence, if it is true that *there are leviathans* in W_1 but not true that *there are leviathans* in W_2 , then what exists in W_1 must be different from what exists in W_2 . While TSB and STP both uphold the grounding requirement, it appears more difficult to deny TSB than it does to deny STP. For, what would it mean to say that two worlds have exactly the same set of true propositions, and yet differ with regard to what exists in them (or the properties and relations they instantiate)? Though one may want to avoid negative existentials, one may have a challenging time denying TSB.

What does all of this suggest for the presentist theory? In short, TSB is an important part of the grounding objection against presentism. To see why this is, remember that, while eternalism holds that past, present, and future events and things all exist, presentism holds that only present events and things exist, and this means:

According to presentists, there are present things such as tables and computers, but there are neither past things such as dinosaurs nor future things such as lunar outposts. (...)

According to eternalists, there really are dinosaurs and lunar outposts, just as there really are tables and computers. (Ibid, p.343)

Although both the presentist and the eternalist might wish to say that there are truths about non-present events and things, such as the claim that at one point in time there was a wall dividing West Berlin from East Berlin, the presentist must admit, it seems, that since the Berlin Wall does

not exist in the present, there is nothing in existence to ground the proposition that *there was a Berlin Wall*. Considering that the Berlin Wall exists for the eternalist, the eternalist does not have a problem grounding the truth of propositions concerning the Berlin Wall. Put another way, the problem is that, if truth depends on what exists, then, since it appears that there is nothing that exists in the present to ground claims about the truth of past or future events and things, there is no way for the presentist to treat claims about past and future events and things as true.

The presentist may respond that there is *evidence* in the present that supports the truth of propositions about past and future events and things. The argument, then, would be that the truth of a proposition, such as *there was a Berlin Wall*, is grounded by the existence of current evidence, such as pieces of the material that made up the Berlin Wall. As noted by Dainton (2010), taking this route entails, among other things, that truth claims about past and future events and things are restricted to what exists *now* – in the current version of the present. This means that there would be no way to ground the majority of truths about the past and the future. Relying on present evidence to ground truths about the past and the future also implies that one can “alter” the truth of propositions about the past and the future by destroying the currently existing evidence of past or future events and things. Truth claims about the past and the future would therefore be in a very tenuous position. For instance, if one could destroy all evidence of the Berlin Wall, then one could make it so that there are no true propositions about the Berlin Wall. While a different version of the present may have included truths about the Berlin Wall, the version – in which the evidence is destroyed – would not include truths about the Berlin Wall. Unless the presentist wants to argue that only past and future events and things for which there is evidence right *now* can be true, it follows that, if the presentist wants to hold that there

are truths about the past and the future, TSB must be ignored. Violating TSB, the presentist would have to argue that when the inventory of existing things in the world is altered, truth claims regarding the world are not necessarily altered.

Holding that the present underdetermines the past and the future, (2) relies on (1) for its plausibility. If presentism is true and TSB holds, all that can be said to be true about the world must either be about what exists in the present or about existing abstract objects. Seeing as there are both numerous past histories that are consistent with the present state of the world and numerous future histories that are compatible with the present state of the world, it would appear that the past and the future are indeterminate. As a result, one history that leads to the present state of the world should be just as possible as many other histories that lead to the present state of the world. For instance, the present state of the world may be exactly as it is today had the destruction of the Berlin Wall started a day sooner or later. Similar reasoning would apply to the future, for the present is consistent with many future events and things, many of which could become, and some of which must become, part of the present. Forwarding an ontology in which there are no determinate facts as to what has happened or what will happen, it may be argued that presentism is a counterintuitive theory of time²².

One is only likely to agree with the claim that presentism is a counterintuitive theory if one accepts (3). Stating that there are determinate truths about past and future events and things, the plausibility of (3) rests on the notion that there are decided facts about the past and the future. Seeing as some – not the eternalist – may find the idea of determinate facts about the future unseemly, it may be better to restrict (3) to the past. Viewed this way, (3) is supported by the

²² It seems worthwhile to mention that the claim here is that presentism runs against common-sense notions; whereas, the claim above from Zimmerman (2008) was that presentism is in accord with common-sense notions. Clearly, it could just be that there are certain aspects of presentism that are in agreement with and certain aspects that are in disagreement with common-sense notions. Nevertheless, if both claims are right, it cannot be the case that presentism is in overall agreement with our everyday way of thinking about time.

notion that it seems absurd to say that there is no fact of the matter as to what happened in the past, and this means that the denial of (3) can only be accomplished by:

...adopting a severe form of scepticism concerning the non-present, one that would entail that there is effectively nothing we can know about the past, for instance. This is difficult to take seriously. (Mozersky, 2011, p.129)

Assuming that the presentist would like to at least keep determinate truths about the past, the following version of the grounding objection will focus specifically on past events and things. If one were inclined, though, the same reasoning could be applied to truths about future events and things.

Tying all of the strands together, the grounding objection against presentism may be stated as²³:

- (P1) Only the present exists. (Presentism)
- (P2) Truth must be grounded in what exists, and therefore truth supervenes on being.
(TSB)
- (P3) What exists in the present underdetermines what is true of the past. (Assumption)
- (P4) There are determinate truths about past events and things. (Assumption)
- (P5) Past events and things must exist. (From (P2), (P3), and (P4))
- (C) If (P1), then not (P1).

²³ For more on similar versions of the grounding objection see Baia (2012), Bourne (2006), Keller (2004) or Mozersky (2011).

(P2) captures (1), while (P3) and (P4) are restricted versions of (2) and (3) respectively. The grounding objection does not provide a refutation of presentism. What it does provide, however, is motivation to think that the cost of presentism is too high²⁴. This is because, in order to avoid the grounding objection, the presentist must deny either (P2), (P3), or (P4).

2.3.1. *Responding to the grounding objection*

If (P4) can be denied, the presentist does not have to worry about grounding truths about the past, for there would be no determinate truths about past events and things to ground. As argued above, this move amounts to extreme skepticism regarding the past, and makes it so that nothing certain can be known or said about the past. Consequently, salvaging presentism by the denial of (P4) is probably not the best option for the presentist. Reason to accept (P2) and (P3) was given throughout the discussion surrounding (1) and (2). Nonetheless, it seems that the only way to save presentism from the grounding objection is to deny either (P2) or (P3).

Denying (P2) would mean that the presentist does not believe that truth must be grounded in what exists. One way that the presentist can attempt to deny this is by arguing that truth can supervene on non-being²⁵. This implies that there are non-existent entities that can ground truth. The reason that this option may be appealing to the presentist is that it means that truths about the past can be grounded even though the past is non-existent. Hence, the claim is that there are non-present – non-existent – events and things upon which truth supervenes. This view is difficult to defend insofar as it claims that there are things that *are* but do not *exist*, and this

²⁴ See Keller 2004. It should be mentioned that this claim is in contrast to the first objection, which is meant to provide a refutation of presentism. If one finds the first objection to presentism convincing, there may be no need for this extra objection to go through (and vice versa).

²⁵ It may also be argued that there is no need to be worried about what past truths supervene on, since truth does not actually supervene on anything at all. In accord with Keller (2004), however, it is suggested that this way of denying TSB is difficult to defend once one realizes that it is implausible to say that truths about present events and things do not supervene on what exists in the present (see p.264 and 265 for more on the repercussions of denying TSB by claiming that truth does not supervene on anything).

means that existence does not capture everything that really *is*. Accordingly, it would be the case that:

...there is an X – there *really is* an X – and it has properties – it *really has* properties – but it doesn't exist. (Keller, 2004, p.263)

In order to defend this view, the presentist would have to first explain the difference between existence and non-existence, since it seems that existence and non-existence are doing the exact same work on this account. Seeing as truth supervenes upon both the existent and the non-existent, and seeing as both the existent and the non-existent really are, it appears that the only difference between the existent and the non-existent is a label. In essence, this is because there is nothing special about the present other than the idea that one can say that present events and things “exist”, while one must say that past events and things “do not exist”. As a result, although rejecting the claim that truth must supervene on being allows the presentist to deny (P2), it trivializes the difference between existence and non-existence. If this is the case, the main thesis of presentism becomes reduced to wordplay. Deciding to reject (P2) via this route, the presentist would be left to defend an insignificant view. Denying (P3) seems to be the only option left to the presentist.

Denying (P3) would mean that the presentist does not agree that truths about the past are underdetermined by the present. The essence of this response rests in the idea that what exists in the present is rich enough to ground truths about the past. Many presentists have attempted to evade the grounding objection by denying (P3) (see Baia 2012, Bigelow 1996, Chisholm 1990,

Crisp 2007). Though there have been varied efforts to deny (P3)²⁶, of interest here will be the version of presentism that responds to the grounding objection by an appeal to haecceities. It is hoped that the present discussion will show that the spirit of any attempt to deny (P3) is misguided.

First introduced by Duns Scotus²⁷, a haecceity is uninstantiated *thisness*. Thisness is the property of an individual's being identical with itself; it is the property of the individual alone and nothing else. Appealing to haecceities, the claim by the presentist is that, although past events and things do not exist, the haecceities of past events and things exist, and this means that the haecceities of past events and things are a part of the present. Whereas the eternalist calls on the existence of past events and things to ground truths about past events and things, the haecceity presentist (HP) calls on the existence of past haecceities to ground truths about past events and things. Thus, while the eternalist holds that truths about the Berlin Wall supervene on the existence of the Berlin Wall, the HP claims that truths about the Berlin Wall supervene on the existence of the haecceity of the Berlin Wall. According to the HP, then, when one speaks about the Berlin Wall, one is speaking about a haecceity. Nevertheless, on this view, determinate truths about past events and things can be grounded in something that exists. Seeing as the present is the only time that exists for the presentist, it follows that the present does not underdetermine the past. If the present does not underdetermine the past, (P3) is wrong. If (P3) is wrong, then, although (P2) and (P4) may hold, the presentist does not have to worry about the grounding objection. By arguing that determinate truths about past events and things supervene

²⁶ For instance, both Bourne (2006a) and Crisp (2007) have responded that the combination of (P1) and a series of abstract times ordered by the B-relations, which form an ersatz B-series, is able to get the presentist out of the grounding objection, and Bigelow (1996) has argued that there are past and future tensed properties that exist in the present and ground truths about past and future events and things. See Mozersky (2011) for a rejoinder to Bourne and Crisp, and Keller (2004) or Sider (2001) for a response to Bigelow.

²⁷ For a general introduction to Duns Scotus' work see Cross (1999), and for more on haecceities in general see Adams (1979), Keller (2004), or Swinburne (2006).

on presently existing haecceities, the HP can agree that truth supervenes on being, and that there are determinate truths about the past.

In response to the HP, one may wonder if the current existence of past haecceities is enough to ground truths about past events and things. Aside from the fact that haecceities are somewhat odd and mysterious properties, haecceities are not concrete entities existing in space-time. The haecceity of the Berlin Wall, for example, is the uninstantiated thisness of the Berlin Wall. If one grounds truths about the Berlin Wall by holding that they supervene on the present haecceity of the Berlin Wall, one is not actually grounding them in the existence of the Berlin Wall. This means that the haecceity of the Berlin Wall can exist even if the Berlin Wall does not exist. It is unclear, then, whether or not the Berlin Wall itself ever had to exist according to the HP. For, if the abstract thisness of the Berlin Wall is enough to make it true that *there was a Berlin Wall*, then it seems that there is no reason that the Berlin Wall itself had to exist. If this is the case, currently existing haecceities would not help to determine truths about past events and things insofar as there may be countless currently existing past-tensed haecceities that refer to events and things that never really existed. As noted by Mozersky (2011),

The only option is to suppose that it is a primitive, metaphysical fact that an object's haecceity exists if and only if the object did, does, or will exist. Such a move, however, is ad hoc. (p.136)

Without this move, though, the HP is left to defend a version of presentism that fails to adequately address (P3). Rejecting (P3) by an appeal to haecceities does not appear to be a fruitful option for the presentist.

I have suggested that there is good reason to accept (P2), (P3), and (P4). I both considered and rejected some attempts to deny these premises. If the arguments above are convincing, then past events and things must exist. It follows that the grounding objection provides strong motivation to reject presentism in favour of a different ontology. Since eternalism holds that past events and things exist, it does not fall victim to the grounding objection. As a result, eternalism neither has to posit strange properties such as haecceities nor does it have to deny plausible principles such as TSB. Consideration of the grounding objection brings about the conclusion that eternalism offers a better ontology of time than presentism.

2.4. Conclusion

In this chapter I have argued that the presentist theory is an unsuitable candidate for a consistent theory of time. I have also defended the claim that the grounding objection, despite attempts to evade it, counts against presentism. Given that eternalism both avoids the contradiction found in the presentist theory and all forms, whether past or future directed, of the grounding objection, eternalism provides a solution to the objections against the presentist theory. Eternalism will therefore provide the ontological basis from which to consider the passage of time. Before moving on to look at the relationship between eternalism and temporal passage, I will say a few things about the passage of time.

CHAPTER 3: THE MOVING SPOTLIGHT THEORY

*Hour after hour departs,
Recklessly flying;
The golden time of our hearts
Is fast a-dying:
O, how soon it will have faded!
Joy droops, with forehead shaded;
And Memory starts.*

John Hamilton Reynolds

3.1. Introduction

One way to think of the passage of time was briefly introduced and dismissed in 2.2. I start this chapter by doing two things. First, I step back and reassess the question of what it means to say that time passes. Second, I look at a historically influential way to characterize temporal passage: the moving *now*. Seeing as I have argued that eternalism is the best foundation from which to consider the passage of time, any satisfactory account of temporal passage must be consistent with eternalism. The moving spotlight theory offers a way to combine eternalism with the moving *now*. I argue, however, that the moving spotlight theory is incoherent.

3.2. The Passage of Time

Often described by using metaphors such as the “flowing” of time or the “river” of time, the feeling of time passing is found in the relationship between the past, the present, and the future. Perhaps best described by Williams (who was anti-passage), the motivation for the subjective view of temporal passage rests in the idea that:

...we find passage, that we are immediately and poignantly involved in the jerk and whoosh of process, the felt flow of one moment into the next. (1951, p.466)

At the experiential level, the passing of time is the feeling of moving constantly “through” time: the present never stands still, the future is always drawing nearer, and the past is always receding away. The feeling of time passing, however, does not answer the question of what it means to say that time in and of itself passes.

The moving *now* is a popular model of temporal passage that incorporates both the passage of time itself and the experience of temporal passage.

3.2.1. *The moving now theory*

Along with eternalism, the moving *now* is a main part of the moving spotlight theory. The moving spotlight theory, therefore, offers a way to combine eternalism with an objective account of temporal passage that is intuitively appealing. Before evaluating the moving spotlight theory, it may be helpful to say a bit more about the moving *now* itself.

According to the moving *now* theory, the passage of time corresponds to the movement of the present from the past to the future²⁸. As summarized by Smith (2011), the heart of the moving *now* conception of temporal passage rests in the idea that:

...the now seems to move forward relentlessly, dragging us with it. We can experience only the now – but the now is always moving; hence we experience time as flowing inexorably. (p. 233)

The *now* seems to glide ceaselessly across the temporal, and in doing so provides motivation for the claim that time flows, for the present is forever on the move from the past to the future.

How, though, does one explain the special status given to the *now*?

At the ontological level, there appears to be two contrasting ways of responding to this question:

- (i) The present is given special status because present events and things are seen as real while past and future events and things are seen as not real.
- (ii) The present is given special status but past and future events and things are just as real as present events and things.

The answer given by the first response clearly contradicts the eternalist thesis insofar as it holds that past and future events and things are not real. The answer given by the second response clearly contradicts the presentist thesis insofar as it holds that past and future events and things

²⁸ In the context of both the moving *now* theory and the moving spotlight theory (to be discussed below) the *now* represents the absolute present (or just the present).

are just as real as present events and things. Contradicting the eternalist thesis, the first response holds that present events and things are special since the present is the only time that exists. The specialness of the present is thus connected to the ontological status of the present. Not connected to the ontological status of the present, the second response holds that past, present, and future events and things all exist, and consequently the specialness of the present must be obtained from some other source.

It seems that presentism allows for the specialness of the present that is required for there to be a *now*. In the previous chapter I ruled presentism out as a satisfactory ontology. Accordingly, even if it turns out that presentism and the moving *now* are in fact well-matched theories, the challenge is to determine whether or not eternalism and the moving *now* are well-matched theories.

At the ontological level, eternalism and the *now* do not appear to be well-suited to each other. Past, present, and future are equally special, or not special, according to eternalism. The constant movement of present events and things, which makes the present special, must therefore either be attributed to the workings of the mind or to some extra fact about reality. If the movement of the *now* is neither a fact about reality nor dependent on the mind, then there is no reason that there should be a special present time that moves along the temporal continuum. This is because the ontological impartiality of eternalism makes it so that an additional element is needed to distinguish a time – past, present, or future – as special, and thus what it is that moves. Without this extra element, whether it is based on experience or a fact about the world, eternalism itself does not differentiate one time from another time, and this means that it does not differentiate the specialness of the present from the non-specialness of the past and the future. Seeing as eternalism alone does not supply the extra element that is needed to enable the present

to move, eternalism by itself does not provide an ontological basis for the movement of the *now*. Hence, eternalism does not provide a natural foundation for the moving *now*.

Attempting to combine eternalism with the moving *now*, the moving spotlight theory is the focus of the next section.

3.3. Assessing the Moving Spotlight Theory

The standard version of the moving spotlight theory of time was first introduced by Broad (1923). Although Broad did not argue in favour of the moving spotlight theory, as noted by Price (2011) and Zimmerman (2008), Broad originally depicts the moving spotlight theory in the following passage:

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 light from 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 been illuminated is the future. (1923, p.59)

In order to uncover the hybrid nature of the moving spotlight theory, it may be useful to consider its underlying workings. The moving spotlight theory holds that all times exist. There is just something special about times that are present. Present events and things are more in focus than past and future events and things, which are difficult to "see". Since present events and things are always the focus of the spotlight, as the present moves (the moving *now*) the spotlight moves

(the moving spotlight). As demonstrated by the preceding quote from Broad, metaphorically this implies that present events and things are “lit up” in some way, and reside in darkness before and after they are “lit up”. This means that present events and things are *more real* than past and future events and things, which are somehow *less real*. This all, though, seems somewhat mysterious.

Since it is not known why the spotlight illuminates present events and things, it is, at least at this point, unclear how the present both becomes special – more real – in comparison to other times and, once picked out as special, how the present moves with relation to other times. Are all times moving with the present, and thus is the temporal continuum itself always on the move? If so, where and how is the temporal continuum moving? For, if all times exist, then it seems that there are no times for the temporal continuum itself to move to and from. The movement of the present, further, would seem to imply that times, as the present reaches them and leaves them, gain and lose their special status. A closer look at the components of the moving spotlight theory might help. As explained by Skow (2009), the moving spotlight theory relies on objective becoming:

The claim that there is objective becoming has two parts. First, facts about which time is present are non-relative. That is, even if in some sense each time is present relative to itself, only one time is absolutely present. That time, and only that time, glows with metaphysical status. And second, which instant is absolutely present keeps changing. The NOW moves along the series of times from earlier times to later times. (p.666)

It follows that the objective movement of the *now* is equivalent to the continuous changing of one absolute present for another absolute present along the eternalist continuum. Pulling all of the pieces together, the moving spotlight theory may be broken down into three components:

- (1) The eternalist component holds that all times exist (i.e. past, present, and future exist).
- (2) The A-theoretical component holds that there are non-relative facts about the tensed status of times (i.e. about which times constitute the past, which times constitute the present, and which times constitute the future).
- (3) The moving *now* component holds that the *now* moves from the past to the future.

Much of the ambiguity that arises in connection to the moving spotlight theory is a result of the combination of (1) with (2) and (3). As expressed by Price (2011), this is because:

...the moving spotlight view is trying to combine two elements which pull in opposite directions. On the one hand, it wants to be exclusive, saying that one moment is objectively distinguished. On the other hand, it wants to be inclusive, saying that all moments get their turn – their Warholian instant of fame, when the spotlight turns on them alone. (Everybody is a star.) (p.278)

Expressing contrasting outlooks, the inclusive element of the moving spotlight theory is captured by (1), and the exclusive element is captured by (2) and (3). As seemed inevitable from the introduction to the moving *now*, the moving spotlight theorist is tasked with demonstrating why

theories that naturally belong on separate sides of a debate should be brought together. Again, the reason for this is that it is not clear why one should endorse a theory of time that purports to combine the temporal equality of eternalism with the specialness of the present that is brought about by the constant movement of the *now*, which “lights up” the temporal continuum from the past to the future.

In order to understand the moving spotlight theory, there are two pressing questions that must be answered:

- (a) How and why does the present illuminate the temporal continuum (how and why is the present special)?
- (b) How does the present move along the continuum of time, illuminating different points on the continuum as it moves?

The answers to (a) and (b) essentially explain how and why the moving spotlight theory combines (1) with (2) and (3). Components (1) and (2) offer an answer to the how aspect of (a). Component (3) offers an answer to the why aspect of (a), and an answer to (b). To expand on how it is that (1) and (2) offer a partial answer to (a): the combination of (1) – the eternalist thesis that all times exist – with (2) – the A-theoretical notion that there are non-relative facts about the status of all times – allows for the moving spotlight theory to hold that there is a real temporal continuum that incorporates all events and things from the past to the future. The temporal continuum can then be divided into a non-relative distinction between the past, the present, and the future, which picks out an absolute present to somehow be deemed as special. The question still remains: why is the present special? Before moving on to consider this

question, it will be useful to look at the response that can be made on behalf of the moving spotlight theorist to (b).

Component (3) may be offered as an answer to (b). As explained by Skow (2012), the answer to how the present moves along the temporal continuum is found in the idea that:

...the NOW moves is a fundamental fact about the universe, one that has no deeper explanation²⁹. (p.225)

The moving spotlight theory, then, posits the motion of the *now* as a basic metaphysical concept, and seeks to build a theory upon this posit. Component (3) would also answer why the present is special. According to the moving spotlight theorist it would be an unanalyzable truth that the present moves from earlier to later times, and thus what makes the present special is that it is a basic fact that the present, unlike the past or the future, is simply always on the move.

In line with theorists such as Maudlin (2007), I maintain that accepting some unanalyzable primitives into one's ontology is not metaphysical extravagance. However, in the next section I argue that the movement of the *now* is an incoherent notion. I therefore suggest

²⁹ It may be interesting to note that Skow (2012) presents a version of the moving spotlight theory that, in contrast to the standard version of the moving spotlight theory, explains the movement of the *now* by an appeal to supertime (or hypertime). There is not enough room here for a full discussion of hypertime. Smith (2011), however, offers three reasons why the reliance on hypertime may cost more than it is worth: (1) Hypertime is ontologically extravagant, (2) Hypertime brings about an infinite regress, and (3) Hypertime does not help to explain the phenomenology of the passage of time. It might help to expand on (2) and (3). (2) is based on the idea that hypertime, to be called 'time', must flow, or pass in some way. This means that hypertime must have a hyper*now* that moves through it, and in order to make sense of the movement of the hyper*now*, there must be a hyperhypertime, and so on. (3) is supported by the idea that, if one posits a hypertime, there is no reason to think that one is actually moving with the *now* through normal time, and hence experiencing the objective passage of time. This is because the past, the present, and the future of normal time all exist in hypertime, and hence events and things in normal time are arranged on a permanent temporal continuum, whereupon inhabitants of a time, say 1900, must always feel in the *now*. As a result, unless one becomes a presentist about hypertime, the past and the future will always exist in the hyperpast and the hyperfuture, and thus an inhabitant of normal time will experience the feeling of being in the *now* regardless of where the *now* really is in normal time. I am in general agreement with Smith, and thus focus on the movement of the *now* as a basic fact about the spatio-temporal world.

that it is a mistake to defend the moving *now* in any capacity, let alone posit the movement of the *now* as a basic fact about the spatio-temporal world.

3.3.1. *The incoherence of the moving now*

The objection against the moving *now* starts with the idea that (3) – the moving *now* – is dependent upon the non-relative distinction about the tensed status of time that is provided by (2) – the A-theoretical thesis. To see why this is, note that the absolute temporal distinction that the A-theoretical thesis draws between times is required for there to be an absolute *now*. There is, then, no way to get a moving *now* without the *now*, and there is no way to get the *now* without a temporally absolute distinction between times.

The notion of objective becoming further illustrates the connection between (2) and (3). As previously mentioned, in the context of the moving spotlight theory, objective becoming is the claim that it is a fact about the world that there is only one time that is absolutely present, and it is this time that moves along from earlier to later times. It follows that, for objective becoming to occur, the time that is the present must constantly be changing. Herein lies the incoherency of the moving *now*: The *now*, which is absolute, must also be not-absolute insofar as, for the *now* to be continuously changing, the *now* must denote different absolute times at different points on the temporal continuum. Needing different “absolute” times to denote the *now* seems to imply that the *now* is in fact not absolute. By itself (2) does not lead to the incoherency found in the moving spotlight theory, for simply positing that there is an absolute present, an absolute past, and an absolute future is not by itself necessarily a flawed idea. Positing that the absolute present is always on the move from the absolute past to the absolute future is a flawed idea. This

claim amounts to absurdity when it is put into action. This is because, as stated above, the movement of the *now* means that the absolute status of times will always be changing.

There is a similarity between the claim that the moving *now* is incoherent and the claim that presentism is contradictory. This is not surprising considering that both presentism and the moving spotlight theory rely on the continuous changing of the absolute present. However, seeing as the moving spotlight theory incorporates the eternalist ontology, it cannot claim that the time denoted by the *now* is the only time that exists. The incorporation of the eternalist ontology means that the moving spotlight theory must hold that a time that once was the *now* and a time that will be the *now* are both just as real as a time that is currently the *now*, the times are just respectively no longer and not yet absolutely present. Figure 2 may look something like the temporal continuum envisioned by the moving spotlight theory. All times to the left of t_2 are earlier absolute *now*'s and all times to the right of t_2 are later absolute *now*'s. Being “lit up”, the *now* moves from one time to another time, signifying the absolute present at each point on its journey³⁰.

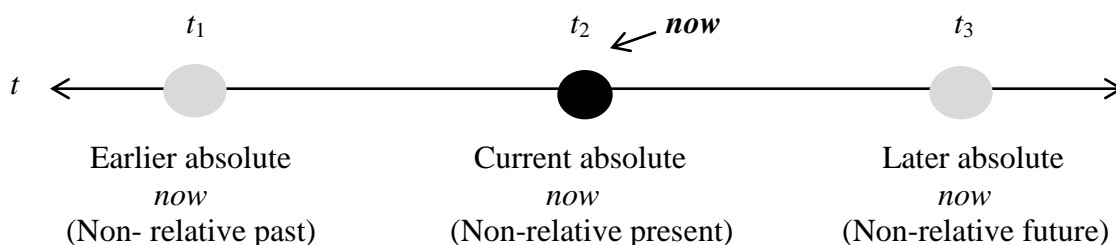


Figure 2. The moving spotlight theory and the moving *now*³¹

³⁰ As noted by Price (2011), this objection can be couched in different terms. For instance, it may be said that each event and thing must have the property of being both illuminated and not illuminated, and the moving *now* is therefore incoherent insofar as it gives and takes the property of illumination.

³¹ The “lit up” *now* is denoted by the black circle. The earlier and later versions of the *now* are not “lit up” and are in grey. The *now* is meant to be on the move from earlier to later times.

Notice that in relation to t_2 , the absolute present, it is the case that t_1 and t_3 are respectively absolutely past and absolutely future. Now, imagine that the *now* is on the move and has made its way to t_3 . From the perspective of the absolute *now* at t_3 , t_2 and t_4 (not pictured) are respectively absolutely past and absolutely future. In relation to the status of times,

t_1 exists as both absolutely past and absolutely further past

t_2 exists as both absolutely present and absolutely past

t_3 exists as both absolutely future and absolutely present

t_4 exists as both absolutely future and absolutely less future

The moving spotlight theory, however, does not want to claim that all times are absolutely every time. As mentioned, the movement of the *now*, as a fundamental fact about the spatio-temporal world, bestows temporally absolute status and withdraws temporally absolute status. Giving and taking temporally absolute status, the moving *now* is the basis for the incoherency found in the moving spotlight theory.

3.4. Conclusion

The moving *now* is a popular model that incorporates both the passage of time itself and the experience of temporal passage. Eternalism and the moving *now* did not appear to be naturally well-matched theories. In an effort to understand the relationship between eternalism and the moving *now*, I considered the moving spotlight theory. The moving spotlight theory proved to be an incoherent account. The incoherency found in the moving spotlight theory resulted from the movement of the *now*, and this means that there is no consistent ontology that can support the

moving *now*. With the combination of eternalism and the moving *now* ruled out, the next chapter focuses on other ways to combine eternalism with the passage of time.

CHAPTER 4: THE BLOCK UNIVERSE THEORY

All moments past, present, and future always have existed, always will exist. The Tralfamadorians can look at all the different moments just the way that we can look at a stretch of the Rocky Mountain, for instance. They can see how permanent all the moments are, and they can look at any moment that interests them. It is just an illusion we have here on Earth that one moment follows another one, like beads on a string, and that once a moment is gone it is gone forever.

Kurt Vonnegut³²

4.1. Introduction

In this chapter I consider two variations of the block universe theory: the standard version and the revised version. Both versions of the block universe theory incorporate eternalism. The standard version holds that the passage of time is a mind-dependent phenomenon, and, accordingly, it will be called the ‘mind-dependent theory’. The revised version holds that the passage of time is an unanalyzable fact about the structure of the spatio-temporal world, and it will be called the ‘irreducible fact theory’. The mind-dependent theory is the stance commonly endorsed by the eternalist. I argue that the mind-dependent theory must either hold that both temporal passage and change are mind-dependent or separate temporal passage from change. Both options prove difficult to sustain. I conclude with a defence of the irreducible fact theory.

³² This is from the second chapter of *Slaughterhouse- Five*.

4.2. The Mind-Dependent Theory

According to the first view, eternalism represents the objective reality of time and the passing of time is relegated to the subjective realm. As noted by Beer (1988), on this view it would be the case that:

...events are past, present or future only in relation to a perceiver or subject of consciousness, thereby regulating the passage of time to the status of mere mind-dependency. (p.158)

While the structure of the spatio-temporal world would exist mind-independently, the phenomenon of passage would exist mind-dependently. The objective reality of time, then, would not include the passage of time.

This schism between the passage of time and the ontology of time is thought to be warranted insofar as there seems to be no way to “put” the movement of events from past to future in the world without recourse to processes that rely on something similar to the objective movement of the present. As explained by Price (1996),

Defenders of the block universe view deny that there is an objective present, and usually also deny that there is any objective flow of time. Indeed, perhaps the strongest reason for denying the objectivity of the present is that it is so difficult to make sense of the notion of an objective flow or passage of time. (p.13)

The general idea behind the mind-dependent theory, then, is that the objective passing of time requires the present to move – flow in some way – along the B-theoretic temporal continuum. This means that present events and things must be privileged in a way that past and future events and things are not. As demonstrated by the above arguments against the moving spotlight theory, construing the passage of time as the objective progression of the present is both metaphysically taxing and incoherent. Accordingly, the mind-dependent theory holds that the passing of time is better thought of as a phenomenon that is introduced into the world by the mind (See Baker 1974 and 1979, Grunbaum 1974). There is a further temporal consequence of the mind-dependent theory.

There is a direction to the experienced passage of time. As previously discussed, it seems that events and things are always moving steadily onward, flowing as it were from past events and things to future events and things. The result is that:

Time seems directed. It seems manifest in our experience that time flows – from the past, to the present moment, and into the future. (...) The arrow of time, one could say, points in the direction in which time flows, moves, lapses, or runs. The other arrows (like entropic increase or the expansion of the universe) are arrows in time. (Savitt, 1996, p.348)

Seeing as the passage of time is here conceived as a mind-dependent phenomenon, if the arrow of time is the direction in which time flows, then the arrow of time is also a mind-dependent phenomenon. It should be noted that only the passage of time is mind-dependent on this view. Time itself exists mind-independently, and this means that there may be arrows *in* time that are

not connected to the direction *of* time. Nevertheless, on the mind-dependent theory the passage of time underlies the direction of time insofar as the direction of time is dictated by the way in which time flows.

In response to the mind-dependent theorist, I will propose that there are serious difficulties that follow from the assertion that the passage of time *is* the movement of the present, or some other “flowing” of events and things, within the mind. Toward this end, the next section explores various ways to justify the mind-dependency of temporal passage. I argue that all of the attempts to defend mind-dependent temporal passage fail, and thus the mind-dependent theory is indefensible.

4.2.1. *Two versions of the mind-dependent theory*

Given that the movement of the present – the *now* – is an incoherent notion, it can be argued that the mind-dependent theory simply relegates an incoherent notion to the workings of the mind. Although the argument may be made that it is better to have an incoherent notion as a fact “in” the mind than as a mind-independent fact about the world, it seems that it would be even better to explain temporal passage without recourse to the *movement* of present events and things, and therefore get rid of the incoherent notion all together. The advocate of the mind-dependent theory may reply that there are two ways to understand the mind-dependent theory (see Kroes 1984³³):

- *First Mind-Dependent Thesis*: The first version of the mind-dependent theory maintains that the flow of time is an irreducible part of the mind. This means

³³ In particular, see page 436.

that, although it is not a feature of the spatio-temporal world, the flow of time is a real aspect of the mind.

- *Second Mind-Dependent Thesis*: The second version of the mind-dependent theory holds that the flow of time is an illusion. On this view the flow of time is neither a genuine aspect of the spatio-temporal world nor a real part of the mind.

Following the first mind-dependent thesis, the notion that all attempts to explain the movement or flow of time result in incoherency would mean that there is an irreducible aspect of the mind that fosters unintelligible consequences. It is important to note, the claim here is not that it is unintelligible for people to *believe* that time flows. People frequently believe in incoherent things, and hence objecting to a theory because it states that people believe in incoherent things would not be much of an objection. The claim, rather, is that the first thesis ascribes to the fundamental workings of the mind a process that cannot be coherently *described*, and this means that there is a basic aspect of the mind that cannot be understood. If this is the case, then the first thesis cannot be used to explain other phenomena. Seeing as the passage of time is conceived as an irreducible part of the mind, the first thesis also cannot be explained in terms of other phenomena. The result is that it can neither use the passage of time to explain other things nor use other things to explain the passage of time. Supporting a view that is not able to do very much, the first thesis is not a promising account of the mind-dependency of temporal passage. The second thesis is the only option left to the mind-dependent theorist.

According to the second mind-dependent thesis, the experience of the flow of time would not mean that there is an aspect of the mind that is fundamentally inexplicable, for the flow of time would be an illusion that is caused by other cognitive processes, which hopefully can be

explained in terms that are not incoherent. If the first version is mistaken, then the proponent of the second version would have to explain what causes the experience of the flow of time.

Though this has historically been a challenging task (see Deng 2010), there have been some notable attempts to explain the illusion of temporal passage. I will look at two such attempts.

The first, suggested by Mellor (1998), holds that the illusion that time flows is motivated by the role that A-beliefs – beliefs about the past, the present, and the future – play in human survival.

The second, proposed by Prosser (2012), maintains that the illusion that time flows is connected to the representational content of experience. Both accounts explain the illusion of temporal passage from the B-theoretic perspective, and hence both accounts support eternalism.

Mellor argues that, while the mind-dependent theorist cannot admit that time genuinely flows, the mind-dependent theorist can acknowledge that it genuinely *seems* that time flows:

We have so many A-beliefs that we must always be changing some of them, especially our now-beliefs. These changes embody the psychological truth in the metaphysical falsehood that time flows, i.e. that events like Jim's race really are moving in A-time, from being tomorrow, to being today, to being yesterday. On a B-theory of course time does not flow, since there are no such A-facts as Jim's racing tomorrow, today and yesterday to come into and go out of existence. Yet even B-theorists can admit, if not a real flow of time, then a real, and often true experience of time flowing³⁴ ... (1998, p.66/67)

The key to Mellor's account is found in the notion that changes in past-beliefs and future-beliefs are caused by the senses, which are motivated by now-beliefs. A now-belief involves both the

³⁴ Mellor's B-theorist is what I am referring to as the proponent of the standard version of the block universe.

belief that something is happening at a given time and the belief that that time is now.

According to Mellor, although one can be mistaken about now-beliefs, humans have evolved to be habitually successful at now-beliefs:

This is true in particular of events, like the approach of predators, partners or food, on our timely reaction to which we and our species depend for survival. If we let our eyes give us future-beliefs about these events, we would not act on them in time; if we let them give us past-beliefs, we would not act on them at all; and either way we would die out. It is only the habit of letting our eyes give us now-beliefs that lets us survive, which is why we are born with it, precisely because, when it matters, it almost always gives us A-beliefs only when they are true. (Ibid, p.68)

Instead of a real A-series made up of A-facts about the past, the present, and the future, the suggestion is that humans are naturally equipped to have predominantly accurate A-beliefs. Changes in A-beliefs, further, both explain and correspond to the experience of the flow of temporal passage. This is because perceiving the successive stages of an event makes it genuinely seem as if the event is truly passing from the future to the present to the past. Mellor therefore accounts for the illusion of temporal passage by equating the belief that time flows with the vitally important ability to accurately detect changes in now-beliefs, which in turn allow one to alter past-beliefs and future-beliefs.

Prosser offers an account that focuses on the representational aspect of the content of experience, and argues that the illusion of temporal passage can be explained by the idea that the experience of change involves the enduring of things rather than the perduring of things. While

acknowledging that the nature of conscious experience itself may still remain an enigma, this account attempts to explain why it is that the experience of temporal passage has the phenomenal character that it does. In other words, although this account leaves important questions about conscious experience unanswered, it looks to explain why temporal passage is experienced as the flow of time when time itself does not in fact flow. The distinction between perdurantism and endurantism is important to understanding Prosser's account. An object is said to perdure if only a temporal part of it exists at any given time. An object is said to endure if throughout its existence it exists as a whole from one time to another time. The block universe theory typically supports perdurantism (see Hawley 2001, Lewis 1986 and 2002, Quine 1950)³⁵. The crux of Prosser's proposal is found in the idea that the illusion that time flows is based on the way that change is perceived, for:

...the illusion of passage comes about because of the illusory and indeed contradictory way in which change is represented, involving the representation of something enduring through any change. (2012, p.113)

The idea seems to be that, although objects actually perdure, in experience objects appear to endure. In an effort to answer why it is that the content of experience is represented in this way, Prosser suggests that:

...objects are represented as enduring because of a kind of 'laziness' or 'economy' on the part of the human visual system. This can be understood by considering the well-

³⁵ This, however, is not always the case. Mozersky (2013) offers a version of the B-theory that supports endurantism, for example.

known *beta* phenomenon (...), which also helps illustrate part of the phenomenological difference that results from the representation of endurance. Beta motion is the illusion of apparent motion familiar from film and television, in which a series of still images at different positions is experienced as a single continuously moving object. (p. 111)

The reason that objects are represented as enduring and not perduring, then, is that it is more economical for perception to represent something as a single temporally enduring object than it is for perception to represent something as a unified object that is composed of temporally independent parts. Although in reality things perdure, it is the experience of change that brings about the experience of temporal passage, and this means that the illusion that time flows is motivated by the illusion that things endure.

Notwithstanding the potential responses that can be made to Mellor and Prosser, the key point is that there are ways to explain why it is that time really seems to flow. The defender of mind-dependent passage may, by convincingly arguing for the second thesis, get around the objection that the mind-dependent theory simply takes an incoherent notion and relegates it to the workings of the mind. Being an illusion that is explainable in terms of other phenomena, the flow of time would not be an irreducible aspect of the mind. The workings of the mind, as a result, would not be inherently unintelligible.

Even if the mind-dependent theory can be expressed coherently, it faces an additional problem. This problem is connected to the way that the mind-dependent theory conceives of the relationship between the passage of time and change. Insofar as it relegates the passage of time to mind-dependence, the mind-dependent theory must hold that either:

- (i) Change occurs mind-dependently.
- (ii) Change occurs mind-independently in a world wherein time in and of itself does not genuinely pass.

In what follows I will argue that neither option is a viable choice.

Starting with (i), the mind-dependent theorist may propose that both the passage of time and change occur mind-dependently. This would mean that time would not pass and nothing would change outside of the mind. Holding this view, the mind-dependent theorist would have to explain a world wherein time does not pass and nothing changes, and yet time itself objectively exists. This would be a very strange world indeed. Trying to describe this world, one would be left with the challenging task of depicting a completely frozen world inhabited with frozen beings stuck in a state of perpetual hallucination. Seeing as *nothing* would happen independently of the mind, the mind would be left with the task of making it appear as if events and things were never-endingly going through processes of change. It would be as if the world were trapped in a painting, and the subjects of the painting were convinced that they were actually part of a changing scenario. It is also unclear how the mind itself would make it appear as if events and things change. Seeing as the mind would be stuck in one state, it would not undergo the change needed to represent the world as changing. It seems that the first option offers a picture of the world that is too absurd to be taken seriously.

As captured by (ii), the mind-dependent theorist may argue that the passage of time occurs mind-dependently, while change and other processes occur mind-independently. This is the favoured option of most block universe theorists (see Horwich 1987, Mellor 1998, Prosser 2007). Following this option, the mind-dependent theory would have to explain a world wherein

time objectively exists but does not actually pass, and yet events and things objectively change. It may be useful to remember that the mind-dependent theorist holds that the spatio-temporal world is a four-dimensional manifold. Just as all of the places along the three spatial dimensions exist, all of the times along the one temporal dimension exist. Within this manifold change occurs insofar as something has one set of properties at one time, and a different set of properties at another time³⁶. The manifold itself does not reside in time, and therefore cannot be described as either static or changing (see Price 1996). Although time does not objectively pass, events and things *in* the manifold change. As popular as choosing the second option is among block theorists, I believe that it is a mistake to divorce temporal passage from change. Unless, in direct contrast to the second option, one is willing to hold that events and things *in* the manifold are unchanging, time must objectively pass. This is because it makes very little sense to say that something *first* has one set of properties and *later* has another set of properties unless the passing of time is itself underlying the relation of earlier events and things to later events and things.

Holding that the passage of time is not the basis for change in the spatio-temporal world implies that the temporal dimension is similar to the spatial dimension insofar as no event or thing can be said to be before or after another event or thing. One, then, would be reduced to speaking of temporal events with expressions analogous to those used in spatial talk. If one could somehow perceive the entire eternalist continuum, this would mean that, instead of saying that t_1 occurs either earlier than or later than t_2 , one would have to say t_1 is either to the left of or to the right of t_2 , for instance. It might help to get rid of the spatial analogy. Without the passage of time underlying change, while one would be able to hold that 19 October 1985 and 19 October 1989 occur at *different* times, one could not say that the time represented by 19 October 1985 is

³⁶ For a detailed discussion of change in the standard version of the block universe view see, for instance, Dainton (2010 and 2011).

earlier than the time represented by 19 October 1989³⁷. The point to take away is that it does not make any sense to suppose that there is an objective temporal change from A to B rather than from B to A without the objective passage of time. Undermining the earlier than relation, the second option fails for the mind-dependent theorist.

I have argued against the mind-dependent view of temporal passage. There is, however, another view of temporal passage that can be called on by the eternalist. The irreducible fact theory proposes that there is an objective passage of time that may be understood as a fact that cannot be analyzed any further. Of the three ways to combine the ontology of time and the passage of time that have been considered, the irreducible fact theory avoids the complications that befall the mind-dependent theory, the inconsistency inherent in presentism, and the incoherency found in the moving spotlight theory. The irreducible fact theory is therefore burdened with fewer difficulties than its eternalist rivals the mind-dependent theory and the moving spotlight theory, and is more stable than its presentist rival the presentist theory. In the next section I argue in favour of the irreducible fact theory.

4.3. The Irreducible Fact Theory

The irreducible fact theory combines eternalism with the objective passage of time. Differing from the other theories that have been addressed thus far, the irreducible fact theory does not conceive of temporal passage as the flowing, moving, or renewal of time. This means that it describes the passage of time without appealing to any form of temporal becoming. The irreducible fact theory, then, presents a revised version of the standard block universe theory.

³⁷ This brings out the difference between the past-to-future direction and the past-to-past direction. More will be said on the relationship between the passage of time and change in section 4.3.

Much of the difficulty that surrounded the presentist theory and the moving spotlight theory involved the challenge of satisfactorily describing the renewal or movement of the present. The mind-dependent theory offered a way to get rid of the reliance on both the renewal and movement of the present. The cost of this move was the denial of objective temporal passage. This was because the mind-dependent theory followed both the presentist theory and the moving spotlight theory in equating the objective flow of time with the continuous changing of the present. The result was that, unless the eternalist wanted to be a moving spotlight theorist, the eternalist was forced to deny that temporal passage is an objective phenomenon. What the irreducible fact theory offers is a way to not only reject the presentist theory, the moving spotlight theory, and the mind-dependent theory, but also a means to reject the way that these theories define the objective passing of time.

The irreducible fact theory improves upon previous attempts to explain the relationship between the ontology of time and the passage of time insofar as it:

- (1) Accounts for the objective passing of time.
- (2) Can be described in a coherent and consistent manner.
- (3) Does not divorce temporal passage from change.

The presentist theory, the moving spotlight, and the mind-dependent theory can only accomplish the following:

The Presentist Theory: (1) and (3).

The Moving Spotlight Theory: (1) and (3).

The Mind-Dependent Theory: Arguably (2).

The claim that I am making is that the irreducible fact theory can accomplish (1), (2), and (3) by itself, and this is why it is preferable to its rivals. In order to defend this claim, the following will show that (1), (2), and (3) are achieved by the irreducible fact theorist.

4.3.1. Mind-independent temporal passage

Unlike the mind-dependent theory, the irreducible fact theory puts the passage of time in the spatio-temporal world. In accord with theorists such as Maudlin (2007), this is an important feature of the irreducible fact theory since it accounts for the fact that:

...the world is given to us as changing, and time as passing, and everyone takes for granted that their situation is importantly different before and after a visit to the dentist, (...), and importantly different toward the beginning and end of their lives (even though there may, in each case, be a long stretch of life lying to one side or the other) and that all the philosophizing in the world will not convince us that these facts are mere illusions. (p. 135)

The feeling that time really passes is challenging to explain away. The assertion that it is important for a theory of time to account for the objective passage of time is thus underwritten by an appeal to the fact that in everyday life it is extremely difficult to argue that time itself does not pass. The mind-dependent theorist, however, may not be overly swayed by this appeal.

As previously mentioned, the reason that the mind-dependent theorist may not be moved by sentiments in agreement with Maudlin is that the price of positing an incoherent notion as an objective fact about the spatio-temporal world seems to philosophically cost too much. Part of the appeal of the irreducible fact theory is that it can account for the undeniable feeling of time's passing without leading to an inconsistent or incoherent theory.

4.3.2. *Coherency and consistency*

In contrast to the presentist theory and the moving spotlight theory, the irreducible fact theory can be articulated intelligibly. The presentist theory could not adequately explain how it is that the present spontaneously renews itself, and also could not account for the existence of past and future truths. By both incorporating the eternalist ontology and denying the renewal of the present, the irreducible fact theory avoids the consequences of limiting existence to a mysteriously ever-changing absolute present.

Much of the trouble that arose for the moving spotlight theory surrounded the attempt to reconcile the past, the present, and the future determinations of the A-theory and the movement of the *now* –the moving, absolute present – with the eternalist stance that all times exist. The irreducible fact theory does not suffer from these difficulties. It can happily throw away both the A-series determinations and the notion of the movement of the *now*, which the moving spotlight theory depended on for passage. In place of the A-determinations and the movement of the *now*, the irreducible fact theory proposes that temporal passage is a fundamental fact about the spatio-temporal world, a fact that underlies the B-theoretic relations of earlier than and later than. This means that one would:

...conceive of temporal passage as simply the fact that moments and events stand in the earlier than relation to each other and that all change occurs with respect to this ordering. (Mozerky, 2013, conclusion pg. 15)

Ordering events and things by the earlier than relation, one can side-step the inconsistencies that arise when one tries to explicate temporal passage as the movement of the present from the past to the future. For, the passage of time both simply and coherently describes the fact that all events and things along the eternalist temporal continuum exist in an ordering of earlier events and things to later events and things.

It follows that the irreducible fact theory holds that the passage of time underlies processes of change found in the spatio-temporal world. What can be said about the passage of time itself? Seeing as temporal passage is a basic, objective fact about the spatio-temporal world, it cannot be explained in terms of other phenomena. However, as suggested by Maudlin (2007), the passage of time itself may be described as:

...an intrinsic asymmetry in the temporal structure of the world, an asymmetry that has no spatial counterpart. It is the asymmetry that grounds the distinction between sequences which run from past to future and sequences which run from future to past. (p. 108)

Pulling all of the pieces together, the passage of time itself *is* a fundamental feature of the spatio-temporal world, which is *described* by the temporal asymmetry – the difference between the

past-to-future direction and the future-to-past direction – that *describes* the ordering of earlier events and things to later events and things. It follows that:

...going from Mars to Earth is not the same as going from Earth to Mars. The difference, if you will, is how these sequences of states are orientated with respect to the passage of time. (Maudlin, 2007, p.108)

If travelling from Earth to Mars represents an object's path along the past-to-future direction, then travelling from Mars to Earth would represent the object's path along the future-to-past direction. Bringing out the earlier than relation, this example highlights the temporal asymmetry that is found in the difference between the orientation of earlier and later sequences, which is provided by the passage of time.

It is important to note, according to the irreducible fact theory, the passage of time offers a reason why events and things along the eternalist continuum are ordered with respect to the earlier than relation. As previously mentioned, the denial of objective temporal passage meant that the mind-dependent theory, in its most plausible version, could not account for the earlier than relation, and thus could only hold that times such as 19 October 1985 and 19 October 1989 are distinct times³⁸. The irreducible fact theory does not have this problem. Describing the passage of time as an intrinsic temporal asymmetry, the irreducible fact theory presents a way to define some events and things as either earlier than or later than other events and things. The reason for this is that, as captured by the above example from Maudlin, the passage of time denotes a difference on the temporal continuum between the past-to-future direction and the

³⁸ The mind-dependent theorist may respond that the earlier than relation is a primitive metaphysical fact. One of the strengths of the irreducible fact theory is that it accounts for the earlier than relation in a way that does not have to deny the objective reality of temporal passage.

future-to-past direction. The reason why 19 October 1985 is earlier than 19 October 1989, then, is that the relation between 19 October 1985 and 19 October 1989 is underscored by the past-to-future direction, while the relation between 19 October 1989 and 19 October 1985 is underscored by the future-to-past direction. The passage of time, therefore, plays an essential role in both mind-independent change and the experience that there is a difference between past, present, and future events and things.

Describing the passage of time in the above way, the irreducible fact theorist does not have to rely on an explanation of temporal passage that cannot be described coherently. The irreducible fact theory and the mind-dependent theory share both the same ontological view of time and the same conception of change. The irreducible fact theory, however, has a more successful stance on the relationship between the passage of time and change than the mind-dependent theory.

4.3.3. Temporal passage and change

Unlike the mind-dependent theory, the irreducible fact theory neither has to separate passage from change nor hold that both passage and change are dependent upon the mind. Both existing in the world, the passage of time brings about change, which is captured by the earlier than relation. When it comes to the relationship between temporal passage and change, the irreducible fact theory therefore does two notable things:

- (a) Holds that both change and the passage of time are mind-independent phenomena.
- (b) Holds that the passage of time underlies change.

If one wishes to endorse (b), then one must either claim that both the passage of time and change are mind-dependent or that both the passage of time and change are mind-independent. This consequence follows from (b) insofar as mind-dependent temporal passage cannot motivate mind-independent change, and mind-independent temporal passage cannot bring about mind-dependent change. That is, of course, unless one is willing to defend either a world wherein the mind somehow psychically causes mind-independent change or a world wherein nothing actually changes. I suggested in section 4.2.1 that conceiving of the passage of time and change as both mind-dependent phenomena leads to an absurd conclusion. Hence, if (b) holds, then so does (a).

It should be mentioned that one can attempt to revise (b) by positing that change underlies temporal passage. Choosing this option, one would have to claim that time cannot be said to pass if nothing changes. If this is the case, the status of a world, whether it is changing or not changing, must be able to start and stop the passage of time. This, though, seems to imply that there is a second time dimension on which the passage of time itself may be started and stopped. Aside from the fact that revising (b) in this way is metaphysically taxing, one would have to convincingly explain why, if nothing changes, time *cannot* pass. As a result, leaving (b) as it is seems to be the more compelling route. Further reason to accept (b) was given in both section 4.2.1 and section 4.3.2. I argued that divorcing temporal passage from change undermines the earlier than relation, which is a pivotal part of the block universe theory. If this argument was convincing, then not only is (b) compelling, it must hold. Seeing as I have proposed that if (b) is persuasive, then so is (a), it appears that there is good reason to think that both the passage of time and change are mind-independent phenomena.

Neither the presentist theory nor the moving spotlight theory divorce temporal passage from change. Nonetheless, both of these theories have flaws that make them unsustainable. The

mind-dependent theory does separate temporal passage from change. This separation is one of the weaknesses of the mind-dependent theory. For, it cannot account for the objective passage of time, and thus must hold that change occurs in a world wherein the passage of time is an illusion. The irreducible fact theory, conversely, offers a cogent view that neither relegates the passage of time to a trickery of the mind nor posits that things change in a world wherein time itself does not pass.

4.4. Conclusion

The presentist theory, the moving spotlight theory, and the mind-dependent theory represent three historically influential stances on the relationship between the ontology of time and the passage of time. The irreducible fact theory is a less popular account. I have argued, however, that the irreducible fact theory is preferable to its more popular rivals. Although there may be other stances worth consideration, if the irreducible fact theory is, as I have suggested, superior to three of the leading views in the philosophy of time, then it is in a pretty good position overall.

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