The Metaphysics of Time: McTaggart, Special Relativity, and Metaphor

by

Arham Aftab Kazi
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Introduction

Time is inextricably linked to numerous debates in metaphysics, phenomenology, physics, aesthetics, and other domains in philosophy. Within these debates, philosophers and physicists have tried to address the question: What is the nature of time? The question is broad, and it is not immediately clear what one exactly means when they pose it. Even more so, the question means very different things based on one’s philosophical presuppositions. I think this is largely because philosophy is discursive, and philosophers sharing a similar set of presuppositions find it easier and more meaningful to respond to each other.

The contemporary debate about time begins in the 20th century, in 1908 to be more specific. This is the year John McTaggart published an essay titled *The Unreality of Time*. As the title suggests, McTaggart makes the fairly ambitious argument (in eighteen pages no less) that time is unreal. For the purpose of this thesis, the argument that time is unreal is actually less important. There is a century’s worth of literature to highlight the main problems with the argument. Even though most philosophers of time think that his argument is unsound, for better or for worse, McTaggart’s essay plays a crucial role in philosophy of time – it continues to define the concepts, terms, and norms of the debate itself.

This is not to say that the debate has not evolved since McTaggart. Less than a decade after McTaggart’s essay was published, Albert Einstein posited the theory of Special Relativity. It took a little while for philosophers and physicists to take its repercussions seriously, let alone figure out the ways in which it is inextricably tied to understanding the nature of time. To this day, it is unclear the ways in which Special
Relativity affects our understanding of time. After taking its impact on the debate seriously, philosophers of time largely modified preexisting accounts in an effort to account for the consequences of Special Relativity. The overall goal continued to be to understand, describe, and explain the nature of time.

Even though my aim in this thesis is to advance my own argument, something I will discuss shortly, my argument will not make much sense without some understanding of the main features of the debate itself. This is part of the reason why I devote the first two chapters of the thesis to discuss exactly those. Chapter One is titled *McTaggart and the Unreality of Time* in part to pay homage to the origins of the debate. More importantly, however, I think there is a part of McTaggart’s argument that should be taken seriously. In fact, when supplemented with analysis by Michael Dummett, I think McTaggart’s charge against the A-theory – one of the two most popular accounts supported by philosophers of time today – is powerful and unfairly disregarded. While I will discuss a number of other issues in the chapter, namely the different parts of McTaggart’s argument, recent responses to those parts, and my own analysis of the arguments, this is largely to acquaint the reader with the problems at hand and the strategies popularly employed to address them. I think understanding these helps in understanding the problems I highlight in later chapters.

Staying faithful to the chronology of the debate, Chapter Two is titled *Special Relativity, the A-theory, and Presentism*. As the title suggests, I begin the chapter by specifically looking at the ways in which Special Relativity changed some of the fundamental presuppositions in the debate such as the shift from Pre-Relativistic Newtonian spacetime to Minkowski spacetime. Continuing the critique of the A-
theory from Chapter One, I will specifically look at the ways in which Special Relativity problematizes the A-theory. I will then look at the ways in which Special Relativity affects Presentism, one of the most popular variations of the A-theory, to fully appreciate its consequences. Looking at the problems for Presentism serves as a case-type for the general sorts of problems faced by A-theorists. More importantly, recognizing the specific commitments of Presentism as one of three popular variations of the A-theory sets the stage for my argument in the final two chapters.

Chapter Three, titled The Moving Spotlight Theory and Metaphor looks at another variation of the A-theory - the Moving Spotlight Theory. Like Presentism, there is no singular Moving Spotlight Theory. There are variations amongst the variations. As a result, I analyze and critique one of the most popular variations advanced by Bradley Skow. I choose Skow’s account for a number of reasons. Skow’s account addresses the problems for the Moving Spotlight Theory posed both pre- and post-Relativity (the problems addressed in Chapters One and Two respectively). This means that we can appreciate how some of the historical problems resurface in contemporary accounts. Crucially, Skow’s account shares the same features and properties with other A-theoretic accounts (specifically the Growing Block Theory). This is where the concept of metaphor is relevant. Briefly, I argue here that the use of metaphor in these accounts makes the accounts themselves say nothing about the nature of time – precisely what they seek to describe and explain. I want to make it clear that by “metaphor”, I am not trying to make a rigid distinction between the literal and metaphorical (especially in metaphysics). Instead, I am staying consistent with the ways in which theorists themselves have bifurcated their
accounts into “literal” and “metaphorical” presentations. Even more so, by a “metaphorical” account, as I will explain later, I specifically mean an account that necessarily invokes and relies on a particular image and the interplay between its component parts. My hope is that the strategies using “metaphorical” presentations in Skow’s account are generalizable to most other A-theoretic accounts. The problem is not unique to the Moving Spotlight but a wider problem in an approach shared by A-theorists.

While Chapter Three looks at the ways in which the metaphor impedes the aims and goals of the accounts themselves, Chapter Four titled *The Necessity and Failure of Metaphor*, looks at the ways in which invoking the metaphor is strangely necessary for the accounts. That is, if the accounts want to explain or describe the nature of time, they must invoke the “metaphorical” presentations. When this is supplemented with the argument from Chapter Three (which says that these metaphors say nothing about the nature of time), I conclude that the accounts themselves are fruitless. If one is serious about describing or explaining the nature of time, the contemporary strategy does not work. Sadly, for now, I do not suggest any alternative way to explain or meaningfully describe the nature of time either. That is for another time.
McTaggart and the Unreality of Time

We owe the terms ‘A-theory’ and ‘B-theory’ of time, sometimes called the ‘A-series’ and ‘B-series’, to John McTaggart. In *The Unreality of Time*, McTaggart famously argued that time is unreal. His argument relied on three ways of conceptualizing time, the A-series, B-series and C-series, that represent the totality of modes for making sense of time, and by extension, the totality of options for a coherent ontology of time. Although the C-series was mentioned and has been picked up by some contemporary philosophers of time, McTaggart’s focus was on the A-series and B-series. He begins by arguing that time appears to be in the form of events standing in particular temporal positions. On the one hand, events can be said to be earlier than and later than each other - the event of your reading this essay is later than the event of my writing it. On the other hand, events can be said to be past, present, and future, continually changing their position in terms of pastness, presentness, and futurity - the event of your reading this essay is present, and my writing it is past. These two kinds of temporal positions then represent events in time as standing in a particular order. McTaggart calls the order that relates events as being past, present, and future the A-series, and the order that relates events as being earlier than or later than one another the B-series. Since past, present, and future are properties the A-theory employs they are also known as A-properties. The B-series, on the other hand, merely holds a relational view of time and does not ascribe properties onto events in the same way.
It is important to note here that the A-series and B-series for McTaggart each have particular commitments and consequences. The A-series, for example, in characterizing past, present, and future as objective states, takes time to “flow” from the distant past to the near past, near past to present, near present to future, and near future to far future. We can say of an event then that is in the present, it will be past, and that it was future. On the other hand, the determinations of the B-series hold between events in time and therefore never change. The event of Trump’s election is later than Obama’s election – this is always the case.

§1.1 The Structure of McTaggart’s Argument

I think it is useful to see the structure of McTaggart’s argument. In writing it out, I have also included steps McTaggart either overlooks or does not focus on. Also, the conclusion (8) does not seem to directly flow from the premises highlighted - I will address in the next few sections of this chapter. The structure is as follows:

1. The A and the B-theory are the only contenders for an adequate account of time
2. The B-theory is not capable of accounting for change.
3. But a conception of change is essential to time.
4. From (2), (3), the B-theory is not an adequate account of time.
5. From (1), (4), the A-theory is the only contender for an adequate account of time.
6. The A-theory is incoherent.
7. But an adequate account of time must be coherent.
8. From (6), (7), the A-theory is not an adequate account of time.
9. From (1), (5), (8), time is unreal.
While this structure mirrors the chronological order of McTaggart’s argument, I think it is useful to begin with how the A-theory is incoherent. This is because in McTaggart’s eyes, the A-theory is the only potentially viable theory of time since it preserves the ways in which we intuitively talk about time. Also, based on the aims of my thesis, part of what I want to suggest is that McTaggart’s account of the A-theory as incoherent is relevant in understanding contemporary accounts of time and therefore deserves more attention.

§1.2 The A-theory as Incoherent

McTaggart rejects the A-theory because it is internally incoherent and is therefore an untenable position to hold. His criticism of the A-theory begins by asserting that a given event must at some point necessarily be past, present, and future. That is, a hundred years ago, Donald Trump’s presidency was an event in the future, in 2018 it is the present, and in another hundred years, it will be the past. The problem is that past, present, and future are also mutually exclusive as properties ascribed to events - there is no particular event that can be past, present, and future at a given moment (McTaggart, 468). In other words, events according to the A-theory possess all three properties and yet the three properties are mutually incompatible. Since the A-theory entails the aforementioned inconsistency, it is incoherent.

Now, McTaggart argues that there is one way to explain how an event can never be past, present, and future simultaneously and yet be all three during different moments of time. We can say that Trump’s presidency was future, is present, and will be past. Since this reply invokes tenses, McTaggart argues that is circular (469). I
think McTaggart’s response is rushed and it is not immediately clear how the circularity emerges. Note that the original circularity emerged from an event holding the properties of past, present, and future simultaneously. In this case, *was* future, *is* present, and *will be* past are not mutually incompatible and so an A-theorist might reasonably maintain that the circularity goes away.

Michael Dummett reframes and supplements McTaggart’s criticism of this reply more clearly. He begins by arguing that the properties of “was future” and “will be past” in the reply are iterations of the A-properties – to say that an event “was future” is to say, “in the past, it was future.” Similarly, to say an event “will be past” is to say, “in the future, it is past.” Framing it this way means that the incoherence in the A-theory resurfaces in the reply. In the same way that an event cannot simultaneously be *past* and *present* in McTaggart’s original argument, the reply allows for cases where an event holds the mutually incompatible properties of, for example, being *past in the past* and *future in the present*. Even if the A-theorist added yet another level of properties to show that these descriptions do not hold simultaneously either, the iteration will have another set of mutually incompatible properties. As Dummett argues, “every contradiction McTaggart points to the objector can dispel, but at every stage a contradiction remains.” (Dummett, 469).

Dummett also points out that some properties in the reply such as an event being *past in the past*, *present in the present*, or *future in the future* just collapse into the original A-properties of being past, present, and future respectively. If there was an incompatibility in past, present, and future as properties, ‘nesting temporal properties’ does not remove the fact that they are incompatible in any iteration of the original
reply. Even if this is not precisely what McTaggart himself had in mind in his analysis of the potential reply by the A-theorist, Dummett’s argument shows that the A-theory remains incoherent.

Supplemented with Dummett’s account, McTaggart’s argument emphasizes the incoherence of the A-theory. More specifically, it shows that we are not able to provide a coherent explanation of time and how it is ordered. Showing the incoherence of the A-theory, however, is only the first step in showing that time is unreal. The next step is to understand how the incoherence in the A-theory shows that time is unreal.

§1.3 The Move from Incoherence to Unreality

After understanding the incoherence of the A-theory, we are in a position to see how McTaggart concludes that time is unreal. This argument relies on two fundamental premises. First, McTaggart must show that every potential explanation that captures the important features and properties of time does not work. This is why McTaggart emphasizes that the A-theory and B-theory are the only viable candidates for an explanation of time, and then shows that neither the A-theory nor the B-theory work. Second, McTaggart must show that the lack of explanation for a theory of time is sufficient in denying the reality of time.

McTaggart spends more time justifying the first premise - every potential account of time does not work. We ought to question whether or not the A-theory and the B-theory are the only viable candidates. Although there have been some notable alternatives, like McTaggart’s C-series, the reason the A-theory and B-theory are the
prime candidates is precisely because they at least seem to capture some of the essential features and properties of time. It is the second premise that requires more explanation. McTaggart himself does not spell out exactly why the incoherence of an explanation of time shows that time is unreal. Moreover, one might argue that a lack of explanation of time, even if it is the only viable explanation, does not necessarily mean that time itself does not exist. For example, we might be tempted to say that time is primitive, or that there is a transcendental Kantian or Husserlian argument for the existence of time.¹

The problem with these arguments, however, is that they ignore McTaggart’s point that emphasizes the consequences of the lack of a coherent explanation. We can defend McTaggart’s argument by delving deeper into how the A-theory lacks explanatory power. As mentioned earlier, what goes wrong in the A-theory is precisely its incoherence but this still leaves the question of whether or not the incoherence of an explanation of time necessarily entails denying the reality of time itself.

I think that there are generally two ways to show that this is the case. Russell’s Paradox is one example that demonstrates how logical incoherence shows unreality. One version of the paradox known as the Barber Paradox provides the following description about a barber and whom he shaves:

“The barber shaves all and only those who do not shave themselves.”

The question is whether or not the barber shaves himself. If he shaves himself we reach a contradiction since the description says he only shaves those who do not

¹ Phenomenological and transcendental arguments for time have generally been neglected in the literature. As mentioned in the introduction, the contemporary debate on the nature of time tends to presuppose some sort of realism about time.
² Since MST entails the A-theory, it also inherits the criticisms launched against the A-theory in
shave themselves. If he does not shave himself we reach a contradiction since the description says he shaves all those who do not shave themselves. Since the barber neither shaves himself nor does not shave himself, the description is incoherent.

For our purposes, what is significant about the paradox is that it is generally taken to show there is no referent for the barber in reality. No attempted solution to the paradox claims that such a barber can actually exist. There is a parallel here with the incoherence in the A-theory. Since the A-theory describes time and is incoherent, we can claim that there is no actual referent for time and therefore time, like the barber, does not exist. Note, however, that the Barber Paradox is a logical paradox – the incompatibility is logical because a contradiction arises in the description of the paradox itself. One might contend that the incoherence of the A-theory is different. Unlike the barber paradox, the incoherence of the A-theory may rise due to the specific meanings of the A-properties themselves. We do not have a logical contradiction; we have an incompatibility due to the particular meanings of past, present, and future themselves.

The second approach addresses this. It highlights how non-logical incoherence entails denying the existence of the referent in question. Take the example of color predicates. Suppose we simultaneously maintain that a particular carpet is green and that it is brown. Since the properties of being green and brown are mutually incompatible (assuming they are not vague terms), the description of the carpet is incoherent. If we maintain that this is the only description of the carpet, what does this say about the existence of the carpet? The only conclusion is that the description has no referent and therefore the particular carpet being described does not exist. The
incoherence in the A-theory parallels the incoherence in the description about the carpet – the incoherence has to do with the particular meanings of the predicates “brown” and “green” just like the meanings of “past”, “present”, and “future”. We ascribed the mutually incompatible features and properties of “brown” and “green” to the carpet, while we ascribe the mutually incompatible features and properties “past”, “present”, and “future” to time. In this way, if we take the incoherence of the A-theory to be non-logical and instead related to the meanings of the terms, we are in a position to deny the existence of time itself.

§1.4 Semantic Considerations in Rescuing the A-theory

McTaggart has been referenced recently in papers on the philosophy of time more to pay homage to his coining the terminology than to acknowledge the potential soundness of his argument. This is, in part, because of the rejection of the crucial claim in his argument against the A-theory: that it is contradictory for an event to have all three A-properties (past, present, and future). The defense of the A-theory here comes from a semantic analysis of tense, and more specifically, McTaggart’s alleged mischaracterization what it means for an event to have consistent A-properties in the first place. While the consequences of the defense are of course ontological in that they suggest that time is real, I think they should be considered semantic because they are based on the semantic role of tense and token-reflexivity in expressions.

Dean Zimmerman constructs an account for how tense and token-reflexivity play a part in undermining McTaggart’s account. Before delving into his argument,
lets clarify precisely exactly what token-reflexive expressions are. Generally speaking, a token-reflexive expression is a subcategory of indexicals. Examples of indexical terms include pronouns like “I”, “today”, “now”, etc. The important part of expressions involving indexicals is that their interpretation and meaning depends on the context of the utterance i.e. the speaker, the time, place, etc. As a result of this, a sentence containing indexical expressions is capable of having different truth-values in different contexts. For indexicals, unless one specifies the context of the utterance, one would not be able to determine the reference of the expressions.

Now, while token-reflexive expressions are within the semantic category of indexicals insofar as the reference is dependent on the context and the context determines the reference, token-reflexive expressions are distinctive since all their instances (or tokens) refer to themselves. Zimmerman uses the examples of statements like “Can you hear this statement?” and “Read this sentence out loud” (Zimmerman, 410). A token-reflexive theory of tensed verbs functions in a similar way. To use Zimmerman’s example, the present tense of the verb phrase in “the eclipse is starting” is a device for saying something about the utterance itself. The sentence means something like “the eclipse starts simultaneously with this utterance” where “starts” is supposed to be understood as tenseless. This also applies to the A-theorists terminology: “the event of the eclipse is present” is to say “the event of the eclipse occurs simultaneously with the utterance” (410).

Zimmerman gives a number of possibilities for how token-reflexive analysis for sentences can work, but I think they miss the point. The important question here is analyzing the structure of Zimmerman’s defense. As we noted earlier, Zimmerman is
challenging the premise that an event has mutually incompatible properties. There are two possible moves Zimmerman is making. First, through the use of token-reflexive expressions, Zimmerman seems to be offering translations of statements ascribing A-properties into ones that do not ascribe them. What is important is that this is a move that McTaggart anticipated and reacted to, even if it was not exactly in Zimmerman’s own formulation. Recall that McTaggart’s criticism of the potential solution, especially when supplemented with Dummett’s account, entails that replacing incoherent A-properties with other terms like “was present”, “is future”, etc. misses the point since the problem resurfaces and the incoherence remains. Even though Zimmerman is not employing the same concepts here, the notion of “simultaneity” suffers from the same problem. Simultaneity seems to make sense, at least for the A-theorist, only if two or more events are past, present, or future at the same time. In this case, the two events occurring simultaneously are the event and the utterance. While the terminology is different, since simultaneity for an A-theorist is defined in terms of the A-properties themselves, the incoherence remains.

In taking “tense seriously”, Zimmerman seems to be making an entirely different argument. The emphasis here is not so much on translating expressions involving A-properties, but to say something about tense, and by extension, ordering time itself. Based on this approach, he seems to be arguing that the verbal tenses of ordinary language like “it is the case that”, “it was the case that”, and “it will be the case that” must be taken as primitive and unanalyzable. Note that this solution works insofar as the contradiction goes away. The A-theorist then can then accept McTaggart’s premise about the incoherence of the A-theory. Instead, the A-theorist...
rejects the final move of the argument – the idea that because the A-properties are incoherent, time itself is unreal. By taking tense primitively, the A-theorist can maintain that time is in fact ordered by the A-properties, but we cannot meaningfully explain it.

Taking tense to be primitive, however, is structurally identical to taking the A-properties themselves as primitive. As mentioned earlier, however, it is untenable to simultaneously hold that an explanation of time is incoherent and that time is real. Non-logical incoherence related to the meanings of the particular features and properties show that we cannot reasonably affirm the reality of time if we choose to be A-theorists. At the same time, holding that these properties are unanalyzable limits their use as meaningful descriptions of events. If we were to describe an event as past, what have we said if the underlying meaning of “past” is unanalyzable? We want the terms past, present, and future to have content, but unanalyzability means one of two things. Either, we are free to ascribe particular meanings onto the properties via our commonsensical use of them. The problem here is that we would be using the terms of an incoherent position. Alternatively, we could argue that the A-properties still have some determinate meaning. In addition to the incoherence remaining, the problem here is that the unanalyzability of the properties means we cannot determine this meaning at all.

§1.5 Experiential Considerations in Rescuing the A-theory

In “Thank Goodness That’s Over”, Arthur Prior goes over a series of considerations for why a whole set of modes of description and attitudes we hold
towards particular events require we take tense seriously. While most of these examples fall into the “semantic” camp, Prior’s final example shows that we need to employ A-properties to make sense of some features of experience. More specifically, Prior makes an argument for how the attitudes behind specific expressions cannot be meaningfully captured if we do not take tense (or more generally, time) seriously. While this is not an explicit argument for the A-theory, I think it captures at least part of a shared set of arguments held by A-theorists who maintain that arguments from experience are sufficient to show the reality of time itself.

To paraphrase Prior, in the final example he argues that expressions like “Thank Goodness That’s Over” capture something fundamentally different from adopting the B-theoretic approach and saying “Thank Goodness the date of the conclusion of the thing is x” (Prior, 17). While Prior is not exactly explicit about what is being captured (he simply says it captures “something which is impossible” to capture in the tenseless sense), I think it is reasonable to frame the example as capturing a specific attitude. That is, the relief felt by the ending of a headache only makes sense if we can meaningfully account for change, something the A-theory does. The same person experienced the beginning and ending of the headache. Change on its own, however, does not capture how relief is something one experiences. Note that even the B-theorist can describe change in this sense: “The event of the headache beginning is earlier than the event of the headache ending” and “The event of feeling relief felt is later than the event of the headache ending.” The problem is that this does not capture the experience of relief accurately. Relief does not follow from the event of my experiencing a lack of a headache being later than
the event of my experiencing a headache. Instead, I feel relief precisely because I am not experiencing a headache now. The feeling of relief only follows from the experience of the headache if we describe it in terms of the A-properties of past, present, and future.

Perhaps Prior’s argument, along with the works of A-theorists who put experiences at the center of what must be explained, show that time is in fact real, at least, to us. However, similar to what we saw in the A-theorists’ semantic considerations, if the emphasis of McTaggart’s arguments is on the incoherence of the A-theory, experiential arguments fail to do much. McTaggart’s argument was not to suggest that the A-theory plays no explanatory role; in fact, McTaggart is not even denying that the A-theory is necessary to explain some essential domains like experience. Rather, based on how I have framed it, even if time, elements of experience, or some A-property is essential in explaining some aspect of the world or ourselves, the A-theory is nevertheless incoherent. To be fair to Prior, it was never his intention to refute McTaggart’s argument. In a way, he shows how tense is necessary for a complete description of things (if his argument works). Since the incoherence remains, however, nothing about the explanatory power of tense, time, duration, or any other A-property in some other domain shows how the A-theory is any more coherent than it is on McTaggart’s terms.

§1.6 The B-Theory as Inadequate

McTaggart argues that the B-theory is an inadequate description of time. Recall that the B-theory does not use the A-properties of past, present, and future, and
instead describes time relationally. McTaggart’s characterization of the B-theory suggests that it does not give a complete account of time since it cannot meaningfully capture a notion of *change*. While this is the explicit formulation of his argument against the B-theory, in light of more recent accounts of time, we can also say that the B-theory cannot capture the notion of the *flow of time*. I think it is useful to retain both formulations since they offer a broader account of the particular areas where the B-theory is inadequate and fails to describe the features and properties of time completely.

With regards to his direct criticism, McTaggart argues that the B-theory on its own, without the use of A-properties, cannot account for a notion of *change* or a flow of time that is essential to a complete account of time. He uses the example of the death of Queen Anne (McTaggart, 469). For McTaggart, the properties and qualities of this event, such as its effects, causes, etc., are the same in all respects but one: the event of her death “began” as a future event, and in every moment became ever closer from the far future to the near future, from the near future to the present, and from the present to the past, and from the near past to the far past. Now, it is a bit unusual that McTaggart is specifically using A-properties to describe the event, especially given the fact that he rejects the coherence of holding a view based on the properties themselves. The point is not to base the B-theory on the A-theory but rather to suggest that the B-theory on its own cannot account for all change, since it is meaningful to think about events in the way suggested above. Since there is an aspect of change that the B-theory cannot capture and it is an aspect that we would
meaningfully want to retain in a theory of time, we ought to reject the B-theory as an incomplete account of time itself.

There is another sense in which we can frame McTaggart’s argument against the B-theory. This approach focuses less on change as changing characteristics, but instead on the “flow of time”. The general property being ascribed to time here is that time, in a sense, moves from past to present, and from present to future. In this sense, time can be said to flow. The problem here is that the B-series necessarily fixes the position of particular events and so the B-theory neither constitutes genuine change nor does it account for the flow of time. For example, through the B-theory we can say that my writing this essay happens earlier than me handing in the essay. All I can say then is that the two events have a particular relation that makes them temporally distinct, but I cannot describe how I went from writing the essay to handing in the essay. As a whole then, the B-theory cannot describe this case since it lacks the explanatory power. If the B-theory had a notion of the flow of time it would allow us to make sense of this case. The problem, of course, is that the B-theory necessarily cannot have such a notion because the “flow of time” requires ordering time in terms of the A-properties.

Another reason why this latter view is unattractive is because it relies on the fairly ambiguous notion of a “flow of time”. Defining this notion has generally been neglected, aside from vague analogies or gestures to what it may constitute. In part, the flow of time is difficult to describe because it seems to be contingent on an intuitive grasp of the structure of experience. But more than this, it is unclear whether or not the flow of time is even a necessary feature of experience as a whole. For now,
I think it is more useful to frame McTaggart’s argument against the B-theory’s inability to account for change as a change in characteristics.

McTaggart then argues that the B-theory must be based on the A-theory since the B-theory lacks the essential features necessary to an adequate account of time. This might seem like a strange move considering the fact that the A and B-theory entail different things. I think that McTaggart’s concern here has to do with the ability of the B-theory to capture meaningfully what he thinks is central to time itself – “the flow of time” or “change”. The B-theory then relies on the A-theory insofar as the B-theory captures a subset of the features and properties of the A-theory itself. As suggested, what is most important here is the ability of the A-theory to capture a notion of change since, unlike the B-theory, the A-theory is grounded in past, present, and future and so can provide, at least for McTaggart, a sense of change and the flow of time.

§1.7 Conclusion

With regards to the B-theory, a B-theorist need only formulate an account of change that can be meaningfully incorporated in how we think about time, or alternatively reject that the notion of change is essential to time itself. McTaggart’s criticism of the A-theory, on the other hand, is far more relevant since incoherence is a powerful charge and permeates any explanation that incorporates the A-properties. In later chapters, I will be addressing how McTaggart’s arguments continue to relate to contemporary accounts, even in the light of the consequences of Special Relativity on time.
In this section, I will discuss the consequences of Special Relativity on the debate on the A-theory of time, and focus on the ways in which A-theorists like Zimmerman and Brading have responded to these challenges. To understand the significance of Special Relativity on time, I will first be providing an account of how both philosophers and physicists thought about time before Special Relativity. Their view is often characterized as a fairly “commonsensical” view of time. McTaggart’s contributions to the metaphysics of time meant that the pre-Relativistic debate on time largely focused whether or not time can be coherently explained or accounted for. Some aspects of the debate have continued to be relevant in contemporary accounts of time, particularly arguments explaining the nature and significance of time based on experience and accounts of tense in the philosophy of language. That being said, a large part of the debate has shifted to address whether or not the A-theory can still account for events having the properties of being past, present, and future, as well as the flow of time.

I will begin by briefly providing an account of time in classical physics before moving on to how many of the classical considerations have to be abandoned in Special Relativity. I will then move onto explaining how exactly Special Relativity affects the A-theory of time. While the A-theory is a broad term encompassing a number of variations, I think it is useful to focus on the ways in which theorists...
adopting a particular view alter the traditional commitments of the account to incorporate Special Relativity. Between Presentism, the Moving Spotlight, and the Growing Block Theory of time (all accounts I will explore), Presentism is most obviously affected since it has a strong commitment to maintaining a notion of the privileged present. As a result, after providing a general account of how Special Relativity has affected the debate on the metaphysics of time, I will provide a specific account of how Presentists like Dean Zimmerman and Katherine Brading respond to the challenges posed by Special Relativity.

§2.1 Time in Classical/Pre-Relativistic Physics

The debate about the ontological and metaphysical status of time is closely linked with the ways in which Special Relativity transformed how we understand time in physics. Understanding the differences in how pre-Relativistic and post-Relativistic physics conceptualize time requires unpacking their most important distinguishing feature: the structure of spacetime. While spacetime in physics often refers to the mathematical models that fuse the three-dimensions of space with the one-dimension of time, our emphasis is on the ontological status of spacetime. This requires that we understand the meanings of space and time, the relations between them, and for our purposes, the particular properties and features of time within the pre- and post-Relativistic conceptions.

The most important feature of spacetime in pre-Relativistic physics is that it treats time as a separate and independent dimension from space. As a whole, spacetime in Classical physics consists of three-dimensions to locate objects in space,
and a single dimension for locating objects in time. There are two interrelated features that arise out of treating space and time as disconnected from one another and the resultant one-dimensionality of time. First, for any two events, the amount of time that passes between them is given just by the extent of the duration that separates the instants upon which these events lie. That is, no matter where in the universe the two events are located, there is a single non-relative fact about the length of the temporal interval that separates them. Second, the non-relative nature of time means that two events can be simultaneous as long as there is no duration that separates them in the dimension of time. All that is relevant in determining whether or not events are simultaneous is where they are situated in time – space is irrelevant. This particular notion of simultaneity, which is specific to Classical physics, is called absolute simultaneity since there is no relative fact to determine whether or not two or more events are simultaneous.

§2.2 Time in Special Relativity

Special Relativity entails a fundamentally different conception of spacetime. It rejects the notion that space and time are independent, and consequentially rejects that time is one-dimensional. The difference is highlighted in how both Classical and Relativistic spacetime provide a description for an event. For a given event, Classical spacetime can describe its three-dimensional spatial coordinates \( <x,y,z> \) and its one-dimensional temporal coordinate \( <t> \) distinctly. This is precisely why it makes sense to inquire about whether or not two events are simultaneous without any reference to their spatial coordinates. Relativistic spacetime, on the other hand, jointly describes
an event’s spatiotemporal coordinates as \(<x,y,z,t>\). As a result of this, it is not sufficient to hold that events are simultaneous if they happen “at the same time” since an event’s temporal description is inseparable from its spatial description. Instead, determining whether or not two events are simultaneous depends precisely on a complete description of their spatiotemporal coordinates, or in Relativistic terms, their inertial frames.

So far, the ontological significance of the difference between how we should think spatiotemporal coordinates is unclear. This is where the relation between descriptions in Special Relativity and actual, empirical consequences come in. Since Special Relativity determines events based on their spatiotemporal descriptions and inertial frames, the concept of inertial motion is an essential part of describing an event. There are two connected features of Special Relativity here that highlight the significance of conceptualizing events in terms of inertial frames and taking seriously the impact of inertial motion on determining the location of an event. These features are:

1. The Light Postulate, according to which the numerical value of the speed of light is the same when measured in any direction by any inertial observer, and
2. The Principle of Relativity, according to which the laws of physics do not distinguish between different observers undergoing inertial motion.

Gordon Belot provides an example that illuminates the impact of how these two features transform our understanding of time (Belot, 6) The example is as follows: take two observers, one of whom is sitting on top of a moving train, while the other is standing stationary perpendicular to the center of the moving train.
Lightning strikes a pole both in the front and back of the train. Now, if we accept the light postulate, light travels at the same speed in both directions. For the stationary observer standing perpendicular to the train, the flashes occur simultaneously. The case is not the same for the observer on top of the train. Since he is seated on top of the moving train, sandwiched between the two poles, he is moving towards the pole in the front and moving away from the pole in the back. As a result, she will see the lightning strike the pole in the front moments before she will see it strike the one in the back. This is where the Principle of Relativity comes in. Since there is no privileged observer, there is no reason to say that one of the observers was right and the other was wrong. Rather, they are both right according to their inertial frames. In other words, the inertial frames of the observers determine whether the lightning strike was simultaneous or if one preceded the other.

As mentioned earlier, the Principle of Relativity entails that there is no basis that allows us to privilege one inertially moving observer over another. This means that there is no question of who is right and who is wrong about the timing of the lightning strikes – relative to the stationary observer, the strikes were simultaneous; relative to the moving observer, they were not. Special Relativity then forces us to give up on the idea of absolute simultaneity, and instead relativizes the notion of simultaneity to particular inertial frames. This does not mean that events cannot be simultaneous. Rather, it means that determining whether or not events are simultaneous depends on the inertial frames. Insofar as two observers do not share an inertial frame, it makes no sense to say that the events are simultaneous. As a result,
we have a more limited and contingent notion of simultaneity appropriately termed *relative simultaneity.*

§2.3 Post-Relativistic A-Theory

In Chapter One, we saw how the debate surrounding the A-theory before Special Relativity largely focused on the semantic and experiential justifications for the A-theory. The situation changes after Special Relativity. The first question we must ask then is how and what bearing Special Relativity has on the A-theory.

Recall the Principle of Relativity, the Light Postulate, and the example involving the lightening striking a moving train. We saw that, in Special Relativity, there is *no privileged observer.* Rather, even though both observers saw lightening striking at different times, they were both right in accordance with their inertial frames. This is precisely because *what* was past, present, and future was determined by the particular inertial frames. This becomes clearer if we couch the differing observations in the A-properties. Relative to the stationary observer, the lightening struck simultaneously. In A-theoretic terms, both strikes were once future, once present, and then past. Relative to the moving observer, the lightening strikes were successive. In A-theoretic terms, at the crucial moment where the first strike was in the present, the other was in the future. When the second strike was present, the first was already past. This is where the problem lies for the A-theorist. How can a single event be, for example, both past and present, or present and future?

Post-Relativity, A-theorists have attempted to resolve issues posed by Special Relativity in a number of ways. What is important is that no A-theorist attempts to
defend against these problems simply by sticking to the fundamental features of the A-theory itself. The debate has become more complicated. The motivation now is not merely to defend a general A-theory against Special Relativity, but specific variations of A-theory itself. Generally speaking, the A-theorists now engage in constructing an array of accounts, systems, or models that instantiate more than just the A-properties. While these systems are numerous, for the sake of brevity, I will be discussing the three most popular version of the A-theory: Presentism, the Moving Spotlight, and the Growing Block. Before describing the main commitments of the theories, it is important to note that all three versions agree that past, present, and future are objective properties that accurately describe the structure of time itself – what they disagree on is on the overall structure of time and their respective ontology.

The first version of the A-theory is Presentism, which as the name suggests, holds that all reality is confined to the present. While it is certainly true that the past had existed, and the future will exist, all that exists is what is now. Events in Presentism then come and go out of existence as time flows, or “moves forward”. Note that this does not mean that Presentists do not think there is a past or a future. Like any A-theorist, Presentists are committed to maintaining that there is a past, present, and future. The emphasis is on the existence of events in the present.

The Moving Spotlight is similar in that it concedes that the present is all that exists, but gives more credence to the past and future. It entails eternalism in that it regards the history of the world as existing eternally in a certain order of events. More generally, Moving Spotlight theorists argue that we treat the present as akin to a spotlight shining on a neighborhood. What is being illuminated at a given moment is
what is present, what was once illuminated is the past, and what will be illuminated is
the future. While this is similar to Presentism insofar as the present is what exists, the
past (what the spotlight had shone on) and the future (what the spotlight will show
on) are part of the ‘furniture of the world’ in the same way that the present is. Note
also the ways in which the Moving Spotlight Theory is more explicitly metaphorical
than Presentism – this will be crucial later.

Unlike Presentism and the Moving Spotlight theory, the Growing Block
theory holds that the past exists in addition to the present. Present events differ from
past events in that there are no events later than them. The essence of present events
is then not that they precede future events, but quite literally that there is nothing to
which the present has the relation of precedence. That is, unlike the Moving Spotlight
Theory, the future is open and undetermined. Like the Moving Spotlight, however,
the Growing Block theory offers an explicit metaphorical construction
metaphorically— it treats time like a growing block, where the edges of the block are
what is present, the content inside or what was once the edge are what is past, and the
nothingness the block extends into is the future (Skow, 13).

Note the ways in which all three theories are just as much a theories of time as
much as they are theories of what exists. This is because part of the burden of proof
post-relativistic A-theorists take upon themselves is to give an account of the
structure of time and ontology simultaneously. Also, since the systems amongst A-
theorists entail more than the fundamental A-properties, Special Relativity either ends
up posing even more difficulties for the particular system or ends up getting absorbed
in the framework of the account itself. In the next sections, I will be exploring
precisely how Special Relativity effects Presentists, Moving Spotlight Theorists, and Growing Block Theorists respectively, and the possible problems and solutions, if any, that are available to their proponents.

§2.4 Post-Relativistic A-theory: Presentism

If Special Relativity affects any particular system grounded in the A-properties most explicitly, it is Presentism. To show the intensity of the issue, Howard Stein advances an account of what we must believe if we accept both Special Relativity as a complete account of our spatiotemporal structure and Presentism – the view that all and only things that exist now (in the present) are real. For Stein, adopting both these premises leads to the view that special relativity implies a “peculiarly extreme but pluralistic form of solipsism” (Brading, 1102). Take an event e1 in a particular inertial frame; e1 is “now” relative to itself but there is nothing in within the structure of special relativistic spacetime that determines which events spatiotemporally distant from e1 are also “now” relative to e1. That is, there is no preferred way to join the dots, so to speak, and say that any two or more events are both “now”. Taken seriously, if we want to maintain both Special Relativity and Presentism, nothing is real with respect to e1 except e1 itself. Stein’s criticism reveals that, at least in its current form, pre-relativistic presentism does not work if we accept Special Relativity.

As damaging as it seems, there are ways to get around Stein’s criticism. We can either modify the A-theory or the consequences of Special Relativity itself. Note that the real problem Stein presents lies in different inertial frames and how there is
no meaningful way to compare two or more inertial frames. Let’s begin with the first solution – modifying the A-theory. This is an approach adopted by Dean Zimmerman who adopts a variation of Presentism. He argues that we can pick an inertial frame arbitrarily and determine notions of past, present, and future by *that particular inertial frame*. This strategy gets rid of the apparent contradiction Special Relativity presents. This is because even though Special Relativity entails instances where an event can have mutually exclusive A-properties with respect to two or more inertial frames, a particular inertial frame will always have distinct non-overlapping A-properties. Now, the obvious problem so far is that Relativity does not posit a privileged way of choosing an inertial frame. On the contrary, the Principle of Relativity states exactly that the laws of physics do not privilege any particular inertial frame. Zimmerman acknowledges this but argues that the Principle of Relativity is not essential to Special Relativity itself. As a result, we can take all the particular features of Special Relativity that admittedly do not privilege a particular inertial frame and yet choose an inertial frame to still advance the A-theory. Zimmerman’s argument then is that while Special Relativity does not entail the A-theory, the A-theory is consistent with Special Relativity.

The best-case scenario for Zimmerman is that the particular inertial frame we adopt *seems better* than another. What else is there? The problem, of course, is that there are no grounds to advancing this since fixing an inertial frame relies on choosing it arbitrarily. More strikingly, however, it does not really solve Stein’s issue. While it is true that Zimmerman has modified the A-theory to account for inertial frames, it still retains a pluralistic solipsism since there is no meaningful way to
compare A-properties in inertial frames besides the one we arbitrarily choose. In fact, Zimmerman’s account seems to be a prescription against the very act of the comparison.

Katherine Brading adopts a different approach. She argues that the assumptions behind Special Relativity themselves must be conceptualized differently. In particular, Brading argues that physicists and philosophers make the assumption that spacetime is the *ontological ground of unity* of what there is in Special Relativity. That is, they assume that Special Relativity necessarily entails that we must think in terms of a particular Relativistic spacetime involving inertial frames. She argues that conceptualizing it this way is precisely what lends itself to pluralistic solipsism when applied to Presentism. Brading’s goal then is to advance an alternative *ontological principle of unity* that avoids the commitments of Special Relativity whilst maintaining the theory itself, whilst simultaneously advancing a Presentist account. In particular, she talks about dynamical systems in Newton as an alternative ontological principle of unity (Brading, 1110). Newtonian dynamical systems entail that to be a physical thing is in part to conserve total quantity of motion when isolated from other physical things. This property allows for inertial frames to be conceptualized in terms of energy as opposed to a fixed spatiotemporal coordinate thereby allowing for a notion of past, present, and future that extends beyond a spatiotemporal coordinate.

There are two consequences of Brading’s account *contra* Zimmerman’s. First, through grounding Special Relativity in Newtonian dynamical systems as opposed to spatiotemporal coordinates, Brading allows for a more coherent account of how different inertial frames can be meaningfully compared. As long as two or more
events operate within the same local dynamical system, they will share A-properties. Second, unlike Zimmerman, Brading does not choose an arbitrary inertial frame to form a more coherent and useful A-theory. However, even though Brading’s account avoids some of the pitfalls of Zimmerman’s, it is confronted with similar problems. Even though the ontological principal of unity allows for comparison between different events, it still does not meaningfully allow for a universal time. It just extends the region, so to speak, where such a comparison can be made. It’s only slightly more useful. Similarly, since Brading does not choose an arbitrary inertial frame to ground A-theory, she falls into the trap Zimmerman sought to avoid. That is, we cannot arrive at a notion of “the present” or any other A-properties without relativizing an inertial frame to itself (or for Brading, inertial frames redefined in terms of dynamical systems).

As a whole then, while it may seem that Zimmerman and Brading adopt fundamentally different approaches, their accounts have strikingly similar structural features in how to rescue the A-theory from Stein’s criticism. Zimmerman’s aim was to preserve some of the commonsensical ways in which we talk about time after the ways in which Special Relativity seems to reject them. As a result, he incorporates additional assumptions, ones that for the sake of his account at least, are consistent with Special Relativity. On the other hand, Brading alters the content of Special Relativity itself. Instead of focusing on the commitments of the theory itself, she sheds light on how our commitment is for the empirical evidence supporting Special Relativity and tries to shape a different formulation of the theory that allows us to maintain the A-theory. For Brading then, dynamical systems are a suitable substitute.
for the structure of spacetime since they are consistent with the findings of Special Relativity itself. The emphasis for both Zimmerman and Brading is how we can construct an account of time that is consistent with the content of Special Relativity through either additional assumptions or alterations of the theoretical framework that makes the empirical observations intelligible.

This strategy is anticipated even in McTaggart’s charge of incoherency launched against the A-theory. While McTaggart himself was interested in how the A-properties of past, present, and future were mutually inconsistent, he laid out the groundwork for how any meaningful responses to resolve the A-theory would have to get rid of the incoherence. Even though the impact of Special Relativity on the metaphysics of time arises out of empirical instead of a priori considerations, it is already clear that even attempts to rescue the A-theory from the consequences of Special Relativity attempt to reformulate the ways in which we attempt to understand the commitments of the A-theory itself.
3

The Moving Spotlight Theory & Metaphor

The Moving Spotlight Theory of time (MST) is one of the three main candidates for an A-theory of time. For better or for worse, there is no single account of the theory since philosophers have adapted and transformed it to address serious problems with its earlier versions. That being said, we can still parse two of the theory’s fundamental features. First, like Presentism and the Growing Block Theory, it entails the *A-theory of time*. According to MST, the properties of past, present, and future then are real and objective. Second, MST entails *eternalism*: the doctrine that all times past, present, and future exist. This distinguishes it from both Presentism and the Growing Block Theory as a candidate for a successful A-theory.

One might ask at this stage how and why the Moving Spotlight Theory inherited its name. That is, why is the theory referred to as the ‘Moving Spotlight Theory’ as opposed to, for example, simply an ‘Eternalist A-theory’? We find the first description of the theory involving a “Moving Spotlight” in Charlie Dunbar Broad’s Eternalist alternative to the Growing Block theory. He writes:

*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 form a policeman’s bull’s-eye traversing the fronts of the houses in a street. What is*

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2 Since MST entails the A-theory, it also inherits the criticisms launched against the A-theory in Chapter 1. While I will not spell them out again explicitly, it is important to remember the ways the apparent contradiction in the A-theory extends to MST.
illuminated is the present, what has been illuminated is the past, and what has not yet been illuminated is the future (Broad, 59)

Note the parallels in the aforementioned properties of MST and the metaphor of the Moving Spotlight. The fronts of houses in a street in the metaphorical description serve as a parallel to the entirety of events past, present, and future, all of which exist. The spot of light serves as a parallel to what is now present while its movement in a fixed direction serves as a parallel to the movement of time from past to present and present to future.

If Broad was the first and last person to use the metaphorical description, it would be much easier to relegate its role as merely supplementary to the description of properties. The problem is that this has not been the case. As is evident in the name itself, MST has retained the metaphorical description and the analogy of the spotlight. In fact, all major defenders of MST elaborate precisely on the metaphorical description involving the spotlight as much as (if not more than) emphasizing its A-theoretic features and eternalism. All of this is to highlight the question of why the metaphorical description has been so prevalent. As alluded to earlier, perhaps we can argue that the metaphorical description has been used simply as an imaginary tool to better conceptualize and understand the fundamental features themselves. According to this view, the metaphorical picture or scenario of a moving spotlight is able to capture the theory’s fundamental properties accurately. At the same time, the specific picture of a moving spotlight is not necessary to the theory itself but contingently emerged because of Broad’s account, or because it was particularly effective at doing its job as a metaphor. Most importantly, this view entails that the metaphorical description corresponds to some more fundamental and literal description of the
theory itself. Understanding that all events exist eternally or recognizing that the properties of past, present, and future are real, for example, ought not require any such picture.

§3.1 Skow and the Moving Spotlight Theory

We can better understand the shortfalls of this view if we examine a specific example of the role of metaphorical description in an account involving the theory itself. I will be using Bradford Skow’s account of the MST because it most clearly employs metaphorical descriptions to elaborate features within the theory that highlight the role and effect of metaphorical descriptions in the overall theory itself.

I think it helps to understand the problem Skow is addressing even if parts of his account are tangential to our purposes. His overall goal is to modify the MST to make it compatible with Special Relativity. Skow here is addressing the problems the A-theory faces in light of Special Relativity that we highlighted in Chapter Two. At the same time, Skow wants to make the MST compatible with Special Relativity without changing how we should think about any of the features of Special Relativity itself.

Before delving into the problem faced by MST by Special Relativity, Skow presents a problem for MST in pre-Relativistic spacetime. He believes the solution to the problems posed by pre-Relativistic spacetime help resolve the problems posed by Special Relativity as well. The main features of pre-Relativistic MST are the ones already mentioned. With this in mind, Skow asks the question: how is a Moving Spotlight theorist meant to make sense of the ever-changing present? There are two
important features of the MST here that help understand this question. First, the MST entails the A-theory whereby the past, present, and future are all real properties of events and events move from past to present, and present to future. Second, the MST entails that the light shines just on one point that is the present. In the metaphor of the Moving Spotlight, however, the spotlight “moves” from one region to another. In terms of the present, what is present keeps changing. This is where the problem lies. How are we meant to make sense of the changing present in the MST? Normally, we articulate change in terms of time. When I say that my brother is getting taller, I mean that at times before my utterance, my brother is less tall than he is after my utterance. We cannot use the same model to make sense of the changing present. According to Skow, this is because the conception of change used in this example adopts a perspective “within spacetime” (Skow, 3). To adequately explain how the spotlight “moves” or how the present “changes” then, we cannot use a conception of movement or change that relies on a coherent notion of time – that is precisely what we are trying to explain.

Skow’s solution to this problem is to employ primitive tense operators. If it is presently time t, then we can describe the relation between an event and the present by using primitive tense operators by saying: “it was the case that a time before t was present, and it will be the case that a time after t is present where was and is are used tenselessly” (4).³ This is the degree to which Skow elaborates on how primitive tense operators are a solution to the aforementioned problem. Note that the way Skow articulates the problem is structurally similar to McTaggart’s critique of change in the

³ There is one other issue I will not explore here. By introducing primitive tense operators and the concept of tenseless terms, it is unclear to what degree the MST is still loyal to the A-theory or if the solution just relies on the B-theory to create a coherent account.
A-theory. Using the example of the death of Queen Anne, McTaggart argued that the event of her death “began” as a future event, and in every moment became ever closer from the far future to the near future, from the near future to the present, and from the present to the past, and from the near past to the far past (McTaggart, 469). In using primitive tense operators and invoking the tenseless *is* and *was*, Skow presupposes the same framework that allows us to articulate the temporal properties of the properties of past, present, and future themselves. Now, it is not difficult to see the ways in which primitive tense operators run into the same problems of nested temporal properties we highlighted in Chapter One. This means that we really cannot have “primitive” tense operators since the “is”, “was” and “will be” in the descriptions collapse into the original A-properties of being past, present, and future. Skow then seems to making an argument that McTaggart and Dummett seem to have refuted. What is important is that McTaggart’s original criticism of the incoherence of the A-theory seems to extend to Skow’s formulation of the MST, even if it is couched in a different vocabulary.

All this being said, Skow goes beyond primitive tense operators in his account of MST. After establishing the “literal” solution the problem, he moves on supplement this solution with what he calls a “fictional device” called supertime. He argues that supertime “…is a dimension distinct from time and disconnected from it” (Skow, 4). One way of thinking about supertime is as a dimension that explains and captures the movement of the spotlight. Take the case where we want to compare the spotlight shining at a point x and the spotlight shining at another point x’. For the Moving Spotlight theory to be coherent, we want to be able to explain how the
spotlight moved from shining on x to shining on x’. As mentioned before, the problem is that we cannot say, using conventional terms, that the spotlight shone at x’ after it shone on x. This is because normally, the relation “after” between an event x and x’ means that the two events happened at distinct times t and t’. Since we want to construct an explanation for a coherent theory of time, we should not employ the term “after” in its conventional sense since it entails a preexisting conception of time. This is where the fictional device of supertime is supposed to help. Recall that Skow argues that part of the problem stemmed from employing a perspective “within spacetime” (4). Supertime is, metaphorically speaking, meant to offer a perspective outside of it. In doing so, it is able to explain the movement of the spotlight as well as the changing present. From the perspective of supertime, the movement of the spotlight can be captured at different “moments” in supertime. We can similarly explain the ever-changing present. From the perspective of each (super)moment in supertime, there is only one moment of ordinary time that is present, but from different perspectives in supertime i.e. different (super)moments, different moments are present.

At this stage, it is important to recognize the role played by primitive tense operators and supertime. Primitive tense operators are meant to be the ‘non-metaphorical’, actual solution to the problems posed earlier. For Skow, primitive tense operators on their own are enough to offer a complete solution. Supertime, on the other hand, is meant to be a “fictional device”. By calling it such, Skow is admitting that supertime is not meant to offer a real solution but serve a useful albeit non-essential role in helping readers conceptualize the solution already provided by
the primitive tense operators. While we are not in a position to answer it yet, we can begin to ask the question of whether or not the metaphor of supertime serves more than just a pedagogical purpose. The answer to this question becomes clearer when we examine the way Skow uses the metaphor of supertime to address the unique problems faced by MST because of Special Relativity.

§3.2 The Moving Spotlight Theory and Special Relativity

In Chapter Two, we highlighted the problems posted by Special Relativity for the A-theorist. Skow articulates the problem for MST a bit differently. Recall that in Relativistic spacetime, there is no relation of absolute simultaneity on points of spacetime. Instead, Special Relativity requires us to think about spacetime fundamentally differently from how we would think about it in pre-Relativistic spacetime. In the former, inertial frames represent the complete description of an event’s spatiotemporal location and so there are no such things as instants of time in the pre-Relativistic sense.

This is where Skow’s charge comes in. He argues that if there are no instants of time, “there are no things to instantiate the property of being present, and no things that provide a dimension for the present to move” (6). Skow is making two distinct points here. First, he is arguing that the property of being present, what is essential to the MST, requires that we are able to identify distinct instants of time that may bear that property. Since Special Relativity entails that there are no instant of time but only inertial frames, we cannot have a coherent notion of the present and therefore no MST. Second, by talking about dimensions, Skow is referring to the same problem
faced by pre-Relativistic MST. How are we meant to explain the movement of the spotlight in Special Relativity if the movement is both meant to explain the dimension we are trying to explain and movement presupposes it?

Skow’s solution to both problems is to introduce a fictional device similar to supertime. Recall that supertime itself is not applicable here since it operates within pre-Relativistic spacetime. Instead, Skow introduces *superspacetime*. He writes: “from the perspective of superspacetime, just a single point of spacetime is lit up” (9). For Skow, this solves both problems. Just as supertime provides a perspective outside of time, superspacetime provides a perspective outside of spacetime. Instead of explaining the time between various instants of time, it explains the relativistic interval between various spacetime points.

Skow also argues that it also allows for a notion of the present albeit a significantly different kind than the one advanced by the pre-Relativistic A-theorist. This is because the concept of the present is fundamentally tied to absolute simultaneity. Skow articulates what the present would mean in this modified MST using the constraint law:

“If p and q are points in superspacetime, and the interval (distance) between p and q is r, then the spacetime interval between the point that is present from the perspective of p and the point that is present from the perspective of q is r.” (8)

What does the constraint law do? On face value, it provides a way to think about what the “present” is in the modified MST. Recall that maintaining a pre-Relativistic notion of the present is a problem for the A-theorist because of the shift to Minkowski spacetime, what is entailed in inertial frames, and the replacement of absolute
simultaneity with relative simultaneity. Using the constraint law, Skow reconceptualizes what it means to be the present in the MST. Observe that the constraint law only makes sense in the fiction of superspacetime. If we were not thinking about superspacetime, the notion of an interval \( r \) between points \( p \) and \( q \), and \( p \) and \( q \) as perspectives would not make any sense. It also gives us clarity about what exactly Skow is referring to when he talks about the fiction of superspacetime. He is specifically conceiving of superspacetime as composing of inertial frames where each element of superspacetime is meant to be supertime. In the next section, we will examine whether or not the constraint law in the context of Skow’s larger account really works.

§3.3 Fictional Devices and Metaphor

If we set aside the problem of nested temporal properties in primitive tense operators, can we say that Skow successfully defended the Moving Spotlight Theory? Has he adequately responded to the pre-Relativistic and post-Relativistic criticisms? It is initially difficult to see what has exactly happened. Skow began by identifying and articulating the problems faced by pre-Relativistic MST, namely the problem of explaining the present and change in MST. In his own words, Skow is able to provide a solution - primitive tense operators. The reason they are supposed to work is because they directly provide a solution to how we can talk about change and time tenselessly, as opposed to presupposing it in the account we are trying to explain. This is perhaps where the story should have ended. Skow goes a bit further. In his own words, he employs the use of a “fictional device” – supertime. The first question
we should ask is what exactly is the role it plays. This becomes important once we recognize that Skow has already offered a solution to the original pre-Relativistic problem. Fortunately for us, Skow addresses its role:

“Why have I given a literal and a metaphorical presentation of the classical Moving Spotlight Theory? Because it is easier to explain the transition to the relativistic theory using the metaphorical presentation. It is also easier to understand the relativistic theory when it is presented in metaphorical terms.” (6)

Skow’s comment suggests that we cannot unpack the role of the “metaphorical presentation” without delving into post-relativistic MST. Even before doing so, however, we should we wary about how Skow considers supertime a genuine albeit fictional solution to the problem. Even though it is metaphorical, supertime is meant to be a legitimate presentation of the classical MST. However, we might ask what exactly is being “presented” and how are both the literal and metaphorical cases meant to be presentations of the same theory. Surely, supertime is not equivalent to primitive tense operators. On the one hand, primitive tense operators involve carving a distinction between tensed and tenseless verbs. On the other hand, the domain of supertime extends to an entire fictional space, layers of dimensions, movement, and change. Since they presuppose and entail different sets of things, they are not equivalent. Perhaps Skow wants to suggest that they are different presentations insofar as they suggest the same outcome for the MST. That is, both primitive tense operators and supertime (if it were not fictional) solve the initial problems for the theory. The problem here is that even if we concede to this, they are distinct solutions rather than presentations of the same solution. This becomes especially clear when we try to criticize either solution. While criticisms of nested temporal properties apply to the literal presentation, they do not apply to the fictional presentation.
This becomes more important when we examine Skow’s solution to the problems posed by Special Relativity. Skow’s solution relies on the introduction of superspacetime. Like supertime, superspacetime is a fictional device. Similarly, like supertime, superspacetime gives us a new set of concepts and relations to work with. This is all I will say about the ‘technical’ details of superspacetime largely because they are irrelevant for the argument I am making. This is not to say that we do not care about how superspacetime is meant to be a metaphorical solution to the problem – this is precisely what we care about. My main concern is how superspacetime is meant to be a solution at all, even if it neatly lays out a set of coherent concepts and relations.

Given our goal, we might be tempted to think of superspacetime as an extension of supertime. This would be a mistake. They key difference between supertime and superspacetime is the metaphorical spacetime they operate in. While supertime is supposed to provide a metaphorical description for non-relativistic spacetime, superspacetime is supposed to provide a metaphorical description for relativistic spacetime. As a whole then, superspacetime is supposed to clarify or adapt the MST for the relativistic spacetime and the challenges Special Relativity presents.

However, even after acknowledging the difference between supertime and superspacetime, we can still ask an important question: given that it is a fictional device, how is superspacetime meant to solve the problems posed by Special Relativity without a commitment to the features and properties it entails? This question was less significant with the introduction of supertime because primitive tense operators served as a literal solution to the problem. In the case of the issues
posed by Special Relativity, however, Skow does not offer any literal solutions. At
the end of a section, he writes:

“What is the literal truth behind the superspacetime metaphor? I am not really sure I
need to answer this question. It is at least sometimes legitimate to use a fiction to
express some proposition, even when you cannot articulate sentences that understood
literally, express just what the story expressed fictionally ... Still, I think it may be
possible to spell out the literal truth behind the superspacetime metaphor. It could be
done using complicated primitive-tense operators that are adapted to the structure of
relativistic spacetime. But I do not think it is worth going through in detail how it
would all work, because I think that the presentation of the theory using
superspacetime is easier to understand” (10).

This excerpt makes it clear that Skow does not feel like he needs to provide a
literal solution to the problem at all. It also makes a number of key features within the
account much clearer. First, it appears that for Skow, the fictional devices act as non-
necessary albeit supplementary tools to establish a coherent account of time via MST.
However, recall the ways in which the literal and fictional solutions are distinct
solutions to the original problem. If the fictional devices are meant to serve only a
supplementary role, they should compliment the literal solution. This also means that
even if we agree that it is legitimate to use a fiction to articulate what cannot be
expressed literally, this does not apply here since they are not interchangeable.

Second, Skow states that a literal solution to the problems posed by Special
Relativity could be find in complicated primitive tense operators. While Skow does
not state what these would look like, one (if not the only) possible candidate here
seems to some form of relativized primitive tense operators. As mentioned earlier,
primitive tense operators attach to sentences, and the sentences that the operators
attach to are supposed to be tenseless. As a result, even though there is a place that
refers to a time in the description, the characterization of that moment is tenseless.
The solution is not easily transferrable (if at all) to relativistic spacetime. Since there are no moments of time nor is there a relation of absolutely simultaneity in Minkowski spacetime, we do not have an obviously coherent notion of the present. This impedes how primitive tense operators are supposed to work. Since the tense operators apply to some statement, even if the statement is interpreted tenselessly, the operators presume a coherent notion of tense to begin with. If there is no coherent explanation of the present, it is unclear how the operators are supposed to work. As importantly, it is a bit bizarre that we would have a “Moving Spotlight” Theory if there is no present on which the spotlight shines, or a present that changes as the spotlight moves.

We can try to avoid these problems if we articulate the theory in terms of inertial frames in Minkowski spacetime. This would involve saying that there is a set of operators relative to each and every inertial frame. We can use primitive tense operators after first fixing an inertial frame. For example, instead of saying “it was the case that t” where *was* is used tenselessly, we would say “relative to frame f, it was the case that t” where *was* is used tenselessly. It is unclear if this solution really works. Alternatively, we can also try to treat the relativization to be semantically independent and introduce an extra argument place for the particular inertial frame. Given the ontological commitments this involves, I do not think this is an easy solution either. In any case, all of this is to suggest that the problems for a literal solution for the problems posed by Special Relativity to MST are much more severe that Skow is considering.

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4 We discussed the problems facing notions of the “present” in Minkowski Spacetime in Chapter Two.
In the best case scenario, if we suppose that there is a literal solution to the problem, the view is still victim to the problem of nested temporal properties. Relativizing the primitive tense operators to particular inertial frames may allow for the solution to apply to Minkowski spacetime instead of Newtonian spacetime. If it works, it at least solves the problems posed by Special Relativity. However, the problem of nested temporal properties does not stem from the particular spacetime it operates in, but instead from the primitiveness of the operators themselves.

§3.4 The Gap Cannot Be Bridged: The Literal and Fictional Accounts

Even though Skow’s account seems to acknowledge the sharp divide between the literal and the metaphorical picture, there seems to be a bridge that connects them. This is precisely why the literal and the fictional account can be used interchangeably in some places, and used to offer supplementary explanation to the other in other places. In the potential solution involving relativized primitive tense operators, for example, the operators are relativized to inertial frames. This makes little sense unless we think about the operators and inertial frames as being part of the same discourse and domain. This is precisely why we can make the shift from the semantic, literal vocabulary of the operators to the imagistic, fictional vocabulary of the inertial frames, Minkowski spacetime, etc.

The question then arises whether or not the literal and fictional cases are really part of the same domain. Is it ever legitimate to move from one to the other? If so, what are the grounds for doing so? In addressing this question, the first thing to recognize is the relation between the literal and fictional accounts is not one of
equivalence. This applies to both the relation between supertime and primitive tense operators, and the relation between superspacetime and relativized primitive tense operators. This is highlighted both by the fact that Skow himself makes the distinction between the literal and fictional solutions, but also because on the specific features of the domains themselves. While the literal and fictional solutions both employ the concepts of past, present, and future, they entail a different set of concepts altogether. The fictional solution of supertime, for example, operates within the larger metaphorical space of the Moving Spotlight adopting a perspective outside Newtonian spacetime. It employs concepts like movement, distance, the passage of time, points, moments, dimensions, past, present, future, etc. Meanwhile, the literal solution of primitive tense operators employs concepts like tenselessness, is, was, will be, etc. Now, we could still say these concepts are equivalent if we could pinpoint some relation that maps out the concepts from one domain to the other – as I will be arguing, the problem is that we cannot.

After acknowledging that they are not equivalent, we can pay closer attention to the explanatory preconditions that make them different. The fictional space of supertime does not make any sense without invoking at least some kind of a particular image. Insofar as the fictional space invokes an image, its coherence is fundamentally tied to the coherence of the image itself. The concept of supertime, for example, is understood in spatial terms as outside of time. Similarly, the concept of points is used to understand moments. Even more broadly, it is after all a moving spotlight theory, invoking the particular image of a spotlight shining on some region. This is all contrasted with the explanatory preconditions for primitive tense operators, which
have semantic significance. All of this is to contrast the preconditions under which the metaphorical and literal solutions serve as explanations. They key difference is that the metaphorical solutions rely on invoking a particular image, while the literal solution relies on semantic analyses.\(^5\)

Given that they both have different explanatory preconditions, we can return to the question Skow himself asks: how are we to evaluate the metaphor of the MST? Note that there is a way to evaluate the literal picture. We can evaluate it on its own terms. More specifically, we can see if it is coherent. Recalling the arguments presented by McTaggart and Dummett in Chapter One, it is precisely its incoherence that makes primitive tense operators untenable as a viable option. In the following section, we will be looking at how similar standards of evaluation do not work for the metaphorical account.

§3.5 Evaluating the Metaphorical Presentation

As mentioned earlier, the task at hand is to be able to evaluate the MST. More generally, we want to construct some *standard of evaluation* for the metaphorical presentation. Before delving into this, I want to first clarify what I mean by standard of evaluation. For the sake of clarity, let’s go through some examples of what these standards are in other epistemic domains. For example, say we want to compare competing climate models. We can say that one model is better than another if it predicts particular climatic conditions better than the others. In this case, the model’s *predictive capacity* serves as a standard of evaluation. More specifically, a model’s

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\(^5\) Note that this does not mean that primitive tense operators do not evoke a particular image. It means that the image is not a necessary precondition to evaluating its coherence.
predictive capacity allows us meaningfully compare it to other models and assess it on its own terms.

Such standards of evaluation are not unique to empirical problems. In the development of logic, the main critique launched against the medieval logicians by Frege and Russell was precisely that their system was cumbersome, or that it did not allow for the totality of logical inferences. Even here, Frege and Russell used a particular standard of evaluation to argue that their system of logic was better than that of the medieval logicians. Again, we can contest precisely what the standard should be, or why some standards are better than others. What is important, however, is that there is a standard.

When Skow constructs the metaphorical presentation, he goes through great lengths to show the motivation behind each and every concept in the metaphorical picture and what in particular the specific concepts are meant to (fictionally) correspond to. For example, the motivation behind superspacetime is adapting to the particular features of Special Relativity. Moreover, particular parts of superspacetime, such as the interval between points, correspond to particular features of the theory, such as inertial frames and light cones. This suggests that, for Skow, there seem to be at least two ways to evaluate the metaphor: its internal coherence, and the degree to which parts of the metaphor successfully correspond to concepts in the particular theory of time and Special Relativity. Unfortunately, I do not think either of them work as legitimate standards of evaluation.

Let’s look at the problem with evaluating the internal coherence of metaphorical presentation. In addition to Skow’s presentation of the theory, one
might reasonably assume that coherence is a legitimate standard of evaluation especially considering that it is the same standard used we used to evaluate the primitive tense operators. Moreover, like in Chapter One, I used incoherence as a potential argument to complete McTaggart’s argument regarding the unreality of time. There are two differences in the metaphorical presentation.

First, as argued earlier, the metaphorical presentation is necessarily imagistic. This means that we are required to think about the different parts of the metaphor itself. This contrasts with the primitive tense operators that whose coherence can be evaluated without invoking any such image. Now, this difference on its own is not enough to say that the metaphorical presentation cannot be evaluated on its coherence. There is such a thing as an incoherent image. A square circle is incoherent, and so is a blue red table. The problem with the metaphorical presentation is the combination of the image and the particular subject matter of the metaphor itself: superspacetime as a perspective outside of Minkowski spacetime. That is, as argued earlier, the metaphor invokes particular spatial images – perspectives outside spacetime, distance between moments, a spotlight shining on the moments themselves. The description of the metaphor is bounded spatially and temporally. As a result, the metaphor is bounded by the concepts it seeks to explain. While this does not mean the metaphor itself is incoherent, it means that there is no particular standard to evaluate the coherence of the metaphor itself.

Another way to frame this argument is through analyzing the relation between meaning and non-logical coherence. A square circle is incoherent because of the particular meanings of the words, square and circle. Since the concepts are
meaningful on their own, we can evaluate their coherence based on whether or not they are jointly coherent. The same argument does not hold for the MST since the particular meaning of a “perspective outside spacetime” is itself non-meaningful if not meaningless. Since the particular concept of superspacetime is not meaningful, we cannot properly evaluate the relations between it and other concepts, and therefore we cannot evaluate the coherence of the metaphor itself. After all, it should not come as a surprise that some of the core concepts in the metaphor are not meaningful – even Skow himself acknowledges this, which is why the presentations are fictional in the first place.

There is a second key difference between the metaphorical presentation and the literal presentation the causes problems for developing a standard to evaluate it. The metaphorical presentation is supposed to, in some way at least, explain the nature of time, or at least the concepts essential to explaining it. Normally, if we use some sort of framework to explain particular concepts, the framework is either pedagogical or corresponds to the concept itself. Regarding the latter, I have already argued that the content and concepts of the MST are not equivalent to the literal solution involving primitive tense operators. In the same way, the MST is not equivalent to Special Relativity and the nature of time either. No one is claiming that time itself is a moving spotlight, or that superspacetime is an actual dimension. Skow himself acknowledges this when he says that the MST is not a literal description of time.

But if the metaphor is not how time really works, what is it? This is where there is a case to be made for the metaphorical presentation serving a pedagogical role in understanding the nature of time. That is, while the metaphor is not equivalent to
the nature of time, it allows us to understand how time really works. Prima facie, there is a case to be made for this. Moving Spotlight theorists seem to acknowledge that the world of the MST is entirely fictitious but talk as if there are sets of rules that govern legitimate inferences in the fiction. At the same time, as mentioned earlier, various component parts of the metaphor are meant to capture some aspect of the nature of time. Take the spotlight for example. Once we acknowledge that the spotlight is fictitious and serves a pedagogical role, we can analyze the relation between the spotlight and the nature of time. The movement of the spotlight fictionally represents something, namely the changing present. Moreover, the changing present is a part of the actual nature of time. As a result, even though the spotlight is itself fictional, it corresponds to a necessary part of the nature of time. It is a metaphor for how things really are.  

There are two essential features of this approach: first, that a specific fictional concept or feature must correspond to something real, and second, that the metaphor holistically corresponds to something real. If both specific concepts and the metaphor holistically did not correspond to something real, then it is unclear what is being explained, and as importantly, it is unclear how we should meaningfully evaluate the metaphor itself. In this case, while the first condition is fulfilled, the second condition is not.

The reason the first condition is met is because the specific parts of the metaphor genuinely seem to correspond to parts of Special Relativity and specific components of the A-theory. Isolated from a holistic understanding of the metaphor,

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6 This is similar to Kendal Walton’s presentation of props in make-believe worlds. However, since Walton’s account focuses primarily on subsisting objects, I do not think his theory of make-believe worlds fully applies.
we can see how the spotlight, superspacetime, points, distance, etc. seem to help us genuinely understand the implications of Special Relativity and the A-theory. Of course, one can push further and explain how a specific part of the theory does not successfully (metaphorically) represent the particular feature of Special Relativity or the A-theory it is meant to correspond to. But even in this case, all that is required is for the particular description to be reworked and its pedagogical function can be reclaimed.

The deeper problem stems from the second condition. It seems that the metaphor cannot meaningfully capture the content of the theory holistically. What does this mean? One way to frame this condition is to recognize the difference between particular concepts in the theory and the relations between them. While the spotlight and superspacetime are specific features in the metaphor, the second condition highlights the relation between them. Since they generally correspond to the changing present and Minkowski spacetime respectively, the relation between the spotlight and superspacetime ought to explain the relation between the changing present and Minkowski spacetime. The problem is that it does not. There certainly is a relation between the spotlight and superspacetime. The spotlight shines on points in superspacetime. However, this only makes sense when we think about the relation as it pertains to the metaphor itself – as a light ray shining on a particular spatial region. The same relation ceases to make sense when it applies to the changing present and Minkowski spacetime. The present is certainly not a lit up point in spacetime – that does not make much sense. The relation between the present and Minkowski spacetime is also definitely non-spatial (and non-temporal).
§3.6 From the Moving Spotlight to the Growing Block Theory

The failure of the second condition is crucial in understanding a general problem with metaphorical presentations in the philosophy of time. Even though I have so far focused on Skow’s account and the MST, the same kind of problem extends to another candidate for the A-theory, namely the Growing Block Theory.

In Chapter Two we looked at how the Growing Block Theory is one of three most popular candidates for a successful explanation of the A-theory. While Growing Block Theorists do not make the explicit distinction between the theory’s literal and metaphorical presentations, the theory can be neatly divided up as such. The literal part of the theory is the same as the MST with the exception that the Growing Block Theory does not entail eternalism, the claim that the past, present, and future all exist. Instead of eternalism, it maintains that while the past and present exist, the future does not. The metaphorical description involves a “growing block”. The block is like a cube, slowly getting bigger as it expands. In terms of corresponding to features of the literal part of the theory, everything “within” the block is the past, the outline or rim of the block is the present, and what the block expands into is the future.

It is not difficult to see the parallels between the Moving Spotlight and the Growing Block. The same problems arise. The metaphorical presentation does not correspond to the literal presentation. Both presentations entail different concepts and a different framework. At the same time, the metaphorical presentation cannot be evaluated. Even if the correct sorts of concepts within the metaphorical presentation correspond to features in Special Relativity and the A-theory and the first condition is
met, there is no meaningful way to evaluate the relations between them. Like the MST, this problem arises because of the failure of the second condition.

For both the Moving Spotlight and Growing Block Theory, the failure of the potentially pedagogical role of the metaphorical presentations demonstrates the limitations of the accounts themselves. How? Well, after establishing that the metaphorical presentation does not correspond to anything real, the only reason we engage with the metaphorical presentation it is if it tells us something meaningful about the nature of time. The first condition suggests that there is at least hope that the metaphor captures the right kinds of props for a pedagogical explanation. However, the failure of the second condition means that, even with the right props, there is no way to meaningfully capture the relations between them within the metaphorical presentation. This failure is a necessary component of the presentations. Insofar as the metaphorical presentation invokes an image, there is no way to evaluate it since the concepts within both presentations cannot be completely equivalent.
The Necessity and Failure of the Metaphor

Having acknowledged the ways in which the problems in the metaphorical presentations are necessary, we might genuinely be tempted to discount them whilst maintaining only the literal presentations. The Moving Spotlight Theory then would just be identified with its core literal commitments: eternalism and the A-properties. Similarly, the Growing Block Theory would just entail the existence of the past and present, an open future, and the A-properties. However, I think the problems I have identified suggest an even deeper problem: the accounts necessarily entail the metaphorical presentation. If this is true, even after discounting the metaphor, we cannot uphold the literal presentations. Understanding how this is the case requires a bit of backtracking and reframing.

In Chapter Three, I provided a series of arguments for the limitations of the metaphorical presentations of the Moving Spotlight and the Growing Block Theory. One of the main conclusions we reached was that the metaphorical presentations could not be meaningfully evaluated. With this mind, let us revisit the potential functions of the metaphorical presentations. I argued that it is either the case that the metaphorical presentation corresponds to the nature of time in some way, or that the metaphor serves some pedagogical role in this nature. Now, these possibilities are exhaustive but only if we already accept they supplement the literal presentations. As we have seen, this is certainly the way in which Moving Spotlight and Growing
Block theorists talk about the theories themselves. They make the distinction between literal and metaphorical, which is precisely why the metaphorical presentation can always be called the fictional presentation. That is, there does not seem to be a proactive commitment to the reality of the metaphor itself.

At the same time, however, we saw that both Moving Spotlight and Growing Block theorists go at great lengths to lay out the particular features of the metaphor itself. They make sure that features of the metaphor at least fictionally correspond to the nature of time. While this does not mean that the theorists are committed to the reality of the metaphor, we should ask ourselves why theorists are so concerned with the particulars. More specifically, a detailed discussion of the particulars at least gestures towards some commitment to the metaphor as serving an important part in the overall account.

We already saw how the metaphors do not work because there is no standard to evaluate them. This stemmed from the ways in which the metaphors could not meaningfully capture the relations between different features theorists want to ascribe to time. Here, I want to argue that articulating the relations was the work the metaphors were supposed to be doing in the first place, and that articulating these is necessary for the accounts to be meaningful. While this task becomes significantly harder when theorists do not explicitly state the goals of bringing in the metaphorical presentations, we have already assessed the ways in which the metaphors do not reveal anything about the nature of time, and how they cannot successfully serve as explanatory models fulfilling some sort of a pedagogical role. These two explanations are consistent with the ways in theorists talk about the metaphors as supplementary.
However, after having considered these arguments, we can make a stronger claim - the metaphor is *essential* to the accounts.

§4.1 The Structure of the Argument

In the next sections, I will be exploring how the metaphor is necessary to the account and why this makes the accounts meaningless. I am making two interrelated arguments. First, I am arguing that the metaphor is essential to the accounts – the literal presentation is not enough. We can sketch the structure of the argument as follows:

1. A-theoretic accounts about time consist of literal and metaphorical presentations
2. The literal presentations cannot meaningfully capture relations between features and properties ascribed to the nature of time.
3. The only goal of these accounts is to capture the features and properties ascribed to the nature of time
4. From (2) and (3), the literal presentations do not meet any of the goals of the presentation
5. From (1), (3), and (4), the metaphorical presentation is the only candidate that can potentially meet the goals of the account. In other words, the metaphorical presentation is essential in the accounts.

The second argument takes the conclusion of the first argument and assesses the fruitfulness of the accounts as a whole. This argument borrows (5) and the conclusion
from Chapter Three to conclude that the accounts are unproductive as a whole. We can sketch out the structure of the argument:

5. (Repeated) From (1), (3), and (4), the metaphorical presentation is the only candidate that can potentially meet the goals of the account. In other words, the metaphorical presentation is essential in the accounts.

6. From arguments in Chapter Three, the metaphorical presentation does not capture the relations between the features and properties ascribed to the nature of time in the accounts.

7. From (3) and (6), the metaphorical presentation does not meet the goals of the accounts.

8. From (1), (4), (5) and (7), neither the literal and metaphorical presentations meet the goals of the accounts. Therefore, the accounts are unproductive.

§4.2 The Failure of Literal Presentations

Let us begin with (2), namely examining how exactly the literal presentations fail cannot capture the relations between the accounts. I think there are two separate problems faced by the literal presentations. First, based on McTaggart and Dummett’s arguments in Chapter One, I think that the literal presentations are incoherent. While I think this argument is ultimately more important, I also think the literal presentations are incomplete.

Understanding how the literal presentations are incoherent requires us to revisit McTaggart and Dummett’s charge of nested temporal properties. Without
delving into the whole argument, what is important is remembering how their argument applies to the structure of the A-theory. The argument extends to a post-Relativistic A-theory as long as the account entails the A-properties and relies on tenseless descriptions of the properties. It is not difficult to see how A-theories with an explicit literal presentation possess these features. In responding to the problem of the changing present, Skow invoked primitive tense operators. We already saw how primitive tense operators have nested temporal properties that make the account incoherent. Since the literal presentation entails the primitive tense operators, the incoherence of the operators means the literal presentation itself is incoherent.

This problem extended to accounts beyond just the Moving Spotlight. This is because it is a structural problem of the literal presentations of the accounts. If McTaggart and Dummett’s argument is correct, all A-theoretic literal presentations are incoherent. This is supplemented by the fact that the literal presentations do not invoke images. This means that the domain of analysis regarding literal presentations is semantic and an analysis of the concepts involved. As a whole, since the literal presentation is incoherent, they cannot capture the relations between various features and properties in the accounts themselves.

In addition to this, I also think there is something to be said more directly about the failure of literal presentations to capture the relations between features and properties in the account. This has to do with a problem in how the literal presentations are meant to explain the nature of time. Generally speaking, if there were a discrepancy between the concepts being used to explain and the concepts being explained, we would want to know how they relate to one another. On one
level, this is something the metaphorical presentations can potentially do. We can look at the spotlight from the post-Relativistic Moving Spotlight Theory as an example. The spotlight is not a concept in the A-theory or in Special Relativity and yet it is meant to explain the relation between them. However, we can see the ways in which the spotlight is supposed to directly represent, correspond, or relate to concepts like inertial frames and the present. This at least allows for a relation between the concepts in the explanation and the concepts in what is being explained.

The literal presentation does not allow for both analysis and evaluation of the relations between the concepts at all. The literal presentation of the MST entails that time goes from past to present to future and we live in Minkowski spacetime. It is the metaphorical presentation that specifically invokes the image of the spotlight shining on regions from left to right. With the literal presentation, we can still talk about what the relation would look like but we cannot evaluate it. For example, we can talk about some of the possibilities of the relation between the A-properties and Minkowski spacetime: it is consistent, inconsistent, coherent, contradictory, etc. But we cannot evaluate the relations themselves. On the other hand, the metaphor allows for unpacking and evaluating the relations themselves. We can talk about the ways in which, for example, the spotlight shines on particular points, or why we need superspacetime. The metaphor allows for a particular understanding rather than a list of the logical possibilities of the relation which is why the metaphor is specifically analyzed and built-on.

As a whole, this means that the literal presentations are incoherent and incomplete. With all of this in mind, we must remember how the metaphor does not
work. As I argued in Chapter Three, we cannot evaluate the relations in the metaphor either. Based on the argument in this section, the literal presentation does not allow for an evaluation of the relations either. This is precisely why it was important to the account that the metaphor could capture relations that could then be evaluated. All of this is to say that neither the literal nor metaphorical presentations are able to analyze the relations between various features and properties in the accounts.

§4.3 The Goals of the A-Theorist and Coherence

We might ask why the theory’s failure to evaluate relations is particularly devastating for the overall account. This requires us to reassess the objectives of the theories and the only available tools they have to fulfill these objectives. In terms of the goals themselves, it is fairly obvious that the A-theorist wants to understand and explain the nature of time. Competing theories of time, like the Moving Spotlight and the Growing Block Theory, entail mutually exclusive features and properties. For example, while the Moving Spotlight Theory entails that the future exists, the Growing Block Theory entails that it does not exist. At the same time, however, not all of these features are different. Both the Moving Spotlight and Growing Block Theory, for example, argue that the present exists.

Given the similarities and differences, we can address how we are meant to compare differing accounts. In empirical matters, we can meaningfully compare different accounts by isolating the differences. In scientific models, for example, we can assert that one model is better than another since it better at predicting particular events. We can then focus on the different features and properties between both
models, and attribute the success of one of them to those differences. This is but one of many possible ways to compare competing theories or models.\textsuperscript{7} We do not have the same resources to compare competing theories of time. In part, this is because it is unclear how a theory of time can be predictive at all. There are no empirical tests to be done let alone the kinds of tests that can allow for some sort of meaningful comparison. More importantly, accounts of time borrow \textit{from} Special Relativity. Even if the truth of Special Relativity can be assessed via empirical tests, these accounts already presuppose a particular version of Special Relativity.

The lack of options to evaluate this kind of account means that we have little to work with. This is where the structure of the accounts comes in. To a Moving Spotlight Theorist, for example, one approach in showing how the account explains the nature of time is to show how the account is at least coherent. In doing so, the theorist makes a particular set of claims about the nature of time, such as highlighting its features and properties, and show how these claims can be jointly held to form a complete, coherent account. Even if there is no way of assessing whether or not a particular account is necessarily true, it is meant to show that the account is at least possible. This should remind us of McTaggart’s critique of the A-theory in Chapter One. He argued that it was the incoherence of the A-theory that meant that it could not possibly be true. In contemporary accounts of time, the link between \textit{coherence} and \textit{possibility} are crucial features in comparing accounts of time and metaphysics in general. By showing that the account is coherent, the theorist is allegedly one step closer to showing how it can be true. As a whole, while the goal of the A-theorist is to

\textsuperscript{7} I am not claiming that this method is necessarily empirically sound, but empirical evidence allows for a number of possibilities that allow for comparison.
show how a particular account of time can be true, the only strategy to fulfill this objective is to show how the accounts are coherent.

§4.4 Why the Accounts Necessarily Fail

All of this suggests that the accounts are necessarily unproductive insofar as they necessarily cannot meet their intended objectives. How? First, we saw the ways in which the metaphorical presentation is necessary in evaluating the relations between different features and properties in the account. Second, we assessed the goals of the A-theorist and saw how the only strategy available to the A-theorist is to show how these accounts are coherent. What is left is the link between coherence and an analysis of the relations. Coherence is a function of analyzing relations. We can only show how an account is coherent by analyzing how its features and properties cohere. Our ability to determine whether or not an account is coherent then relies on the analyzability of the relations between the features and properties. Since I have argued that the relations cannot be evaluated in the accounts, there is no way to show that the account is coherent at all.

The failure to show coherence reflects back on the failure of the overall account. If a particular account cannot necessarily meet its own aims, I think it is fair to say that it has failed. This extends beyond the theories intended aims. One might object and argue that the accounts still provide valuable insight into the nature of time even if accounts fail to meet one of their crucial aims – showing coherence. In my view, however, coherence is realistically the only aim these accounts can meaningfully aspire to. Often various systems or theories can provide meaningful
insight into the subject of their investigation unintentionally. In this case, because of the way the problem is structurally rooted in the account, nothing is revealed about the nature of time.
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Conclusion

Is philosophizing about time after Special Relativity a useless endeavor? Not necessarily. I began this thesis by stipulating that philosophy is discursive, and that the shape and form of a debate (especially in metaphysics) does not represent the scope of all possible inquiry. In the metaphysics of time, there seems to be an unfortunate turn towards spotlights and blocks. But the question still remains: to what degree does this critique apply?

We can be sure that the critique applies to specific kinds of accounts. It applies to accounts that create some sort of a discrete division between the literal/semantic and the fictional/metaphorical. It also applies to accounts whose coherence relies on the specific interplay between fictional props or imagined relations. Even after identifying these common features, perhaps we can still be a bit optimistic. It is not immediately clear whether or not there is a fundamental structural problem with trying to reconcile the A-theory and Special Relativity. This is precisely why the critique does not immediately apply to Presentism even though it applies to the Moving Spotlight Theory and the Growing Block Theory. Presentism seems to avoid some of the commitments of its other two A-theoretic contenders whilst saying something meaningful about the structure of time. We might wonder the degree to it is possible for accounts to avoid the aforementioned problems and provide some insight into the nature of time (all other major problems excluded) when they are set up differently.
But I worry that this reading is a bit too optimistic. While Presentism is definitely doing something right in avoiding some of the pitfalls of the Moving Spotlight and Growing Block Theory by avoiding an explicit distinction between a literal and metaphorical presentation, I wonder the degree to which reconciling the A-theory with Special Relativity necessarily invokes metaphor and imaginary relations.

Assessing the scope of the argument then relies on a deeper analysis of the literal-metaphorical distinction, and a fuller understanding of how semantic solutions and metaphysical models are meant to reveal aspects of reality. I anticipate two possible outcomes. Either it is the case that the literal-metaphorical distinction is a genuine one, and that literal and metaphorical solutions genuinely constitute two different types of solutions for the same problem. If this is the case, then for philosophers to try to make an argument to show that the A-theory and Special Relativity are compatible, they must stick to the domain of the literal.

There is a second possible outcome for those skeptical of the literal-metaphorical distinction. The hope here is that there are different ways of showing coherence that do not rely on analyzing semantics and analyzing the relations within an image separately. Instead, if part of the problem stems from the distinction in the first place, one may try to formulate an account that incorporates both strategies. I am not sure how this would work exactly but it at least suggests a new direction for the debate if one wants to avoid the problems I have highlighted.

This new direction is a response to the arguments in Chapters Three and Four. However, part of this thesis has borrowed and emphasized the significance of the McTaggart-Dummett argument against the A-theory and its coherence. We have seen
that the problem is significant and resurfaces in the post-Relativistic debate.

McTaggart and Dummett’s argument addresses coherence, one of the few standards we have for evaluating metaphysical arguments. Before any account can succeed in showing the compatibility between the A-theory and Special Relativity, it must address the problem of nested temporal properties. Unless the A-theory itself is shown to be coherent, the question of whether or not it coheres with Special Relativity cannot be meaningfully addressed.

Of course, even if the issues of coherence are resolved, I have argued that coherence is not enough as a standard of evaluation. This is something Presentists, Moving Spotlight Theorists, and Growing Block Theorists have not acknowledged in the debate. There needs to be a reassessment of what many of these arguments are achieving if they are achieving anything at all, pedagogical or otherwise.

Finally, I realize that this thesis addresses a fairly specific problem in what seems like an even more specific domain of philosophy. Whether or not the reader agrees with my argument, I hope that this thesis at least highlights some of the features that have been taken for granted in the debate itself. While this applies to all domains of philosophy, in contemporary metaphysics in particular, there needs to be a closer examination of how arguments work and how they show what they claim to show. I hope that this thesis shows that metaphilosophical concerns cannot be separated from the arguments themselves.
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References


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Even though I have not directly cited these texts, they have informed my characterization of the debate. Most of these texts also focus on specific problems within the A-theory, and ways to make sense of the consequences of Relativity on time.


