

Time and Tense

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1 Introduction

Two of the main debates in philosophy of language concerning time and tense are the debate about the semantics of the tenses in the English language and the debate over whether propositions can be transiently true or false as opposed to always being eternally true or false. The latter quarrel is also known as the ‘temporalism–eternalism debate.’ Given standard semantics, the two debates are not logically independent, as we will see. Those who believe propositions are eternally true or false needn’t treat the tenses as operators. Their opponents, on the other hand, appear to be committed to an operator theory of the tenses, given a standard semantic framework. In this chapter I will focus primarily on these two debates.

There are many other debates about time in philosophy of language. For example, there is a question about how we can best account for the cognitive significance of claims like ‘Today is February 5, 2014’ or *de se* beliefs such as John’s belief that it’s 3 o’clock now. On a standard account of propositional content, ‘Today is February 5, 2014’ expresses the proposition that February 5, 2014 is February 5, 2014. But the latter is trivially true and not something anyone needs to discover empirically. Finding out that today is February 5, 2014, on the other hand, can be an important empirical discovery. If you got married on February 5, knowing that today is February 5, 2014, may help you not getting into trouble with your spouse. John’s *de se* belief that it’s 3 o’clock now presents its own problems, because this belief clearly isn’t the same as the belief that it’s 3 o’clock at 3 o’clock. So, beliefs cannot simply be relations to the propositions of standard semantics. Although these other debates about time are interesting, they are not exclusively about time. Accounting for the cognitive significance of claims like ‘I am Brit’ or *de se* beliefs such as John’s belief that he is the shopper who is making a mess, presents the same challenges to standard semantics as the analogous examples involving time. For this reason I shall not deal with these issues except in passing.

At the end of the chapter I will briefly look at the relevance of debates about tense and eternalism/temporalism to metaphysical debates about time. I will argue that the debates in philosophy of language are not logically independent of the debates in metaphysics.

2 Temporalism versus Eternalism

2.1 *Times in Propositions versus Time Neutrality*

Mark Richard (1981) calls the thesis that propositions are unable to change their truth-values over time 'eternalism' and the opposing view 'temporalism.' Temporalism is committed to the view that either some propositional attitudes have temporal propositions as their objects or sentences that lack time adverbials (e.g., 'now,' 'when John was born,' 'at 2 p.m. July 6, 2005') express, relative to a context of use, temporal propositions. Propositions of this sort may vary in truth-value over time. For example, the proposition expressed, relative to a context of use, by 'This tree is covered with green leaves' may be true in the summer but false in the winter.

Whether eternalism or temporalism is correct will depend on which of the two views (if any) best accounts for the features that propositions have traditionally been said to have. Traditionally, propositions have been thought to play a number of distinct theoretical roles: Propositions are (i) the semantic values of truth-evaluable sentences, (ii) the objects of the attitudes (e.g., belief, doubt, hope, wish, and so on), (iii) the objects of agreement and disagreement, (iv) what is transferred or shared when people communicate successfully, and (v) the contents intensional operators operate on (e.g., modal operators or tense operators). It may turn out that neither temporalism nor eternalism can ensure that propositions play all of these roles. The verdict (if any) will then depend on which view allows us to preserve most of these roles, or most of the roles that we regard as most important.

One feature that has traditionally been regarded as important is that propositions are the entities that modal operators and tense operators operate on. Taking something like this claim for granted, David Kaplan (1989) has offered a now well-known argument for the view that there are temporal propositions, that is, propositions that are capable of changing their truth-values over time. The argument runs as follows.

Kaplan's Argument

- (A) There are non-redundant tense operators in English.
- (B) Tense operators operate on propositions.
- (C) Tense operators that operate on eternal propositions are semantically redundant.
- (D) Hence, tense operators operate on temporal propositions.
- (E) Hence, there are temporal propositions.

Kaplan takes premise (A) to be empirically evident. In Kaplan's opinion, premise (B) is relatively innocent as well. It should be said, however, that Kaplan does not insist on the term 'proposition.' In fact, his use of scare quotes reflects his 'feeling that this is not the traditional notion of a proposition' (1989, p. 503). However, the claim that tense operators operate on content rather than, say, linguistic meaning is an important corollary of the theory of Kaplan's "Demonstratives." Premise (C) is the key premise of the argument, as far as Kaplan is concerned. The argument for premise (C) runs as follows. Consider a sentence containing a past tense operator, such as:

- (1) It has been that John is a firefighter.

The past tense operator ‘it has been that’ shifts the time feature of the circumstance of evaluation at which the content of sentence (1) is evaluated from the time of speech to some time in the past. If, however, the content of ‘John is a firefighter’ were eternal, it would have the same truth-value with respect to any time of evaluation. So ‘It has been that John is a firefighter’ would have the same truth-value as the operand sentence ‘John is a firefighter,’ which is to say that ‘it has been that’ would be semantically redundant. The argument is nicely summarized in this footnote from “Demonstratives”:

Technically, we must note that intensional operators must, if they are not to be vacuous, operate on contents which are neutral with respect to the feature of circumstance the operator is interested in. Thus, for example, if we take the content of S to be [eternal], the application of a temporal operator to such a content would have no effect; the operator would be vacuous. Furthermore, if we do not wish the iteration of such operators to be vacuous, the content of the compound sentence containing the operator must again be neutral with respect to the relevant feature of circumstance. This is not to say that no such operator can have the effect of *fixing* the relevant feature and thus, in effect, rendering subsequent operations vacuous; indexical operators do just this. It is just that this must not be the general situation. A content must be the *kind* of entity that is subject to modification in the feature relevant to the operator. (Kaplan, 1989, pp. 503–504, n. 28)

Intensional operators must operate on contents whose truth-value varies with the feature shifted by the operator. Otherwise, they are semantically redundant. Since the truth-values of eternal propositions do not vary with time, tense operators that operate on eternal propositions are semantically redundant. Hence, if there are non-redundant tense operators in the language, then they operate on temporal propositions.

Premises A and B, however, are not as innocent as they may at first seem. As we will see below, premise A, *viz.* the claim that there are tense operators in the English language, has been disputed by both philosophers and linguists. It is a minority view among linguists today but is still fairly commonly accepted among philosophers. One alternative to the operator view is the quantifier view, defended by, for example, Jeff King (2003). On this view, ‘it was the case that it was raining in St Louis’ expresses the proposition that there is a time t that is earlier than the time of utterance t^* , and it is raining in St Louis at t . We will return to the debate about the tenses below.

Premise B, *viz.* the claim that tense operators operate on propositions, has also been rejected by several philosophers, including Michael Dummett (1991), Nathan Salmon (1989), and Jason Stanley (1997a; 1997b). Although these thinkers accept that there are tense operators in the English language, they deny that they operate on propositions. They distinguish between the assertoric content and the compositional semantic value of a sentence. Tense operators, they say, operate on the compositional semantic value, whereas assertoric contents serve as the objects of belief and the contents of utterances. Assertoric contents, they say, serve as propositions, whereas compositional semantic values do not serve as propositions. The former are eternally true or false, whereas the latter can take on different truth-values at different times. So, drawing this distinction allows its defenders to advocate for eternalism without having to reject the claim that there are tense operators in the English language. Although the distinction between assertoric content and compositional semantic values is not uncontroversial (see Brogaard, 2012, ch. 6), a knock-down argument against this view has still to be provided. So, Kaplan’s argument cannot currently be considered a successful argument for temporalism.

In his dissertation, Clas Weber (2013, ch. 2) has provided a variation on Kaplan's argument that he says avoids the problematic intensional assumptions of Kaplan's argument. He calls this argument 'the substitution argument.' It starts with the observation that for eternalists sentences without an explicit time specification express the same eternal propositions as the sentences in which the time specification is made explicit. So, 'it is raining in Canberra' and 'it is raining in Canberra at t^* ', where t^* is the time of utterance, are semantically equivalent for the eternalist. He calls pairs of sentences of this kind 'eternalization pairs.' Now consider the following eternalization pair:

- (2) It is raining in Canberra.
- (3) It is raining in Canberra on the 22nd of August 2010 at 2:36 p.m.

Because (2) and (3) are an eternalization pair, they are semantically equivalent as far as the eternalist is concerned. Despite this, (2) and (3) cannot be interchanged *salva veritate* within the temporal construction *It is always the case that*.

- (4) It is always the case that it is raining in Canberra.
- (5) It is always the case that it is raining in Canberra on the 22nd of August 2010 at 2:36 p.m.

Weber argues that (4) is false, whereas (5) is not. (4) implies that Canberra, like Seattle, always requires you to bring an umbrella when you go out. (5), on the other hand, implies that it is eternally true that it is raining on a particular day in Canberra. Because substitution fails in the temporal context, Weber says, (2) and (3) cannot be semantically equivalent after all. So, eternalism is false.

However, I don't think Weber is right that the substitution argument does not rest on the intensional assumptions of Kaplan's argument. Kaplan's argument relies on, for example, the assumption that there are tense operators in the language (e.g., 'It is always the case that'). So does the substitution argument. It is clear that the argument does make this assumption, otherwise substitution would be illicit for different reasons. For example, substitution of 'it is raining at t_1 ' for 'it is raining' is illicit in the following context if the tenses are quantifiers rather than operators:

- (6) It was the case that it is raining.

If this is analyzed as 'there is a time t such that t is earlier than the time of speech, and it is raining at t ', then substituting 'it is raining at t_1 ' for 'it is raining' is clearly illicit. The same holds for 'it is always raining.' If this is analyzed as 'for all times t , it is raining at t ', then it is illicit to substitute 'it is raining at t_1 ' for 'it is raining.' So, the substitution argument does, in fact, rest on the assumption that there are tense operators in the English language. Only these kinds of operators would make the substitution illicit for reasons relevant to the temporalism–eternalism debate.

But if 'it was the case that' is a tense operator, then it is open to defenders of the distinction between assertoric content and compositional semantic values to argue that the reason we cannot embed (2) and (3) within the scope of this temporal operator is that temporal operators operate on compositional semantic values. So, when (2) is embedded under 'it is

always the case that,' then it has a different content than when it is not embedded. This explains why substitution is elicited. The substitution argument thus does not seem to fare better than Kaplan's original argument.

2.2 Richard's Argument

Another well-known argument central to the temporalism–eternalism debate was set forth by Mark Richard (1981). The argument is supposed to show that there are obviously invalid arguments that would come out valid if temporalism were true. So temporalism is false. Here is one such apparently invalid argument:

- (A)
 Mary believed that Nixon was president.
 Mary still believes everything she once believed.
 Therefore, Mary believes that Nixon *is* president.

According to Richard, "this argument is not a valid argument in English. As speakers of English use sentences such as [premise 1] and [premise 2], [the conclusion] simply does not follow from them" (1981, p. 4). Or, as Salmon puts it, "such an inference is an insult not only to Mary but also to the logic of English, as it is ordinarily spoken" (1989, p. 345). Yet, says Richard, the temporalist must regard (A) as valid. On behalf of the temporalist, Richard assigns the following metalinguistic truth-conditions to (A):

$$\begin{aligned} &\exists p \exists t (t < t^* \ \& \ p = [P_n] \ \& \ Bmpt) \\ &\forall p (\exists t (t < t^* \ \& \ Bmpt) \rightarrow Bmpt^*) \\ &\exists p (p = [P_n] \ \& \ Bmpt^*) \end{aligned}$$

(p ranges over propositions, '<' means 'is earlier than,' t^* is the time of speech, m is a constant that refers to Mary, and $[P_n]$ is the temporal proposition that Nixon is president). The first premise is true iff there is a time t such that t is earlier than the time of speech t^* , and a proposition p such that p is *Nixon is president* and at t Mary believes that p . The second premise is true iff for all propositions p , if there is a time t that is earlier than the time of speech t^* and Mary believes that p , then at the time of speech t^* Mary believes that p . The conclusion is true iff there is a proposition p such that p is *Nixon is president*, and at the time of speech t^* Mary believes that p . But this is valid. So the temporalist is committed to the validity of an apparently invalid argument.

The eternalist is not so committed. For the eternalist takes the first premise to mean that there is a time t such that t is earlier than the time of speech t^* , and Mary believes at t that Nixon is president *at t* . From this and the assumption that Mary still believes everything she once believed it does not follow that Mary believes at t^* that Nixon is present at t^* . In other words, the difference between the verdicts of temporalism and eternalism is that temporalism takes the objects of beliefs to be temporally neutral, whereas eternalism takes them to be temporally specified.

As I have argued on previous occasions, the main problem with this argument is that there are structurally analogous arguments that seem to us to be valid, which is what temporalism would predict (see, e.g., Brogaard, 2012, ch. 2). Here are a few examples:

(B)

John will be thinking that Mary is hungry.
Everything John will be thinking he is thinking now.
Therefore, John is thinking that Mary is hungry.

(C)

Yesterday John believed that Arnold Schwarzenegger was the president of the United States.
Today John believes whatever he believed yesterday.
Therefore, John believes that Arnold Schwarzenegger is the president of the United States.

(D)

Yesterday John pretended that he was a famous actor.
Now he is pretending that same thing again.
Therefore, John is pretending that he is a famous actor.

(E)

Yesterday John dreamed he was the president of the United States.
Now he is dreaming the same thing as yesterday.
Therefore, John is dreaming that he is the president of the United States.

Unlike eternalism, temporalism correctly predicts that these arguments are valid (the verdict of untutored informants). Although these arguments are structurally analogous to Richard's argument (A), our intuitions differ in these cases. So, our intuitions regarding argument (A) cannot be used to establish that temporalism is false. The temporalist might say that what goes wrong in argument (A) is that the conclusion is so outrageous ('an insult to Mary') that we automatically reject it, despite the fact that it follows from the premises. If the conclusion were less outrageous, perhaps our intuitions would be less strong. We might test that hypothesis by considering the following argument:

(F)

Mary believed that Obama was president.
Mary still believes everything she once believed.
Therefore, Mary believes that Obama *is* president.

Most people asked about the status of this argument seem to think it is perfectly fine, or at least it does not seem obviously invalid to them. So, it may be that argument (A) seems outrageous because the conclusion is outrageous. It is hard to envisage that Mary could be that stupid.

2.3 *Belief Retention*

Richard (1981) also argues that the temporalist has a problem accounting for belief retention. Consider the following example of belief retention:

(G)

I, Mary, believed that Nixon was up to no good in the White House, and I still believe that.
Therefore, I, Mary, believe that Nixon is up to no good in the White House.

Intuitively, (G) is invalid. Yet, says Richard, the temporalist is committed to its validity. For, given temporalism, the premise is true iff there is a time t such that t is earlier than the time of speech t^* and Mary believes at t that Nixon is up to no good in the White House, and at t^* Mary still believes that Nixon is up to no good in the White House. From this, of course, it follows that at t^* Mary believes that Nixon is up to no good in the White House.

Eternalism, on the other hand, is not committed to this result. According to the eternalist, the objects of the attitudes are eternal. So, the premise is true if and only if there is a time t such that t is earlier than the time of speech t^* and Mary believes at t that Nixon is up to no good in the White House at t , and at t^* Mary still believes that Nixon is up to no good in the White House at t .

Richard (1981, p. 6) considers the possibility of the temporalist offering an alternative account of belief retention. On this view, “to retain a belief is *not* to continue to believe the very same proposition. Rather, it is to believe a proposition related in some special way to the proposition originally believed” (1981, p. 6). To believe what one once believed is to believe that it was the case that what one once believed obtains. For example, if Mary once believed that Nixon is president, and she retains this belief, then she now believes that Nixon was president. This move would block Richard’s argument. For from the assumption that Mary once believed that Nixon is president but now believes that Nixon *was* president, it does not follow that she believes that Nixon *is* president. Richard thinks this account of belief retention is unacceptable.

However, as it turns out, (G) is not a good way of refuting temporalism for the same reason that (A) is not a good way to refute temporalism. It may simply be that we find Mary’s claim that she believes that Nixon is still in the White House so stupid that we implicitly reject the entire reasoning process, in spite of it being valid.

What Richard does not realize is that it is a much greater challenge to come up with an adequate account of how belief is retained over time if the objects of belief are eternal propositions. The problem for the eternalist is that we rarely retain belief for the long term by remembering the same eternal proposition. Presumably, when we store a belief about a present occurrence, we store it as a past-tensed proposition. For example, if at 15:13 on January 5, 2010, I see a red car leave a crime scene, I will likely store the information as a past-tensed proposition; for example, I may store the information in the form *it was the case on that day where I observed the horrible crime that a red car left the crime scene*.

Because eternalists are committed to the claim that all propositions make reference to a time, they cannot account for this way of storing information. They might say that the information I store has the form ‘there is a time t such that t is prior to or identical to t^* , and Brit observes a terrible crime just before t and a red car is leaving the crime scene at t ,’ where ‘ t^* ’ refers to the time at which the belief information is stored, for example, 15:13 on January 5, 2010. But surely this is not the kind of information that is likely to get stored. To store this kind of information the brain would need to be in a position to track the time precisely at the time of storage. It is just plainly implausible that the brain would have tracking powers like that. If, on the other hand, the brain stores a temporal proposition, then belief retention consists in continuing to stand in the belief relation to the same temporal proposition. So, eternalism is false.

The eternalist may insist that they have a way of dealing with this sort of case. What I store in my hippocampus is not a proposition that refers to a specific time but rather a proposition that quantifies over times. I observe the crime and see the red car escape and then I form the belief that there is a time t such that Brit observes a terrible crime just before

t and sees a red car escape at *t*. While this gets around the problem of how the brain stores information about specific times on the basis of observations of a scene with no clocks, it runs into trouble of a different kind. When I retrieve the stored information, my retrieved memory can be true even if I never observed a crime in my life. It could be true if I were to observe a red car escape a crime scene 10 years from now. Our ordinary life experiences tell us that it is unlikely that I falsely remember the details about an event that then occurs in the same way 10 years later. But memories need not be very detailed. If I am told at time *t* that I got an A for my essay about Columbus, this may be all I am able to recall later about the situation in which I learned this fact and about the essay. But if my brain stores the information that there is a time at which I get an A for my essay about Columbus, then what I recall could be true, even if the only essay I ever wrote about American history was about Lewis and Clark. It would be true if I were to go back to school later and were to earn an A for my essay about Columbus. Belief information clearly is not stored in memory in this kind of tense-neutral way. Information about the past is stored for the long term in a past-oriented way.

We don't always continue to believe a proposition by storing the information in storage memory. Sometimes I continue to believe something over time without storing the information in storage memory at all. This is the case when we keep information available in working memory. For example, if I want to call you, I may look up your phone number in the phonebook. As phone books are reliable sources of information, I rationally come to believe that your phone number is, say, 283-1759. I can keep this information available in working memory for the few minutes it takes me to find my phone and dial the number. The information I keep available in working memory for the few minutes it takes me to find my phone and dial the number is hardly indexed to a specific time. I don't continue to believe that your number is 283-1759 by believing that your number is 283-1759 at 15:00 on July 5, 2010, that your number is 283-1759 at 15:01 on July 5, 2010, and so on. The information I keep in mind is just the non-indexed information that your phone number is 283-1759. For as long as I keep that information available in my mind, I stand in a belief relation to the information. So, it is possible to stand in a belief relation to temporal content. This is in conflict with eternalism.

In general, it seems that information can be retained over time in two different ways. One can retain it in the past tense, or in the present tense. Information about occurrences typically is stored in the past tense, whereas information about things that continue to exist over time may be stored in the present tense. When I saw the red car leave the crime scene, that's an occurrence, and the information is therefore stored in the past tense together with some temporal markers. Since phone numbers exist over time and do not change very quickly, information about phone numbers may be stored as a present-tensed proposition that does not make reference to a time.

The duality in how we retain belief is reflected in the language we use to talk about it. If I say "Four years ago I believed that John was a firefighter, and I still believe it," then I can either mean that I still believe that John is a firefighter or that I still believe that he was a firefighter then. But the standard version of eternalism cannot account for the duality in the meaning of these sentences. The standard version is required to interpret the second clause as being a time-indexed claim about John four years ago. At best this captures the second reading. The other reading is unaccounted for.

The following examples shed further light on the difficulty that the duality in the meaning of these sentences presents for eternalism (Brogaard, 2012, ch. 2):

DECEIT

WIFE: When I married John I thought he was a police officer. Thirty years later I still believed he was a police officer. Turns out that he was fired two years into our marriage.

LOST LOVE

FRIEND: Yes, Barbara did love you 10 years ago. So you were right back then. But you still believe that she loves you, don't you Peter?

DEFENSE

STUDENT: I think my dissertation is done.

SUPERVISOR: You do? Well, I think you are wrong. Work on it for a few more weeks. Then read it again. If you *still* think that it's done, then we'll talk.

It is important to note here that these cases are about still believing that something is the case rather than believing that something still is the case. So, in LOST LOVE, for example, the friend claims that Peter still believes that Barbara loves him. The latter claim is distinct from the claim that Peter believes that Barbara still loves him. The two claims may be closely related but it is the former construction I am interested in here.

Eternalism holds that what we believe when we believe something that is not in the past tense is a time-indexed proposition. So, in the envisaged example outlined in DECEIT, the wife's original belief has the propositional content *my husband is a police officer at t*, where *t* is some time 30 years ago. If 'still believes' requires the content of the beliefs be the same, then the propositional content of the wife's belief after 30 years is *My husband is a police officer at t*.

Likewise, in the envisaged example outlined in LOST LOVE, Peter's original belief has the propositional content *Barbara loves me at t*, where *t* is some time 10 years ago. If 'still believes' requires the content of the beliefs be the same, then the propositional content of Peter's belief after 10 years is *Barbara loves me at t*.

Finally, in the envisaged example outlined in DEFENSE, the supervisor's original belief has the propositional content *S's dissertation is done at t*, where *t* is the time of the student and her supervisor's exchange. If 'still believes' requires the content of the beliefs to be the same, then the propositional content of the advisor's belief a few weeks later is *If you still think that it's done at t, then we'll talk*.

But it is hardly the case that the wife in DECEIT means that she still believes the same time-indexed proposition after 30 years, *viz.* the proposition *my husband is a police officer at t*, where *t* is some time 30 years ago, that the friend in LOST LOVE means that Peter still believes the proposition *Barbara loves me at t*, where *t* is some time 10 years ago, or that the supervisor in DEFENSE is asking *S* to return if *S* still believes the proposition *S's dissertation is done at t*, where *t* is the time of their exchange. To my mind, such cases raise one of the most pressing kinds of problems for eternalism.

2.4 Arguments from Disagreement

Eternalism holds that present-tensed sentences make implicit reference to the time of speech. 'John is a firefighter,' for example, expresses, relative to a context, the proposition that John is a firefighter at *t**, where *t** is the time of speech. But once we insist that the

contents of our utterances refer to a fixed time, it becomes difficult to see how we can have proper agreements and disagreements over extended time periods. So, successful communication over time must at least sometimes involve temporal contents. Or so I will argue.

The style of argumentation here is similar to the one used by relativists and non-indexical contextualists to refute more general forms of contextualism. This style of argumentation has received its fair share of criticism most recently in Herman Cappelen and John Hawthorne's (2009) *Relativism and Monadic Truth*. This is not the place to engage in the broader debate about whether this form of argumentation can be successfully employed in a refutation of indexical contextualism. Here I will just look at the localized case of eternalism. I reply to Cappelen and Hawthorne's criticisms pertaining to this localized case below.

One way in which arguments from disagreement presented against eternalism differ from arguments from disagreement presented against indexical contextualism more generally is that the former arguments are specifically directed at the claim that all tensed propositions make reference to specific times. But conversations take place over extended periods of time, and most of these conversations are not about specific times in the recent or not so recent past but about some other subject-matter altogether. Specific times may be completely irrelevant to what is discussed. So, it seems that the information that is passed on and that is the subject of discussion in many cases is temporally neutral. It should therefore not come as a surprise if conversations that take place over time become real challenges for eternalism even if they provide no real problem for broader indexical contextualist theories.

To see why the eternalist may have trouble accounting for how information is passed on in ordinary conversations, consider the following exchange:

FIRED FIREFIGHTER

(A and B are talking on the phone. B is standing outside the door of an office where a conversation is taking place between John and his superior).

A: ... John is a firefighter.

(Behind closed door the superior is shouting: "you are fired!")

B: I guess you are right. But John is not a firefighter. He was just fired.

The discourse fragment is supposed to sound odd. If you don't have that intuition, the argument does not even get off the ground. However, most people seem to have the intuition that the discourse fragment sounds odd. But let us look now at the predictions yielded by a standard version of eternalism that takes propositions to make reference to a specific time. On such a version of eternalism, A says that John is a firefighter at t_1 , and B then replies that A is right but adds that John is not a firefighter at t_2 . Notice that there is nothing wrong with the translation I just provided. It doesn't sound odd at all, and for good reasons. If A said that John is a firefighter at t_1 , then we should expect B's reply to be acceptable. For it is still true at t_2 that John is a firefighter at t_1 .

However, in the envisaged scenario, it would make much more sense for B to have replied: "No, you are wrong. I am standing outside the superior's office, and the superior just told him that he was fired."

Note that this argument, as formulated, does not rest on any intuition about whether A asserts a proposition denied by B. Rather, the argument rests on the oddity of the discourse fragment together with a version of eternalism that takes propositions to make reference to specific times. In other words, if FIRED FIREFIGHTER sounds odd, but the eternalist translation does not, then the eternalist translation is likely mistaken.

Tsompanidis (2013) raises several objections to this type of argument, which I presented in *Transient Truths* (Brogaard, 2012). I will briefly review what I consider his main objection to this type of argument. He argues that the eternalist could turn to interval semantics to account for agreement and disagreement. For example, ‘John is a firefighter’ might mean ‘John is a firefighter *at least up to and including the time of the entire conversation.*’ This type of account may be able to explain what is wrong with dialogues like the one presented in FIRED FIREFIGHTER. As Tsompanidis notes, I *do* consider this kind of reply at length in the book but let me address the specific account he proposes. One major problem for defenders of this type of proposal is to give precise truth-conditions for sentences, given that conversations do not have clear boundaries. A further, related, problem is that the time of the entire conversation cannot always serve as a reference time. Consider the following sentences:

- (7)
- (a) Mary is falling down from the tree
 - (b) Afghanistan is at war
 - (c) I am alive.

If (7a) is uttered during an extended conversation that may continue for hours while Mary is taken to the hospital, the relevant time interval cannot be one that includes the entire conversation. In this case, it may be suggested that the time interval is determined by the duration of the event. However, this suggestion cannot be right. I might utter (7a) because I believe that Mary is falling down from the tree, even though she is not. In that case, there is no event to determine the relevant time interval. While there are many other proposals that could be considered, the sentences in (7a–c) suggest that it will be difficult to give a systematic account of the time intervals that the present tense is supposed to make reference to. Though I agree with Tsompanidis that there are very many points that need to be settled about how language makes reference to time, I think that the problems the eternalist encounters with respect to agreement and disagreement give us a strong reason to prefer temporalism to eternalism.

In their monograph *Relativism and Monadic Truth* Cappelen and Hawthorne provide evidence against disagreement data and argue that the best test for whether an expression is context-sensitive or not is one that gives “center stage to the verbs ‘agree’ and ‘disagree’” (2009, p. 54). The test can be illustrated by means of an example. If A says ‘Mary has had enough. She has had three slices of cakes’ and B says ‘Mary has had enough. She is going to leave her husband,’ then we cannot correctly infer ‘A and B agree that Mary has had enough.’ The oddity of the agreement report is supposed to show that ‘had enough’ is context sensitive. It has different meanings in different contexts.

The reason the test works as a true test of shared content, Cappelen and Hawthorne say, is that it is hard to hear ‘agree’ in agreement reports as distributive. Cappelen and Hawthorne then argue that the test shows that propositions are not temporally neutral. Here is one of their examples. John says ‘Bill has died’ in response to the question ‘Why did Bill not show up at the pub last week?’ And Janet says ‘Bill hasn’t died’ in answer to the question ‘Why did Bill’s children not get their inheritance last year?’ They conclude that “The claim ‘Janet and John disagreed about whether Bill had died’ is clearly infelicitous” (2009, p. 98).

However, Cappelen and Hawthorne’s test fails. For disagreement to take place it is not sufficient that one speaker denies something that another speaker asserts. Interesting

disagreement requires that there is a time at which two speakers are, or pretend to be, in the same conversational context and are prepared to assign different truth-values to the same content.¹ In the envisaged scenario, John and Janet are not, and do not pretend to be, in the same conversational context. So, they don't disagree in any interesting sense. Hence, the disagreement report is false.

Consider the following modified example: John and Janet are having a dispute about whether Bill has died. John says: 'Bill has died. He didn't show up at the pub last week.' Janet replies: 'No, Bill hasn't died. His children didn't get their inheritance.' Given this conversational context, the disagreement report 'Janet and John disagree about whether Bill has died' comes out true.

Cappelen and Hawthorne argue that 'debated' has the same properties as 'agree' and is equally suitable for testing for context sensitivity (2009, p. 57). Substituting 'debated' for 'agreed,' however, gives us the same results. 'Janet and John debated whether Bill had died' is false in the first case and true in the second.

To further see that the disagreement test fails, consider the following example. John says 'Bill died at 2 p.m., December 11, 2010 EST' in response to his drinking buddy's question 'Why did Bill not show up at the pub last week?' And Janet says 'Bill didn't die at 2 p.m., December 11, 2010 EST' in response to her husband's question 'Why didn't Susan win the bet?' Here the claim 'Janet and John disagreed about/debated whether Bill died at 2 p.m., December 11, 2010 EST' is clearly false, despite the fact that Janet denies what Bill asserts. This becomes even more apparent if we make the innocent move of substituting 'had a disagreement about' for 'disagreed about.' Janet and John did not have a disagreement about anything. But we cannot take that to mean that 'Bill died at 2 p.m., December 11, 2010 EST' has different meanings in different contexts.

2.5 *Temporalism and the Problem of Intentionality*

The arguments provided above give us some reason to favor temporalism over eternalism but the most compelling argument, in my opinion, turns on the problem of intentionality. The problem of intentionality is that of explaining how a set or a mereological sum of objects and properties comes to represent anything. How does a set of individuals and properties come to have intentional properties? This is a problem that goes back at least to Frege and the early Russell. It is also sometimes misleadingly known as the 'problem of the unity of the proposition.' Recently, several philosophers of language have argued that the problem cannot be cracked if we keep treating sets of individuals and properties as the entities that do the representational work (see, e.g., Soames, 2013; Brogaard, 2014). Although we still need to figure out what '(conscious) representation' means, a first step in the right direction is to realize that intentionality is first and foremost a property of cognitive states. What is called a 'proposition' (or a 'content') is best understood as a kind of generalization based on token cognitive states. We can take propositions to be types of cognitive acts, an act of predicating involved in perceptual states, belief states, agreements, and so on. Propositions thus have representational properties only in a derivative sense. They themselves are generalizations based on token cognitive states. It's the token cognitive states that are the primary bearers of intentional properties.

But, now, not all token mental states represent times. Here is a counter-example to the assumption that all mental states represent times. Mary is pregnant on December 24, 2014, and is expected to give birth on January 15, 2015. But on the morning of December 24,

2014, John and Mary are in a car accident. Mary and the baby are fine. But John is in a coma. Exactly four months later John wakes up and remembers the accident, up to his losing consciousness. He believes it is still December, 2014, and says: 'Where is Mary? She is pregnant.' It is reasonable to think that John really believes that Mary is pregnant. But it just isn't true that John believes on April 24, 2015, that Mary is pregnant on April 24, 2015. He knows human pregnancy cannot take 12 months. He believes Mary is pregnant because he believes it's still December, 2014. So, John's belief that Mary is pregnant cannot plausibly be taken to represent that Mary is pregnant on April 24, 2015. A more plausible suggestion is that John believes in a temporally neutral way that Mary is pregnant. Cases like this give us good reason to think that not all mental states represent times.

If cases like this one aren't sufficiently convincing, we can turn to the case of perception. Perceptual experience does not seem to represent times. You can perceive the same visual scene at 1:01 p.m. and at 1:02 p.m. without the phenomenology of your visual experience having changed one bit. So, the phenomenology of visual experience does not always represent times, which is to say that not all acts of predicating represent a time. But propositions are generalizations from acts of predicating involved in perception, belief, and wishing, and so on. We generalize away differences. As not all acts of predicating represent times, propositions do not in general represent times. But if they do not, then eternalism is false.

3 The Quantifier View versus the Operator View

3.1 Evidence against the Operator View

As we saw above, Kaplan's argument for temporalism rests on the premise that there are tense operators in the English language. This makes the debate about tenses directly relevant to the debate about temporalism versus eternalism. But there are other reasons to consider the two debates logically interconnected. Though temporalism is not articulated as a view about how to treat the tenses in English, on the most natural understanding of temporalism, the debate between temporalism and eternalism is not orthogonal to the debate about how to treat the tenses. Standard versions of eternalism require that the time of speech is a constituent of all propositions. As the time of speech is variable, sentences that express eternal propositions must have a hidden variable in the sentence structure that takes times of speech as its values. This type of sentence structure follows as a natural consequence of a treatment of the tenses as quantifiers. Where t^* is the time of speech, 'John is a firefighter' is of the form 'John is firefighter at t^* ,' 'John was a firefighter' is of the form 'there is a time t such that t is earlier than t^* , and John is a firefighter at t ,' and 'John will be a firefighter' is of the form 'there is a time t such that t is later than t^* , and John is a firefighter at t .'

Temporalism, by contrast, must treat the tenses as sentential operators, at least given standard semantics. It may be thought that it is possible to combine temporalism with a quantificational account of the tenses. For example, it may be thought that 'John was a firefighter' could be treated as having the following underlying form:

$$(8) \exists t(t < t_n \ \& \ \text{John is a firefighter at } t),$$

where t_n is an unarticulated constituent that takes different values across time. If (8) expresses a proposition with an unbound variable, then that proposition will have different

truth-values at different times. The problem with this view is that a content that contains an unbound variable isn't a complete proposition, given standard semantics. In standard semantics, sentences, relative to context, express complete propositions that do not require further satisfaction by context. So, unless we adopt some special semantics, (8) expresses an eternal proposition, *viz.* the proposition that results from substituting the time of speech for t_n . It thus seems that within a fairly standard semantic framework, temporalism is committed to a treatment of the tenses as sentential operators, whereas eternalism is committed to a treatment of the tenses as quantifiers over times or some similar view (e.g., a treatment of the tenses as quantifiers over events or as discourse variables).

The problem for the temporalist is that a wide range of empirical evidence suggests that the tenses function as quantifiers (or perhaps variables) and not as circumstance-shifting operators. I cannot cover the full range of evidence here. But a few illustrative examples are in order. King (2003) offers three main pieces of evidence to motivate a shift from the operator view to the quantifier approach. One consideration against the standard treatment is that it gives us the wrong truth-conditions for sentences with time adverbials. Consider, for instance (King 2003, p. 216; Dowty, 1982, p. 23):

(9) Yesterday, John turned off the stove.

According to King, traditional tense logic would treat (9) as featuring two operators, namely the simple past tense (P), and 'yesterday' (Y). Y shifts the time of speech to some time yesterday, and P shifts the time of speech t^* to some time t such that t is earlier than t^* . Since (9) contains two operators, says King, it should have the following two readings:

- (9)
 (a) Y(P(John turns off the stove))
 (b) P(Y(John turns off the stove)).

(9a) says that the day before some time in the past John turned off the stove, whereas (9b) says that John turned off the stove some time before yesterday. But (9a) and (9b) do not give us the correct readings for (9). (9a) is true just in case John turns off the stove the day preceding some past time, and (9b) is true just in case John turns off the stove at some time past of yesterday. So (9a) and (9b) may both be true if John turned off the stove 10 days ago; but (9) would be false. Thus, a traditional tense logic yields the wrong truth-conditions for sentences like (9). King's quantificational analysis makes the correct predictions. On King's analysis, (9) cashes out to: 'there is a past time t such that t was some time yesterday and John turns off the stove at t .'

A second reason King offers against a treatment of the tenses as sentential operators is that it would make the wrong predictions in cases like the following (2003, p. 217):

(10) Sheila had a party last Friday, and Sam got drunk.

As Barbara Partee (2004) has made vivid, the English tenses can be anaphoric on other tenses in much the same way that pronouns can be anaphoric on quantifiers or terms. The idea is that (10) is similar in important respects to:

- (11) Sam took the car yesterday, and Sheila took it today.

In the case of (11), the pronoun ‘it’ in the second clause is anaphoric on ‘the car’ in the first sentence. On one theory of unbound anaphora, defended by Stephen Neale (1990) and others, unbound anaphoric pronouns go proxy for definite descriptions recoverable from the antecedent clause. The ‘it’ in ‘Sheila took it today,’ for example, goes proxy for the definite description ‘the car Sam took yesterday.’ Likewise, in (10) the past tense of the first clause picks out a time interval that is supposed to fall within the time interval picked out by ‘last Friday.’ The past tense of the second clause is anaphoric on the interval picked out by the past tense of the first sentence. The second clause is thus interpreted as meaning that Sam got drunk at Sheila’s party last Friday.

The problem for theories that treat the tenses as sentential operators is that if ‘last Friday’ in (10) and the past tense of the first clause are treated as independent operators, then the second conjunct in (10) receives the implausible interpretation that Sam got drunk at some time in the past, which – if Sam is like most of us – is obviously true. Again, a treatment of the tenses as sentential operators seems to yield the wrong truth-conditions.

According to King, a more debilitating problem for theories that treat the tenses as operators is that they are unable to give a convincing account of Kamp/Vlach sentences such as:

- (12)
 (a) One day, all persons alive now will be dead
 (b) Once all persons alive then would be dead.

The problem that such sentences present is that they have no satisfactory paraphrase using only the resources of traditional tense logic. In traditional tense logic the future tense operator (F), when unembedded, shifts the time of evaluation from the present time to some time in the future. Anything that occurs within the scope of the future tense operator is evaluated with respect to that time, which makes it difficult to translate (12a). (12b) presents a different problem. The problem here is that the past evaluation time is lost when the future evaluation time is introduced. To translate (12a) and (12b), King says, we need to introduce something like Hans Kamp’s (1971) doubly indexed N operator, and Frank Vlach’s (1973) doubly indexed K operator, which requires a rather complicated and undesirable semantics.

3.2 *Complex Tense Operators*

In previous work I have responded to the first two pieces of evidence by introducing complex tense operators (see, e.g., Brogaard, 2012, ch. 4). Complex tense operators are complexes of basic tense operators and time adverbials. The time adverbial needn’t be explicitly mentioned but may be implicitly assumed in the context.

King argued that one apparent problem with a treatment of the tenses as tense operators is that it gives us the wrong truth-conditions for sentences with time adverbials. This problem goes away, however, if we allow the tenses to interact with time adverbials, as in ‘it was the case yesterday.’ If we allow complex tense operators in the semantics, we can provide the following paraphrase of (9):

- (9*) It was the case yesterday (that John turns off the stove).

'It was the case yesterday' functions as a circumstance-shifting operator that maps *John turns off the stove* to the true iff *John turns off the stove* is true at a past circumstance of evaluation whose time feature belongs to the class of times picked out by 'yesterday.' Of course, English requires that the embedded clause in (9*) occurs in the past tense. So, in ordinary English, (9) should be paraphrased as 'It was the case yesterday that John turned off the stove.' On the relevant reading, the past tense of the embedded clause is vacuous. There is also an alternative reading where the past tense of the embedded clause is not vacuous. For example, if John turned off the stove the day before yesterday, we can truthfully utter the sentence 'It was the case yesterday that John turned off the stove two days ago.'

Related considerations help to address cases where the tense of one clause is anaphoric on the tense of a preceding clause, repeated from above:

- (10) Sheila had a party last Friday, and Sam got drunk.

Here the past tense of the first sentence picks out a time interval that falls within the time interval picked out by 'last Friday.' The past tense of the second clause is anaphoric on the interval picked out by the past tense of the first clause. Two key cases cited as evidence against the operator account thus turn out not to present a threat to the account.

3.3 Montague Grammar

That still leaves us with Kamp/Vlach sentences. Such sentences, it turns out, can be dealt with satisfactorily in Montague grammar (PTQ – proper treatment of quantification in ordinary English; Montague, 1973), which is a tense logic. Consider:

- (13) A colleague of mine who was a child prodigy got her PhD from Harvard.

It is tempting to think that we can get the following reading with nested clauses: $\exists x(\text{colleague } x \ \& \ P(\text{get PhD } x \ \& \ P(\text{prodigy } x)))$. On this reading, (13) says that there is someone who is currently at colleague who got her PhD from Harvard at some point in the past and who was a child prodigy before that. Unfortunately, this reading cannot be yielded compositionally.

Compositionality requires that a meaning is yielded for the noun phrase 'A colleague of mine who was a child prodigy,' and that this meaning is then combined with the meaning of 'got a PhD from Harvard.' So, given a compositional interpretation of English syntax (with the exception that noun phrases can scope out), it is not possible for the past tense in 'was a child prodigy' to have wider scope than 'colleague of mine.'

The reason that a meaning is yielded for the whole noun phrase 'A colleague of mine who was a child prodigy' is that within the whole noun phrase 'A colleague of mine who was a child prodigy,' the relative clause is a self-contained syntactic constituent. This constituent has the syntax of a full sentence except that it lacks a noun phrase. Instead of a noun phrase it has a variable that is bound by the noun phrase. So, the relative clause is of the form ' x who was a child prodigy,' where the variable ' x ' is bound by 'a colleague of mine.' The compositional structure of 'A colleague of mine who was a child prodigy' is as follows. 'A colleague of mine who was a child prodigy' is composed of the indefinite article 'a' and the noun phrase 'colleague of mine who was a child prodigy.' The latter is composed of 'colleague of mine' and 'who was a child prodigy,' which in turn is composed of 'who' and ' x '

was a child prodigy.' Finally, 'x was a child prodigy' is composed of the past tense morpheme and 'x is a child prodigy.'

As PTQ observes compositionality (with the exception of the 'quantifying in' rule), it yields the following readings for (13):

- (13) A colleague of mine who was a child prodigy got her PhD from Harvard.
 (13a) $\exists x(\text{colleague } x \ \& \ P(\text{prodigy } x) \ \& \ P(\text{get PhD } x))$
 (13b) $P(\exists x(\text{colleague } x \ \& \ P(\text{prodigy } x) \ \& \ \text{get PhD } x))$

(13a) translates as 'some colleague is such that it was the case that she is a prodigy, and it was the case that she gets her PhD' and (13b) translates as 'it was the case that some colleague, who was a prodigy, gets her PhD.' In (13a) there is quantifying in: the whole noun phrase 'A colleague of mine who was a child prodigy' has wider scope than the main clause, in (13b) there is no quantifying in. So the whole noun phrase 'A colleague of mine who was a child prodigy' has scope under the tense of the main clause.

Dan Zeman (2013) has responded to these sorts of strategies that the temporalist might offer to preserve a fairly traditional tense logic that while the temporalist no doubt can come up with an operator account of the tenses that can accommodate most, if not all, of the phenomena that normally are cited in support of the quantificational account, true supporters of temporalism might want "positive, decisive arguments for the view that tenses are to be interpreted as circumstance-shifting sentential operators, rather than, say, quantifiers over temporal variables verbs come endowed with" (Zeman, 2013, p. 325).

I agree with Zeman that there are very few empirical data concerning the semantics of tense that cannot be accommodated by both operator accounts and quantificational theories of the tenses (as well as many other theories of the tenses). I also agree that debates about the tenses are not going to settle the debate about temporalism. Rather, what is ultimately going to settle the debate between temporalism and eternalism is an argument that is independent of how we treat the tenses in the English language. If the debate can be settled in favor of temporalism, as I have argued above, that gives us good reasons for revisiting an operator theory of the tenses.

4 From Philosophy of Language to Metaphysics

4.1 *The Incompatibility of Presentism and Semantic Eternalism*

I will now turn to the important question of whether the debate about temporalism versus eternalism has any bearing on the debate about presentism versus metaphysical eternalism. In *Transient Truths* (2012) I argue that the answer is 'yes.' Semantic eternalism, for example, appears to be inconsistent with presentism, a particular version of the A-theory. The argument is this. Presentism holds that only present things exist. But according to the standard version of semantic eternalism, all propositions include a timestamp (e.g., the sentence 'Mary is hungry' may express the proposition that Mary is hungry at 2:05 p.m. on October 1, 2013 EST). Most of these timestamps are past and future times. So, if presentism is true, then the vast majority of these propositions do not exist. The presentist could construe times as ersatz times (sets of propositions) (Brogaard, 2013). But on pain of circularity, this requires granting that there are temporal propositions (without a timestamp). So, presentism is at odds with semantic eternalism.

Giuliano Torrenzo (2013) has replied that the book's argument doesn't work, because temporalism is consistent with there being some eternal propositions, for example, the propositions that there are wholly past objects and that I am giving a talk at Stanford University on May 15. Yet, Torrenzo argues, "it is the thesis that *some* eternal propositions exist that is at odds with presentism" (Torrenzo, 2013, p. 316). This is a nice point. However, I disagree with Torrenzo that presentism is at odds with the thesis that there are *some* eternal propositions. As Torrenzo himself points out, it is the stronger view that there are *no* temporal propositions (i.e., semantic eternalism) that prevents the presentists from construing times as ersatz times. The weaker view defended in *Transient Truths* (i.e., temporalism) leaves us with all the resources (i.e., temporal propositions) needed to construe times as sets of propositions non-circularly.

That said, Torrenzo is perfectly right that if presentism is true, then the temporalist cannot accept all of the eternal propositions ordinary language appears to commit us to. Some temporalists (myself included) argue (while bracketing metaphysical issues) that there are eternal propositions that make explicit reference to times, for instance, the proposition that I am giving a talk at Stanford on May 15. If presentism is true, then that proposition does not currently exist. Presentists must, therefore, reject the existence of these kinds of propositions. (They can, of course, accept the existence of metaphysical propositions such as *there are wholly past objects*, as these types of propositions do not have times as constituents.) The thought that sentences, such as 'I am giving a talk at Stanford on May 15,' do not express a proposition at all and therefore are false is not entirely unmotivated. It could be argued that while an utterance of the sentence 'I am giving a talk at Stanford on May 15' may seem true, this kind of speech is, in fact, idiomatic much like 'the sun is rising.' Idiomatic speech is literally false (or untrue) but conveys something true.

4.2 *The Incompatibility of Metaphysical Eternalism and the Quantifier Theory of the Tenses*

How we treat the tenses also seems to have metaphysical implications. There is some reason to think that if metaphysical eternalists adopt the quantifier account of the tenses (that is, the semantic eternalist's common account of the tenses), then they will have difficulties making certain metaphysical claims (Brogaard, 2012, ch. 7). The gist of the argument runs as follows. The metaphysical eternalist wants to say that past and future objects exist *simpliciter*. Consider:

- (14) Socrates exists.

According to the metaphysical eternalist, Socrates existed in the past but does not presently exist. So, the metaphysical eternalist holds that (14) is true on one reading but false on another. Now combine metaphysical eternalism with the quantifier account of the tenses. On the quantifier account, all propositions are indexed to a time. So, where t^* is the time of speech, (14) is equivalent to the proposition expressed by (15):

- (15) Socrates exists at t^* .

But here is the problem. If (15) specifies a false proposition expressed by (14), then what is the nature of the true proposition expressed by (14), according to the metaphysical eternalist?

Torrenco has replied to this sort of argument that “once we accept the distinction between a temporally restricted and a temporally unrestricted reading of quantification (and something analogous for predication), the worry is spurious” (Torrenco, 2013, p. 318). However, this misses the point of the argument. The argument is that if the metaphysical eternalist accepts a quantificational account of the tenses, then she cannot account for the unrestricted reading of (14). (14) can, of course, be read as follows (as Torrenco suggests):

- (16) $\exists x(x = \text{Socrates})$, where the domain of values is temporally unrestricted.
 (17) $\exists x(x = \text{Socrates})$, where the domain of values is restricted to the present.

According to the metaphysical eternalist, (16) then is true and (17) false. However, this proposal is compatible with a version of temporalism that utilizes quantifier restriction. My own proposal was similar. On the view I prefer, (14) has a reading that determines a function from worlds to extensions and another reading that determines a function from world-time pairs to extensions. The first reading is the ‘unrestricted’ reading, whereas the second is the ‘restricted’ reading.

Notice, however, that neither of these proposals utilizes a quantifier account of the tenses. In fact, they are inconsistent with the standard version of semantic eternalism, which requires that all propositions are indexed to a time. And that was just the point of the argument, which was not an argument against metaphysical eternalism but one in favor of temporalism (on the assumption that metaphysical eternalism is true).

A second worry that Torrenco raises is that the presentist cannot claim that (14) is false, on an unrestricted reading. The reason for this, he says, is that I hold that an eternal proposition such as *Socrates exists* is “evaluable as true or false *simpliciter* only in a context in which either Socrates is an instantaneous object, or Socrates always (or never) exists” (2013, p. 318). However, this is not my view. What I said was:

I think that one *could* use ‘John has a straight shape’ to mean the eternal proposition that John has a straight shape. But such an eternal claim is truth-evaluable at a world *w* only if (i) John is an instantaneous object at *w*, (ii) John always has a straight shape at *w*, (iii) John never has a straight shape at *w*, or (iv) Lewis is right that the *eternal* proposition *John has a straight shape* is true at *w* iff John has a temporal part that has a straight shape. (Brogaard, 2012, p. 150)

I made this remark in the context of discussing Lewis’s problem of temporary intrinsics. The reason ‘John has a straight shape’ cannot be evaluated except under these conditions is that if John sometimes has a straight shape and sometimes has a bent shape, then relative to the world as a whole the proposition is neither true nor false (or both true and false). The same point does not apply to the proposition that Socrates exists (as existence does not come and go).

A third concern that Torrenco raises also concerns the unrestricted reading of sentences like (14). He argues that my view implies that the unrestricted readings of sentences are never true for the presentist, not even when the entity in question is present. This has the consequence, he says, that “the presentist and the eternalist necessarily disagree on what *presently* exists” (Torrenco, 2013, p. 320), which seems odd.

I agree with Torrenco that that would be odd. However, I don’t think the temporalist is committed to this view. Consider:

- (18) Obama exists.

If presentism is true, then (18) is true when read restrictedly and unrestrictedly. On the restricted reading, ‘Obama’ determines a function from world-time pairs to extensions. Since the extension is non-empty, (18) is true on this reading. On the unrestricted reading, ‘Obama’ determines a function from worlds to extensions. Since this extension is also non-empty, (18) is true on this reading. Torrenco thinks I cannot say this, because I argue that on the unrestricted reading, (18) entails that it will be the case that Obama exists. However, even if we bracket Obama’s future existence, there is no problem here, because this kind of tensed sentence is innocuous. It is the result of affixing a tense operator to a sentence given an unrestricted reading. But when tense operators are affixed to an operand sentence that expresses an eternal proposition, the tense operators will be redundant (Brogaard, 2012, p. 150). So, the presentist can agree with the metaphysical eternalist that (18) is true on both its restricted and its unrestricted reading.

Torrenco is right that if the presentist holds that Obama is not fully present but is unfolding in time, then it would seem that she should reject (18). After all, if only some of Obama’s parts exist, how could (18) be literally true? I think this is a genuine puzzle but not one that is specifically about the unrestricted reading of (18). It appears to be equally problematic on the restricted (ordinary) reading of (18). The puzzle is not a consequence of accepting presentism or temporalism. Anyone who holds that ordinary material objects are four-dimensional space–time worms needs a way to talk about the properties the present parts instantiate. This is a familiar issue from the metaphysical literature (see, e.g., Sider, 2001). It is true that Obama is speaking even if it’s only his present part that is speaking. Yet how can this be if he is extended four-dimensionally? One standard reply is that proper names ordinarily refer only to stages of objects. Whether this is the best reply to the worry is not something I can address here. But let me point out that most three-dimensionalists who take ordinary material objects to endure are faced with a version of this problem. It is commonly agreed upon that events perdure: they have temporal parts located at different times. Yet even if a soccer match takes a considerable amount of time, it can nonetheless still be true to say that you are currently watching one. So, the problem of how to correctly predicate properties of four-dimensional entities may arise regardless of one’s particular view of how ordinary material objects persist through time.

4.3 *The Passage View and Monadic Truth*

As argued above, presentism necessitates the existence of temporal propositions. In reply to my arguments John Hawthorne (2013) has argued that the need for the index of evaluation to contain a time parameter goes away if one accepts what we might call ‘the passage view.’ Unlike presentism, which holds that only present things exist, the passage view holds that future and past things exist but that they have a different status compared to presently existing things. One option is to treat past and future objects as abstract and present objects as concrete. Another option is to say that only present events are happening, which is Hawthorne’s preferred version of the view. The details of this position need not concern us here. What matters is that the passage view, like presentism, can hold that there is something special about the present moment, but unlike presentism it does not need to deny the existence of past and future entities. Because presentism and the passage view take the present to be special, Hawthorne argues, presentists and defenders of the passage view need not relativize contents to times or stipulate that there are times in the index of evaluation.

According to him, we can simply take propositions to bear truth-values *simpliciter*. This renders temporalism obsolete. However, I think this argument is unsound. I have already argued that the presentist is committed to the existence of temporal propositions. A different argument is required to show that the defender of the passage view is also committed to the existence of temporal propositions and indices of evaluation that include times. Consider the sentence:

- (19) It was the case that (there is a time t , and dinosaurs exist at t).

On the passage view, the domain of objects remains constant across time, as no object comes into existence or ceases to exist. An individual might become abstract after having been concrete but it doesn't go out of existence. But when we have a constant domain of individuals, then the Barcan and converse Barcan formulas are true. Hence, (19) entails:

- (20) There is an x such that it was the case that x is a time and dinosaurs exist at x .

So, there are two times: the present time and x (a past abstract time). But if there are two times, then it seems that we need to relativize to times, even on the passage view.

5 Conclusion

Two of the main debates about tense and time in philosophy of language concern the eternalism–temporalism dispute and the semantics of the tenses. I have argued here that while these debates are far from settled, there are currently more significant pointers to temporalism than eternalism as an adequate account of propositions. This may impact our choice of semantics of the tenses in the English language. Temporalism seems to require a more traditional tense logic that treats the tenses as circumstance-shifting operators.²

Notes

- 1 If you disagree with Aristotle that, say, love is a union, then you are not in the same conversational context, but you pretend to be by entering a dialogue with the asserter of the claims you find problematic.
- 2 For helpful comments on a previous version of this paper I am grateful to Alex Miller and Bob Hale.

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