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# Durationalism: Temporalism and Eternalism

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DURATIONALISM: TEMPORALISM AND ETERNALISM

A Master's Thesis

By Adam P. Taylor,  
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## I. Abstract

An ongoing debate among propositionalists centers on the question: can the truth values of propositions change over time? The view that says that propositions can change truth values over time has been called *temporalism*. The more traditional view of propositions, which denies temporalism, and goes back to Frege, has been called *eternalism*. Mark Richard<sup>1</sup> has given forceful argument against temporalism and in favor of eternalism: the argument from belief retention. On Richard's view, if temporalism comes out true then it is impossible for one to retain one's beliefs over time.

As an eternalist about propositions, I believe that all propositions in some way refer to a particular time. In this paper, I will examine Richard's argument from belief retention and some temporalist responses to it. Afterwards, I will introduce my own *eternalist* account of propositions which will i) allow for belief retention in the precisely the troublesome cases which form the basis of Richard's original argument contra temporalism ii) account for the temporalist intuition that some propositions contain no implicit time references.

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<sup>1</sup> M. Richard, "Temporalism and Eternalism", *Philosophical Studies* 39 (1981); pp 1-13

## 1. Introduction

This thesis explores, in part, the ontology of propositions.

Propositions are understood as the (abstract) shareable objects of belief, meanings of sentences, and vehicles of truth-values. Consider for example the following pair of sentences:

(1a) Die Kuh sprang über den Mond.

(1b) The cow jumped over the moon.

Here (1a) translates (1b). They share the same semantic content. The propositionalist (i.e. the realist about propositions) will argue that if (1a) is able to precisely translate (1b) it must be the case that both (1a) and (1b) share some characteristic content. *That* content just is the proposition that this sentence-pair expresses. It is important to note that the shared content in this case cannot be any part of the sentences themselves since, strictly speaking, the sentence-pair share no content (i.e. none of their constituents are the precisely same).

Likewise when two or more individuals believe that p (where p is any proposition at all), the 'that p' constituent of their belief shares some characteristic content which just is the proposition they both believe. As in the following case:

(1c) Matthew believes that the dish ran away with the spoon.

(1d) Sarah believes that the dish ran away with the spoon.

Here, Matthew and Sarah share roughly the same belief: ‘that p,’ where p stands for ‘the dish ran away with the spoon.’ Suppose that Matthew and Sarah are conversing about the dish and spoon and why they have just ran away. If their beliefs were not the same, confusion would ensue as it would then be impossible to truly attribute any belief to any individual. In this case, if the belief states ascribed in (1c) and (1d) did not share some characteristic content, then it *could* be the case that when Matthew believes ‘that the dish ran away with the spoon’ he believes that ‘the the dish ran away with the spoon’ but when Sarah believes ‘that the dish ran away with the spoon,’ she believes that ‘President Bush is incompetent’. In such a case, while Matthew and Sarah would seem to be talking to each other about their shared beliefs, they would in fact be talking about totally different beliefs. This outcome would be intolerable. Gladly, it is not the situation we find ourselves in.

Another argument for propositions has been suggested by Matthew McGrath, this is the “Metaphysics 101” argument.<sup>2</sup> We begin by noting that there is a difference between the act and content of a belief. Thus, even while others cannot share in my belief- act, they can share the content of my belief. For example, suppose I believe that (H) Headaches are painful. What I believe, when I believe (H), is something that others

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<sup>2</sup> McGrath, Matthew, "Propositions", *The Stanford Encyclopedia of Philosophy (Spring 2006 Edition)*, Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2006/entries/propositions/>>.

also believe. We all believe headaches are painful. So the content of my belief 'that (H)' is shareable. Furthermore, suppose I believe

(H') Headaches are caused by tiny Nazi robots.

(H') is clearly false, where (H) is clearly true. Thus (H) and (H') are carriers of truth values. So there are beliefs whose contents are shareable, and carriers of truth values. Thus there are propositions, which just are the shareable objects of belief, meanings of sentences, and vehicles of truth-values.

Propositions, so conceived, are handy things to have in one's ontology. They allow one a straightforward way to explain and analyze what it is that sentences and beliefs and utterances share when they express some characteristic bit of content, and they offer us a way of determining the truth value of a sentence, belief, or utterance independent of any concerns about linguistic mud in the water. Even so, one could no doubt develop an alternative, i.e. non-propositional, account for the shared content of sentences, utterances, and propositional attitudes (e.g. beliefs, fears, hopes) as Putnam and Quine have. However, insofar as I intend to explore the nature of propositions, in this paper we will proceed (*pace* Putnam and Quine) as though we were certain of their existence. An ongoing debate among propositionalists centers on the question: can the truth values of propositions change over time. The view that says that propositions can change truth values over time has been called

*temporalism*. The more traditional view of propositions, which denies temporalism, and goes back to Frege, has been called *eternalism*. Mark Richard<sup>3</sup> has given forceful argument against temporalism and in favor of eternalism: the argument from belief retention. On Richard's view, if temporalism comes out true then it is impossible for one to retain one's beliefs over time.

As an eternalist about propositions, I believe that all propositions in some way refer to a particular time. In this paper, I will examine Richard's argument from belief retention and some temporalist responses to it. Afterwards, I will introduce my own *eternalist* account of propositions which will i) allow for belief retention in the precisely the troublesome cases which form the basis of Richard's original argument *contra* temporalism ii) account for the temporalist intuition that some propositions contain no implicit time references.

## **2. Eternalism, Temporalism, and truth-values**

Some sentences, such as 'it was raining in St. Louis on July 1, 2005' express propositions that make direct references to times. Following Richard<sup>4</sup>, we will call the propositions expressed by such sentences 'eternal propositions.' In order to evaluate the truth-values of such sentences we must have to look at the time being referred to and determine

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<sup>3</sup> M. Richard, "Temporalism and Eternalism", *Philosophical Studies* 39 (1981); pp 1-13

<sup>4</sup> Mark Richard, 'Tense, Propositions, And Meanings' *Philosophical Studies* (1981: 337-351)

whether, at that time, the proposition expressed by the sentence comes out true. So for example the proposition expressed by

(2) It was raining in St. Louis on July 1, 2005

will come out true iff it is the case that it was raining in St. Louis on July 1, 2005. Following Frege, eternalists consider (2) a complete proposition, or thought, because it contains an object, a property, and an explicit reference to a particular time.

Other sentences, on the Fregean view, are incomplete expressions of complete propositions. For instance

(3) Nora is sleeping

Here no explicit reference to a time is made. It is natural to suppose that 'is' in (3) is temporal weighted and points to the present time or the time of utterance of (3). We should resist this supposition. It is also possible to read 'is' as a present progressive verb which picks out no one particular time. As we go forward it will help to keep *this* reading of 'is' in mind. Following Richard, then, we will call the propositions expressed by such sentences 'temporal propositions.' These differ from eternal proposition only insofar as they do not make direct references to times. Eternalists such as Frege, Richard, and G.W. Fitch (1998) contend that temporal propositions do not exist at all. They argue that temporal propositions actually express eternal propositions, they merely do so incompletely. In other words, for the eternalist, all propositions are eternal propositions

which contain (either explicit or implicit) references to times. Thus even (3) which seems to contain no such reference expresses an eternal proposition. The temporalist argues to the contrary that propositions like the one expressed by (3) can be non-time specific. Notice that if we try to use the same sort of truth conditions for (3) as we did for (2) (i.e. if we try to use the same truth conditions for both eternal and temporal propositions) the outcome will be indeterminate. On these conditions (3) is true (3\*) iff it is the case that 'Nora is sleeping' is true *at t*. But because (3) makes no explicit reference to a time (3\*) is infeasible as the truth conditions for (3). But, according to Frege, (3) actually does make an implicit reference to a particular time: the time of utterance.<sup>5</sup> So that if I utter (3) at 4 in the afternoon on a workday it will come out false; if I utter (3) at 3 in morning on a workday it will come out true, and so on. As Frege remarks,

[A]re there thoughts which are true today but false in six months time? The thought, for example, that the tree is covered with green leaves, will surely be false in six months time. No, for it is not the same thought at all. The words 'this tree is covered with green leaves' are not sufficient by themselves for the utterance; the time

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<sup>5</sup> To avoid confusion, we should note that 'utterance' here is a technical term in Fregean semantics and that it should not be read as synonymous with utterance. Frege is not attempting to give us an utterance-semantics. Instead, I suggest that we take the construction 'time of utterance' to be roughly synonymous with a Kaplanian 'context' which I discuss below.

of utterance is involved as well. Without the time-indication this gives we have no complete thought, i.e. no thought at all. Only a sentence supplemented by a time indication and complete in every respect expresses a thought. But this, if it is true, is true not only today or tomorrow but timelessly (1968: 533).

Note that when Frege says that sentences such as ‘this tree is covered with green leaves’ (and (3)) express no thought at all, he does not mean that no content is transmitted by them. On the contrary, he simply means that no content is transmitted by them *until* the implicit time reference is appended. So, when I say ‘Nora is sleeping,’ it is immediately understood that I am really saying ‘Nora is sleeping now.’ Where now is taken as an indexical pointing to a precise temporal location (e.g. July 1, 2006 10:34 pm CST). This all carries over for temporally unspecific sentences attributing beliefs to individuals as well. Such sentences are incomplete expressions of their constituent propositions; in other words they require the addition of a time-reference in order to be complete (and to carry truth-values), so that

(4) Eric believed that Nora was sleeping

must be supplemented by a time reference such as,

(4\*) Eric believed that Nora was sleeping *at t*. So, ordinary

propositions and belief attribution propositions must likewise refer to the ‘time of utterance’ in order to be complete (and to have a determinate

truth-value) on the Fregean (eternalist) view. As a consequence, suppose that Eric asserts (3) exactly four times in his life. On eternalism, each of Eric's assertions expresses a different eternal proposition. Such that he is regarded as asserting

At  $t_1$ ... (E1) Nora is sleeping *at  $t_1$*

At  $t_2$ ... (E2) Nora is sleeping *at  $t_2$*

At  $t_3$ ... (E3) Nora is sleeping *at  $t_3$*

At  $t_4$ ... (E4) Nora is sleeping *at  $t_4$*

On this view, the proposition (or content) expressed by sentence (3) varies with each instance (E1) – (E4) at which it is asserted. Furthermore, the truth-value of each proposition (E1) – (E4) is invariant. Thus, eternalism is said to consist of the view that all temporally unspecific propositions are *content variant* and *truth invariant*.<sup>6</sup> In other words, all such propositions have precisely fixed truth-values and differing content at every time at which they are uttered

To sum up, on eternalism, all propositions include, implicitly, particular times. All the eternalist does to determine the truth of (E1) – (E4) is look at the world in question and check whether (3) is true at that world at the time in question. For the eternalist, world + proposition  $\Rightarrow$  truth-value.

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<sup>6</sup> See Mark Aronszajn (1996: 74) and Brogaard (2006 *forthcoming*)

But the temporalist cannot appeal to implicit time references to determine the truth-values of such propositions as expressed by (3) and (4). On the temporalist reading (3) and (4) express temporal propositions and as such they make no references at all to times. We must arrive at their truth values by different means. In the next section, we will examine the temporalist method for determining the truth-values for incomplete sentences and belief attributions.

The first thing to point out is that, in the foregoing discussion of eternalism, we have treated sentences such as

(3) Nora is sleeping

as incomplete sentences expressing eternal propositions. This characterization is correct on eternalist grounds because all propositions contain references to times. On temporalism, however (3) expresses a temporal proposition whose truth will depend upon the *context* in which (3) is uttered. On a standard semantic theory, such as that of David Kaplan<sup>7</sup> a *context* is a set of parameters including a speaker, an addressee, a world, a time, and a location. For example the set {Eric, Jon, the actual world, 19:00 CST July 3 2006, St. Louis} is a context. There are two things we should note about contexts. 1) Contexts are not to be understood as mere 'settings' of utterances as we might be prone to think. Rather,

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<sup>7</sup> Kaplan, David. "Demonstratives." in Almog, Perry, and Wettstein *Themes from Kaplan*. Oxford: Oxford University Press, 1989, pp. 481-563.

contexts in the present sense are technical entities. They need not relate to any real world setting. 2) Not everyone agrees with Kaplan's notion of contexts. David Lewis argues that "no two contexts differ by only one feature. Shift one feature only and the result of the shift is not a context at all."<sup>8</sup> But for our purposes I will work within Kaplan's framework of contexts.

Returning to our example then, Eric says

(3) Nora is sleeping

and the temporalist wants to determine the truth-value of Eric's utterance. She proceeds by examining the utterance in light of the set of parameters given above. She sees that (3) is uttered by Eric, to Jon, at the actual world, at 19:00 CST, July 3, 2006, in St Louis. She then checks to see whether Nora was in fact sleeping at the actual world in the same temporal location. If so then this temporal proposition is true, if not then it is false. Suppose, as above, that Eric asserts (3) exactly four times in his life. On temporalism, each of Eric's assertions expresses the same temporal proposition, such that Eric would be regarded as saying

At t1... (E1) Nora is sleeping

At t2... (E2) Nora is sleeping

At t3... (E3) Nora is sleeping

At t4... (E4) Nora is sleeping

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<sup>8</sup> David Lewis (1998: 29)

On this view, the proposition (or content) expressed by sentence (3) is invariant at each instance (E1) – (E4) at which it is asserted. Furthermore, the truth-value of each proposition (E1) – (E4) could vary depending on the context in which it is asserted. Thus, temporalism can be said to consist of the view that all propositions are *content invariant* and *truth variant*.<sup>9</sup>

On temporalism, then, temporal propositions (those which contain no implicit references to times) must be evaluated using the notion of semantic contexts (which do include times). For the temporalist, context <speaker, hearer, world, time, location,> + proposition  $\Rightarrow$  truth-value.

Having said that, we should keep in mind that the temporalist does not deny that there are some eternal propositions. For such propositions, the temporalist simply shifts her context, omitting the time parameter, which is now supplied by the proposition itself. Thus temporalism is more flexible than eternalism. It allows for more than one *denomination* of proposition.

### **3. Richard's argument against temporalism**

In 'Temporalism and Eternalism' Mark Richard gives what many philosophers consider to be a decisive argument against temporalism. According to Richard the temporalist is unable to give an adequate account of belief retention.

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<sup>9</sup> See Mark Aronszajn (1996: 74) and Berit Brogaard (2006 *forthcoming*)

Richard begins by asking us to consider the following reasoning:

(MARY)

[1] Mary believed that Nixon was president

[2] Mary still believes everything she once believed

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[3] Therefore, Mary still believes that Nixon is president<sup>10</sup> As

Richard notes, ‘this argument is not a valid argument in English.’ As we use these types of sentences in English, [3] does not at all follow from [1] & [2]. Or as Nathan Salmon puts it, ‘such an inference is an insult not only to Mary but also to the logic of English as it is normally spoken.’<sup>11</sup> Thus, on pain of irrationality we ought to reject any view on which one could reasonably conclude that MARY contains a valid inference. Unfortunately for the temporalist, according to Richard, she is committed to the validity of MARY. In light of this commitment, the argument goes, temporalism ought to be rejected. The trouble here is that the conclusion shifts Mary’s true belief that Nixon is president into the present time, and at the present time, the belief is clearly false. But there seems to be no reason for it to be false. If temporalism is true, and propositions contain no implicit times, then shifting a true belief into the future by continuing to believe in it should not be. Think of the spatial analog. If I am in St. Louis and I

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<sup>10</sup> Richard (1981) p.4

<sup>11</sup> Nathan Salmon, ‘Tense and Singular Propositions,’ *Themes from Kaplan* (1989) p. 345

believe: “it is raining.” It would not make sense for me to move to the Mojave and continue to believe “it is raining.” Eternalism has a rough and ready answer for belief retention. The eternalist says that Mary believes that “Nixon is president *at t*” and thus she continues to believe only that proposition, whose truth-value is not changed by shifting the proposition into the future. This is a thumbnail sketch of the **problem of belief retention**.

According to Richard, the temporalist should assign the following truth conditions to the premises and conclusion of MARY:

(MARY<sub>T</sub>)

$$[1] \exists p \exists t (t < t^* \ \& \ p = [P_n] \ \& \ B_{mpt})$$

$$[2] \forall p (\exists t (t < t^* \ \& \ B_{mpt}) \rightarrow B_{mpt^*})$$

$$[3] \exists p (p = [P_n] \ \& \ B_{mpt^*})$$

Here  $p$  ranges over propositions, ‘<’ means ‘is earlier than’,  $t^*$  is the time of utterance,  $m$  is a constant that refers to Mary, and  $[P_n]$  is the temporal proposition that ‘Nixon is president’. On this reading of MARY, the first premise states that there is a time  $t$  such that  $t$  is earlier than the time of utterance  $t^*$ , and a proposition  $p$  such that  $p$  is *Nixon is president* and at  $t$  Mary believes that  $p$ . The second premise states that for all propositions  $p$ , if there is a time  $t$  that is earlier than the time of utterance  $t^*$  and Mary believes that  $p$ , then at the time of utterance  $t^*$  Mary believes that  $p$ . Finally, the conclusion states that there is a proposition  $p$  such that  $p$  is

*Nixon is president*, and at the time of utterance  $t^*$  Mary believes that  $p$ . On this temporalist reading, MARY is valid. So the temporalist is committed to the validity of an argument that intuitively appears invalid. I say intuitively because the following type of experiment can be done: have any non-temporalist philosopher read MARY and tell you whether they believe the conclusion is correct or not. In most cases (in my experience) they will not think the conclusion is correct. It seems to have a *prima facie* invalidity.

While the temporalist must nevertheless maintain the validity of the conclusion in MARY, the eternalist, as Richard notes, 'is not thus committed.' On eternalism, the first premise of (MARY) is read as, there is a time  $t$  such that  $t$  is earlier than the time of utterance  $t^*$ , and Mary believes at  $t$  that 'Nixon is president *at t*. Taking this reading of [1] in conjunction with the second premise (same reading as MARY<sub>T</sub>), [3] simply does not follow.

Brogaard (2006) offers a helpful, illustrative variation on MARY. Consider this reasoning:

(JOHN)

[1] Mary believes everything John has ever said.

[2] John said he was hungry

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[3] Mary believes that John is hungry

In this example, the conclusion is clearly invalid. However, on temporalism, [2]<sub>JOHN</sub> ought to be true iff there is some time *t*, such that *t* is earlier than the time of utterance *t\**, and at *t* John says he is hungry, so if Mary believes everything John has ever said it, it follows that she believes that John is hungry. On eternalism, on the other hand [2]<sub>JOHN</sub> ought to be true iff there is some time *t*, such that *t* is earlier than the time of utterance *t\** and at *t* John says he is hungry *at t*. As a result JOHN comes out clearly invalid on eternalism (because it does not follow from the fact that John says he is hungry at *t*, and the fact Mary believes what he says [that he is hungry at *t*], that she believes that John is *presently* hungry); in other words, the implicit time references postulated by eternalism render JOHN invalid.

Finally, Richard presents another variation on his argument against temporalism that we should also consider:

(IMARY)

[a] I, Mary, believed that Nixon was up to no good in the White House and I still believe that

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[b] Therefore, I, Mary, believe that Nixon is up to no good in the White House<sup>12</sup>

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<sup>12</sup> Richard, 1981 p.4

IMARY is intuitively invalid. As Richard points out, 'it would be not only uncharitable but incorrect' to infer [b] from [a]. According to Richard, however, the temporalist is committed to the validity of the inference in IMARY. Because, if temporalism is right, then [a] is true iff there is a time  $t$  such that  $t$  is earlier than the time of utterance  $t^*$  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. It follows, then, that at  $t^*$  Mary believes that Nixon is up to no good in the White House.

To put an edge on the foregoing discussion: we have seen that in each of these cases of attribution of belief retention temporalism leads us to the undesirable consequence of validating clearly invalid reasoning. According to Richard, this is ample reason to reject temporalism and accept eternalism as the correct view of unspecified temporal propositions.

Richard does consider two possible temporalist responses to his argument. The first of these would be an alternative account of belief retention on which we could not infer that Mary believes that Nixon is president from the facts that Mary believed Nixon was president and Mary retains all of her beliefs. On the second response, according to Richard, the temporalist could offer alternative truth conditions for attributions of belief. Let us suppose that the temporalist proffers an account of belief retention whereon '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'<sup>13</sup> For instance, consider

(N) Nixon is president

On the naïve view of belief retention (i.e. the pre-philosophical view) if Mary comes to believe that (N) at time  $t_1$ , then Mary retains her belief that (N) at  $t_2$  just in case she believes the same proposition (N) at both  $t_1$  and  $t_2$ . On the alternative view, Richard suggests, we might suppose there is a another proposition

(N<sub>2</sub>) Nixon was president

Which is related to (N) such that (N<sub>2</sub>) obtains iff (N) obtains. The temporalist might plausibly argue that when we say Mary retains her belief that (N), we really mean that Mary now believes (N<sub>2</sub>). This maneuver blocks Richard's argument because if Mary comes to believe (N<sub>2</sub>) she need not continue to believe (N) so the conclusion of MARY is no longer valid.

Richard objects to this move. Suppose that sometime in 2004 Mary has a belief that can be expressed by

(C) The Saint Louis Cardinals will win the pennant in 2004

Suppose that the Cardinals perform badly in the last few weeks of the season and Mary appropriately repudiates her previous belief that (C). We would not want to say, at the end of the season, that Mary has retained her

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<sup>13</sup> Richard, 1981 p.6

belief that (C). However, it could be the case that in 2003 Mary had a belief which was correctly expressed by (C). In this case, she could retain the (true) belief that (C) while giving up the (false) belief she expressed by (C) in 2004. However this does not work on the above account. For if the temporalist is right, then (C) expressed precisely the same proposition in 2003 as it did in 2004. In which case, Mary believes  $C_{2003}$  iff she believes  $C_{2004}$ . In other words Mary only retains her belief from 2003, iff she retains her belief from 2004, since they are they same belief. To clarify, we do want Mary's retained belief from before the 2004 season to be the same as Mary's belief during the 2004 season. They are clearly different beliefs. But on the theory on offer they are treated the same.

The second account of retention that Richard suggests for the temporalist is what I will call *quasi-eternalism* or qETERNALISM. On qETERNALISM if Mary believes at time  $t_1$  that (N) 'Nixon is president' is true, then she retains her belief at a later time  $t_2$  iff she believes 'Nixon is president at  $t_1$ ' at  $t_2$ . qETERNALISM clearly avoids Richard's argument, but at a steep cost. First, it violates our intuitive notion that belief retention consists of a relation to one and only one object. In other words, when we conceive of ourselves as retaining a belief we usually see as ourselves as maintaining a relation to a particular object of belief. Thus if Nora retains her friendship with Jon, she does not do so by being a friend of Jon's at a time  $t_1$  and then being a friend of Eric's at a later time  $t_2$ . Second,

qETERNALISM fails to tell us what it means to 'retain' a belief as opposed to simply believing two unrelated propositions at two different times (which seems to be the case on this view). Third, qETERNALISM fails according to Richard, because it is entirely *ad hoc*. As he puts it:

To explain the *retention* of belief, the temporalist appeals exclusively to eternal propositions. Why explain only belief *retention* by appeal to eternal propositions?; Why not simply say that whenever one has a belief, the object of one's belief is eternal? If my retaining my belief, expressible yesterday by 'Nixon is president', consists in my believing that Nixon was president yesterday, why, one may reasonably wonder, isn't the belief I expressed yesterday using 'Nixon is president' the belief that *then* (yesterday) Nixon was president.<sup>14</sup> The qETERNALIST, then, treats the objects of all *retained* beliefs as eternal propositions. It is a short step from this to full blown eternalism. And the qETERNALIST offers us no reason to refrain from going this further step.

#### **4. Temporalist responses to Richard**

Richard's argument against temporalism has provoked quite a lively discussion on the subject. Before offering my own reply to Richard, it will be helpful to briefly sketch a few temporalist replies.

Recall from the last section the following argument:

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<sup>14</sup> Ibid, p. 9

(MARY)

[1] Mary believed that Nixon was president

[2] Mary still believes everything she once believed

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[3] Therefore, Mary still believes that Nixon is president MARY and similar arguments cause a problem for the temporalist because the temporalist takes Mary as believing the temporally unspecified proposition that 'Nixon is president' and if she retains this belief as [2] indicates then she must retain the belief that 'Nixon is president' which of course does not at all follow.

Mark Aronszajn<sup>15</sup> suggests that temporalists should concede that there is a reading of MARY on which the argument comes out valid. And it is one of the more natural readings. Nevertheless, the terms of the premises contain ambiguities and as a result admit of more than one plausible reading. Aronszajn then suggests that on some of these alternate readings MARY *correctly* comes out invalid, even on temporalism. He argues, The fact is that sentence [1] is ambiguous, and the quantifier in sentence [2] admits an indexical treatment. These points raise the possibility that there is one inference – expressed on one interpretation, in contexts of one particular sort – which is the one we find intuitively invalid, and that there is some *other* inference – expressed on some other

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<sup>15</sup> Aronszajn 1996, p. 75

interpretation, in contexts of some other sort – which temporalists are committed to saying *is* valid. If that were the case, there wouldn't be (at least from *that* fact alone) any argument against temporalism.<sup>16</sup>

Sentence [1] is ambiguous, says Aronszajn, insofar as it can be read as saying both that (i) there is some time *t* such that *t* is in the past and it was the case that at *t* Mary believed 'Nixon is president' was true, and that (ii) there is some time *t* such that *t* is in the past and it was the case that at *t* Mary believed 'Nixon was president.' On the first reading the past tense of the embedded verb (was) in [1] is vacuous, and on the second the past tense of the embedded verb is anaphoric on the past tense of the attitude verb (believed). According to Aronszajn, if [1] is read as meaning that Mary believed at *t* that at some time prior to *t* Nixon was president, then MARY is invalid—even if temporalism is true. While [1] is more naturally given a reading according to which what Mary believed was that Nixon is president, Aronszajn thinks it is possible that we find MARY invalid because we tend to conflate the two readings

[2] also admits multiple readings insofar as it contains the quantifying phrase '*everything* she ever believed.' This phrase can be read in at least two ways. On the first reading 'everything' quantifies over an unrestricted domain, as in 'everything exists.' On the second reading 'everything' quantifies a restricted domain, as in 'as soon as everyone is

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<sup>16</sup> Ibid, p. 75

here, we'll start the meeting.' Clearly in cases like the latter we do not assume the domain of the quantifier is unrestricted. We do not usually wait for the Pope to arrive before proceeding with the meeting. Aronszajn think it likely that in most cases we would read the quantifier as restricted. In this case, he suggests, it could be restricted to only eternal propositions. But, if the domain of the quantifier 'everything' is restricted to just eternal propositions, then MARY comes out invalid on both eternalism and temporalism (it bears mentioning, as we said above, that the temporalist has *both* eternal and temporal propositions available in his ontology).

Aronszajn also offers a reply to IMARY. Remember that that argument went:

(IMARY)

[a] I, Mary, believed that Nixon was up to no good in the White House and I still believe that

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[b] Therefore, I, Mary, believe that Nixon is up to no good in the White House

The difficulty in IMARY is that the conjunct in the premise seems to say: I, Mary, still believe whatever I believed earlier. But on temporalism the proposition Mary believed earlier was the temporally unspecified proposition 'Nixon is up to no good in the White House'. Thus if Mary still believes whatever she believed then she believes that 'Nixon is up to

no good in the White House.’ But this does not seem to follow intuitively from the premise.

Aronszajn replies that the premise of the argument is ambiguous because there is more than one way to read the demonstrative ‘that’ at the end of the premise. On one reading ‘that’ just is a demonstrative which points to the belief of the earlier occasion. In this case, ‘I still believe that’ comes out to ‘I, Mary, still believe that Nixon is up to no good in the White House’. On this reading of ‘that’ the inference in IMARY comes out valid. So the temporalist is committed to the validity of IMARY. On an alternative reading however, ‘that’ is understood as a ‘pronoun of laziness,’ a term which stands in for a noun or phrase which proceeds it. For instance in the expression:

(S) Superman lifted the mountain. This was very taxing.

In (S) ‘this’ is a pronoun of laziness standing in for ‘Superman lifted the mountain’. Aronszajn argues that if ‘that’ in IMARY is a pronoun of laziness like ‘this’, then ‘I, Mary still believe that’ should be read as elliptical, standing for ‘I Mary still believe that Nixon *was* up to no good in the White House.’ From this it certainly does not follow that Mary believes that Nixon *is* up to no good in the White House. Therefore on this alternative reading (which seems equally as plausible as the first) IMARY comes out invalid, and there is no harm here for the temporalist.

Aronszajn suggests that when we are presented with arguments like IMARY, since the argument admits more than one plausible reading, we ought to be guided by the following pragmatic rule: (PR) If a belief ascription is ambiguous, pick an interpretation that is charitable regarding which belief it ascribes, given prevailing conceptions of normalcy in beliefs, and any other relevant information supplied either by the context or in the larger discourse in which the belief ascription occurs.<sup>17</sup> In IMARY the premise entails the conclusion on one reading, but we are reluctant to attribute to Mary the belief that ‘Nixon is up to no good in the White House’ because this seemingly insults her intelligence. As Aronszajn puts it: [T]he semantics for [‘Mary believed that Nixon was up to no good in the White House’] entails that Mary believed the non-eternal proposition that [Nixon] is up to no good in the White House, and ... in some contexts we could accept that this *is* the proposition [‘she still believes that’] says Mary believes. However, in the present context we hesitate to accept this. It would be quite abnormal today for someone to believe that [Nixon] is up to anything in the White House. So at present, we find inference [IMARY] questionable because we now find it uncharitable to attribute such a belief to Mary. [PR] requires that we seek another, more charitable interpretation of the first line of [IMARY]. And there is one: the lazy interpretation mentioned above. ... But then we are

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<sup>17</sup> Ibid, p. 88

taking the sentence to express a proposition ... from which the conclusion of [IMARY] does not follow. Hence we find the inference unacceptable.<sup>18</sup>

The reason IMARY seems to be invalid is that we choose the lazy reading of the second conjunct for charitable reasons. In other words we take Mary as believing that 'Nixon *was* up to no good in the White House'. But in other contexts we could equally as plausibly take the proposition Mary believed on the earlier occasion to be the proposition that 'Nixon *is* up to no good in the White House.'

Aronszajn ends his defense of temporalism by presenting the following problem for eternalism, consider the argument:

(1992)

[c] In 1990, Mary believed that Bush was up to no good in the White House.

[d] In 1992, Mary still believed everything she believed back in 1990.

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[e] Hence, in 1992, Mary believed that Bush was up to no good in the White House.

The inference in 1992 seems to be valid. However if eternalism is right, then the inference cannot be valid. For, in that case, the first premise is true iff in 1990 Mary believes that Bush is up to no good in the White

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<sup>18</sup> Ibid, p. 89

House in 1990. And the second premise is true iff for any proposition p, if Mary believes p in 1990, then she believes p in 1992. And finally the conclusion is true iff in 1992 Mary believes that Bush is up to no good in the White House in 1992. Eternalism, says Aronszajn, fails to get the right truth conditions for 1992. On eternalism the conclusion of 1992 ought to be read as ‘in 1992 Mary believes that Bush is up to no good in the White House in 1992,’ which clearly does not follow from [c] and [d]. Problem. Thus the tables are turned on the eternalist and the temporalist can formulate a Richardian argument against eternalism, that is, that we ought to reject eternalism given its commitment to the invalidity of an intuitively valid argument.

In response to Aronszajn, G.W. Fitch<sup>19</sup> argues that, contrary to appearances, eternalism does make the right inferences in cases like 1992. In other words he thinks that 1992 is invalid, as he says it seems to me that the natural reading of [c] is that in 1990 Mary believed that Bush was up to no good in the White House in 1990; the natural reading of [d] is that by 1992 Mary had not changed her beliefs with respect to what she believed in 1990 – in particular, in 1992 Mary still believed that Bush had been up to no good in the White House in 1990; and finally, the natural reading of [e] follows that of [c], namely that in 1992 Mary believed that Bush was up to no good in the White House in 1992. Given these readings of [c], [d]

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<sup>19</sup> ‘Temporalism Revisited’ *Philosophical Studies* (1998) pp. 251-256/

and [e], it is easy to see that the inference fails, since nothing in the premises assures us that Mary believed that Bush was up to no good in 1992.<sup>20</sup> According to Fitch, our pre-theoretical intuitions cannot be used to settle the validity or invalidity of 1992, as Aronszajn supposes. Since it is possible to provide eternalist truth conditions for 1992, and temporalist truth conditions for the same, Fitch thinks it is self-serving for either side to claim that the pre-theoretical intuitions of ordinary language users favors *their* truth conditions, or *their* interpretation, over the other. *Pace* Fitch, I think it is a matter for empirical investigation which truth conditions are favored by the pre-theoretical intuitions of language users. It is not self serving for Aronszajn to claim that these intuitions favor his position. It may turn out to be empirically incorrect. But if it is correct, then Aronszajn has made a very strong case.

Moreover, Fitch offers the following case of dialogue as support for eternalism: (ARIZONA)

(Eric and Jon are on the phone on July 1)

Eric: Where are you? Jon: I am in Arizona

(Eric and Jon are at an APA meeting in New York on August 1)

Eric: Did you believe what you said on July 1?

Jon: Yes, and I still believe it.

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<sup>20</sup> Ibid, pp. 251-252

The problem here is that, on eternalism, the belief that Jon is ascribing to himself in August is the temporally unspecified belief 'I am in Arizona.' But, barring schizophrenia on Jon's part, this is clearly not how we should take Jon's response in this case. What Jon intends to say is that on July 1 he was in Arizona, and at present he still believes that *on July 1* he was in Arizona. Perhaps, some might think, the 'it' in 'I still believe it' is a 'pronoun of laziness' and proxy for some other more felicitous proposition. Unfortunately this route is blocked, because if 'it' goes proxy at all, it is for the temporally unspecified proposition 'I am in Arizona' which is precisely the result we are taking pains to avoid. So it seems like cases such as ARIZONA pose further problems for the temporalist.

In her forthcoming work, Berit Brogaard argues for another version of temporalism which, she thinks, avoids both Richards arguments and the difficulties Fitch presents for accounts like Aronszajn's. According to Brogaard, and here I concur, Aronszajn's pragmatic account of the seeming invalidity of MARY and JOHN is considerably weaker than his pragmatic account of the seeming invalidity of IMARY. Brogaard thinks we must look elsewhere for a resolution of MARY and JOHN.

Returning to Richard's arguments on behalf of the temporalist, Brogaard notes that on both of the strategies Richard suggests 'to retain a belief is *not* to continue to believe the same proposition. Rather, it is to believe a proposition related in some special way to the proposition

originally believed.’ On the one strategy what one continues to believe when one retains a belief in a proposition is simply that proposition + a past tense operator, such that one’s belief that ‘Nixon is president’ when retained becomes the belief that ‘Nixon was president’ where ‘was’ is *not* vacuous, but indicates a tense. On the other strategy what one continues to believe is some temporally specified (i.e. eternal) proposition such that one’s belief that Nixon is president’ at  $t_1$  becomes the belief that ‘Nixon was president at  $t_1$ .’ Both strategies fail, per Richard, because they fail to specify what belief retention consists of if not ‘maintaining a relation (belief) to a particular object (presumably) a proposition.’

Brogaard argues<sup>21</sup> that while the second strategy is *ad hoc*, as Richard claims, the first strategy is simply insufficiently developed. As it stands, the first strategy leaves retained beliefs too unspecific. To correct this, Brogaard proposes that, primarily, to retain a belief is to maintain a belief relation to one and the same object over time. But one can also retain a belief secondarily by maintaining a belief relation to an object that is appropriately related to the original object. When one continues to believe that Nixon is president for four years, one maintains a belief relation to a particular object over time, namely the temporal proposition that Nixon is president. If Nixon is then impeached, one ceases believing that Nixon is president and forms a new belief, in this case, that Nixon was

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<sup>21</sup> Forthcoming, p. 36

president but isn't anymore. Thus, when one continues to believe that p, one's original belief that p is retained. But even when one continues to believe that Pp (where the semantic value of P is a tense operator such as 'it was the case that') one's original belief is essentially retained. On this view of belief retention

Some will argue, Brogaard continues, that the paraphrase of the second premise of MARY which her account of belief retention provides, namely, that Mary continues to believe that 'it was the case that Nixon is president,' is *too* liberal. On this charge there is no reason to think that that is what is meant by 'Mary still believes everything she once believed.' Brogaard has a response to this: we should employ something like Aronszajn's rule (PR). In other words, strictly speaking, MARY comes out *valid*, but because when tend to think of belief retention in the terms Richard suggests (as a relation to only one object) we tend to offer a non-literal interpretation of the second premise on which MARY comes out *invalid*.

This strategy also works, according to Brogaard, for cases like (ARIZONA)

(Eric and Jon are on the phone on July 1)

Eric: Where are you? Jon: I am in Arizona

(Eric and Jon are at an APA meeting in New York on January 1)

Eric: Did you believe what you said on July 1?

Jon: Yes, and I still believe it.

In such cases, the belief that Jon retains on August 1 is not the temporally unspecific proposition 'I am in Arizona' but rather a related belief incorporating the appropriate tense operator, for instance: 'I was in Arizona.' As Brogaard points out, there is still issue of belief retention's being a one-at-time relation to resolve. Her response is two-pronged. First she admits that on temporalism some beliefs are retained by continuing to believe a single (eternal) proposition over time, as in 'I believe John Kennedy was assassinated at 12:30 CST November 22, 1963.' Second, temporalism leaves open the possibility that we can also retain our belief in unspecified temporal propositions such as 'Nixon is president,' by maintaining a belief relation to an appropriately related belief such as 'Nixon was president.' Eternalists are unable to allow this second strain of belief retention. On eternalism, to continue to believe that 'Nixon is president' is to have potentially infinitely many atomic beliefs, as we saw in the introduction (above)

At  $t_1$ ... (E1) Nixon is president *at  $t_1$*

At  $t_2$ ... (E2) Nixon is president *at  $t_2$*

At  $t_3$ ... (E3) Nixon is president *at  $t_3$*

At  $t_4$ ... (E4) Nixon is president *at  $t_4$*

On an atomic conception of time, retaining the belief ‘Nixon is president’ means believing it at every atomic instant of time. Brogaard takes this account of retention as problematic for the eternalist.

Brogaard also considers an argument against temporalism from Evans (1985: 349-50) which turns on the ‘Incompleteness Hypothesis’

*Incompleteness Hypothesis*

A tensed sentence that does not make explicit or implicit reference to a time is not truth evaluable

this hypothesis traces back to the argument made by Frege about sentences such as “the tree is green”. The argument from incompleteness runs as follows. It is a necessary truth about instantiated properties that they must be instantiated at some particular time. Borrowing Brogaard’s example: if John is a firefighter, then he must be a firefighter *at some time*. Thus, no complete proposition can be expressed by ‘John is a firefighter’ until some time is appended to the sentence. Brogaard points out that there is an analogy between “John is a firefighter” and other sentences like “Jane is ready.” The latter does not express a complete proposition until some act is supplied. It cannot be evaluated for truth until we are told what Jane is supposed to be ready for. Brogaard argues that the reasoning

behind arguments from the Incompleteness is 'highly suspect'. Following Cappelen and Lepore<sup>22</sup> (*forthcoming*) that

“[F]rom the fact that a given event or state-of-affairs requires for its existence a particular property, it does not follow that the property is a constituent of a proposition concerning it. For example, from the fact that a driving occurs at a certain speed, we should not want to conclude that the proposition expressed by ‘John drove to Chicago last night’ contains a certain speed. And from the fact that a typewriting occurs at a certain pace, we should not want to conclude that the proposition expressed by ‘Nora is typing a letter’ contains a particular pace. Likewise, from the fact that John cannot instantiate the property of being a firefighter without instantiating it at some time, we should not want to conclude that there is a time in the proposition expressed by ‘John is a firefighter’.”<sup>23</sup>

However, I think the reasoning behind the argument from the Incompleteness Hypothesis may be stronger than Brogaard supposes. In particular, I think that the analogy between the cases of velocity and pacing *and temporality* does not go through. It is true that the proposition

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<sup>22</sup> Cappelen and Lepore’s argument refuted the contention that propositions such as ‘it is raining’ contain specific references to locations. Brogaard applies their reasoning *mutatis mutandis* to question of implicit times.

<sup>23</sup> Brogaard, Berit *Forthcoming* p. 22

'John drove home' need not contain velocity, and that the proposition Nora is typing need not contain a particular pace. But it does not follow from this that 'John is a firefighter' need not contain some particular time (or times). I contend that 'being x' is a special class of property that requires a specific time indication to be evaluated for truth whenever it is instantiated. In Brogaard's cases John is not *being* driving home, nor is Nora *being* typing a letter, but John is *being a firefighter*, and as such the proposition 'John is a firefighter' must contain a time. As I see it, the difference between the former and latter cases is that there is no intrinsic velocity to the act of driving and no intrinsic pace to the act of typing, but there is intrinsic temporality to being. If a thing exists, it must have (at least instantaneous) temporal extension. So, I think, Brogaard's counterexamples can be resolved.

To sum up then, Aronszajn suggests that Richard's argument from belief retention hangs on ambiguous examples, whose conclusions can, he admits, be read as problematic for temporalism. Yet on other plausible readings they come out invalid even for temporalism. He then suggests that when faced with such examples we err on the side of charity, offering the reading which least insults the intelligence of the subject in the question. He then offers a counter argument, 1992, which he thinks shows a shortcoming in eternalism. Fitch responds to Aronszajn's counter arguments by saying that he errs in allowing his pre-theoretical intuitions

to guide his view of the plausibility of alternate readings of MARY and IMARY. He then offers his own counter-argument to Aronszajn, the Arizona case. Into this discussion, Brogaard adds that Richard has dismissed too quickly the possibility that belief retention could be stated in terms of a relation to an adequately related propositions. Instead of always being a relation to one and the same belief over time. She then goes on to propose something like Aronszajn's pragmatic rule: in this case when the one-at-time view of retention makes a reading come out clearly invalid, we should charitably suppose that the second sort of retention (retention of an adequately related belief) is entailed. Finally she raises the argument from the Incompleteness Hypothesis, and suggests that Cappelen and Lepore's strategy for answering similar cases regarding spatial locations can be applied in the temporal case to overcome this objection.

## **6. My Solution**

That is the more or less where the debate stands at the moment. I now turn to my own reply to Richard. My response to Richard's argument begins by unpacking a particular theory about propositions. Propositions are, as I said at the outset, generally understood as the (abstract) shareable objects of belief, meanings of sentences, and vehicles of truth-values. We have already seen that temporalists add minimally to this definition. In particular they add that some propositions are eternal (containing implicit

time-references) and others are temporal (temporally unspecified). (It bears noting that this addition is not nominal—it postulates a genuine difference between eternal and temporal propositions—the temporalists are making an ontological claim). I now wish to add even more to that definition. Thus, I suggest that the eternalist should take the following view of propositions. I agree with Frege, and Richard, that all propositions are eternal propositions. However, I am quite sympathetic to the temporalist intuition that not all propositions *seem* temporally specified. Certainly from a pretheoretical standpoint, it seems like we often express temporally unspecified propositions. One way to bridge the competing views, is to offer an eternalist account which posits temporally unspecified propositions.

My own view, which I will call *durationalism*, attempts to provide an eternalist framework for temporal propositions. Traditional eternalism is a single-denomination view of propositions. This brand of eternalism takes all propositions to be eternal (temporally specified) propositions, and chalks up any seemingly unspecified propositions to loose talk, or incomplete expressions. Traditional temporalism is a multiple-denomination view. Temporalism says there are both eternal *and* temporal propositions.

On the view I am suggesting we should depart from the traditional single-denomination eternalist accounts, which hold that there are no

temporal propositions at all, and opt instead for a multiple- denomination account, which attempts to account for temporal propositions eternalistically. On the view I am offering, a temporal proposition will not contain a time, but rather a set of times at which properties are distributed across *temporal* objects. On this view, which I call ‘durationalism’ it is not the temporal proposition *per se* that contains a time, rather it is the metaphysical constituents of the proposition (the objects and their properties), which are temporal, so that while the temporalist is correct to say the proposition itself contains no reference to a time, the presence of temporally located objects and properties in the proposition imports a time or times (i.e., a duration) to the expression of the proposition.

Fregean incompleteness arguments attempt to eliminate temporal propositions by arguing that they are simply cases of incomplete expression of standard eternal propositions. So that:

(3) Nora is sleeping

is simply an incomplete expression of some eternal proposition like

(3') Nora is sleeping at t

where t is a time indexical (e.g. 4:30 am CST July 4, 2006). My goal is to incorporate temporal propositions into eternalism *without* necessarily appending a time indexical to them. I do so by arguing that we treat the object of (3) (Nora) with metaphysical seriousness; that is we treat Nora as a concretely existing object of an abstract proposition. As a concrete

object, Nora exists at a time. My argument for this is a temporalized version of Kant's argument for pure space. In other words for any object we can imagine we cannot separate that object from its temporal location any more than we can separate it from its spatial location. We cannot imagine an apple, for example, without imagining the (apple-shaped) space the apple occupies. Likewise we cannot imagine Nora separately from the (Nora shaped)<sup>24</sup> time she occupies.

Now someone might object that even if we cannot imagine Nora existing separate from time simpliciter, we can nevertheless imagine Nora existing separately from any *particular* time. This presents a problem for my view. I am arguing that all propositions about Nora refer to a Nora shaped time, but it seems like that is not enough to fix the temporal reference that my theory needs. It might be the case that there are many possibly Nora shaped times which are unrelated to each other (e.g. as in the case of Nora time- travelling). I have argued that "Nora" picks out a concrete object and in so doing imports the time(s) at which that object exists into the proposition. If there is no specific time(s) the concrete object picks out, then there is no information imparted, and thus the proposition is simply incomplete (as in standard eternalism). Both

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<sup>24</sup> The idea of a Nora shaped time will be natural to eternalists of a different stripe, namely "worm theory" four dimensionalists such as Balashov. While I do not intend to endorse any particular temporal theory here, I admit that durationalism will comport better with "worm" perdurantism than "stage" perdurantism and may be incommensurate with endurantism.

eternalists and temporalists will agree that in order for (3) to be truth evaluable, “Nora” needs to pick out an object (and in this case a concrete object). If it does not then (3) expresses no proposition at all. On the other hand if “Nora” does pick out a concrete object then that object will have a fixed temporal location, defined as either a single temporal coordinate—for instantaneous objects (if there are such)— or a series of contiguous temporal coordinates for objects of a particular *duration*. It is my contention that all propositions contain at least a duration of times, if not a precise temporal coordinate.

In claiming this, I essentially argue that temporalism is wrong about the nature of temporal propositions (specifically insomuch as it says they do not contain implicit times). However, I also argue that traditional eternalism (as exemplified by Frege and Richard) is imprecise. It is not the case that every proposition must contain a particular time. I contend that some propositions contain a time, while others contain a duration (or a group or set of contiguous times).

My view is therefore in opposition to both temporalism and traditional eternalism, though it could be viewed as eternalism of another stripe.

To clarify a bit, I propose that standard eternal propositions (of the form:  $x$  is  $y$  at  $t$ ) should be regarded as attributing properties to their objects atomically, while temporal propositions should be regarded as

attributing properties to their objects *durationally*. For example when I say ‘John Kennedy is president at 12:34 CST June 5, 1962’ the property (is president) is distributed to the object of this proposition (John Kennedy) atomically (*at 12:34 CST June 5 1962.*) However, when I say ‘John Kennedy is president,’ the property (is president) is distributed to the object of the proposition (John Kennedy) durationally. The upshot to this view is that durational properties do not have to be distributed uniformly across their object in order for the object to possess that property. For instance, if I put one end of a poker in the fireplace, the poker will get glowing hot at one end, but be cool enough for me to pick up at the other end. And even so we will refer to the poker as a ‘hot poker.’ Another example, suppose if I say to my friend ‘this apple is very red’ It would be wrong, most would agree, to infer from this that the property ‘is red’ is uniformly distributed throughout the apple. After all if I bite into the apple I will find that most of the interior is white and some of the seeds are black. Likewise in the proposition:

(N) Nixon is president

the property ‘is president’ is distributed durationally over the object Nixon. Thus it will not always be the case that (N) comes out true. At some times Nixon will be president and at others Nixon will not be president, just as in some places the apple will be red or the poker will be hot but not in every place.

Let us now return to Richard's first problem case:

(MARY)

[1] Mary believed that Nixon was president

[2] Mary still believes everything she once believed

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[3] Therefore, Mary still believes that Nixon is president

In the case of MARY, the durationalist has a reply. On durationalism MARY comes out valid iff the property 'is president' is uniformly distributed over Nixon at all times at which Nixon exists. If it is not so distributed, then MARY comes out invalid. Because there will be times at which Nixon is president and other times at which he is not president. It would be an insult to Mary, and to anyone who understands the meaning of 'Nixon' or 'is president' to suppose that they would take 'is president' to apply uniformly to the object 'Nixon'. After all, presidents serve limited terms. So it will not always be the case that Nixon is president is true. It will be true at some times, but false at others, just as it will be true in some places that the apple is red while it will be false at others.

Notice, however, that the durationalist does not need the embedded proposition 'Nixon was president' to contain a particular time in order to

determine that the conclusion in MARY is invalid. The determination simply follows from conjunction of the nature of the object of the proposition and the nature of property distributed by the proposition. In this case, on durationalism, there will not be enough information in [1] and [2] to elicit the conclusion [3]. Consider the similar case

(PMARY)

[1] Mary believed that the poker was hot

[2] Mary still believes everything she once believed

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[3] Therefore, Mary still believes that poker is hot

the conclusion of PMARY does not follow because the property 'is hot' is not necessarily uniformly distributed across the object of the proposition.

At some times the poker will be hot, at other times it will not be.

As for Richard's second case

(IMARY)

[a] I, Mary, believed that Nixon was up to no good in the White House and I still believe that

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[b] Therefore, I, Mary, believe that Nixon is up to no good in the White House

here the durationalist has an equally simple reply. On durationalism, IMARY comes out valid iff the property (is up to no good in the White House) being ascribed to the object (Nixon) is uniformly distributed. Certainly no one would think that this is the case. Nixon could not, for instance, have been up to no good in the White House while he slept, or when he was 12 years old, etc. Since the property is not uniformly distributed, IMARY cannot possibly come out valid. Thus durationalism avoids this problem as well.

Richard raised another concern, though, that temporalism required us either to commit to qETERNALISM, or else to argue that belief retention could plausibly be seen as maintaining a relation not to one belief at a time, but to a belief which is adequately related to the original belief (as was Brogaard's strategy). Durationalism avoids qETERNALISM insofar as the durationalist argues that when one retains her belief in a temporal proposition no time-reference is thereby supplemented. Durationalism also differs somewhat from the Richard/Brogaard position (which I will call *standard relationalism*), though it can be seen as another form of relationalism.

Recall that Brogaard thinks that when we retain our belief that 'Nixon is president' it is plausible that we do so by maintaining a belief relation not to this one proposition, but to another adequately related proposition such as 'Nixon was president.' On the durationalist view,

when we retain our belief that ‘Nixon is president’ we do so by maintaining a belief relation not to this same proposition but another proposition such as ‘Nixon was once president’ or ‘Nixon was sometime president.’

Finally, consider Fitch’s case:

(ARIZONA)

(Eric and Jon are on the phone on July 1)

Eric: Where are you? Jon: I am in Arizona

(Eric and Jon are at an APA meeting in New York on January 1)

Eric: Did you believe what you said on July 1?

Jon: Yes, and I still believe it.

How does durationalism reply to this case? Clearly, the property ‘in Arizona’ is not intended to be distributed uniformly across Jon. Suppose someone calls me while I am in the tub, and I tell them I am in the tub. Clearly I do not mean that all of me is in the tub, some of me is clearly above the tub and outside the tub. Likewise here, the property (in Arizona) of the temporal proposition (I am in Arizona) is true of the object only at certain times. On durationalism, ‘I am in Arizona’ it is retained will come out as ‘I am sometimes in Arizona’ or ‘I was once in Arizona.’ So the durationalist avoids the Fitch’s problem as well.

I think the durationalist view has some intuitive appeal. It seems right to me that property attributions often generalize over objects. In

loose talk, we frequently attribute properties uniformly where we do not really mean to. Since temporal propositions make no specific references to times, it seems intuitively right that when we employ them, we do not intend the attributions they make to be applied uniformly at all times at which the object exists. Furthermore, on the durationalist view we get the right results to Richard and Fitch's problem cases.

So I propose that the eternalist adopt this, or a suitably related, multiple-denomination view of propositions. Some propositions will contain explicit or implicit time references, others will refer durationally (i.e., they will not directly refer to a time at all, but rather to a set of times (i.e. a duration) at which properties which are distributed across temporal objects) insofar as they contain constituent objects which are intrinsically temporal.