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Anti-Metaphysicalism, Necessity, and Temporal Ontology[1]

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This paper argues for a certain kind of anti-metaphysicalism about the temporal ontology debate, i.e., the debate between presentists and eternalists over the existence of past and future objects. Three different kinds of anti-metaphysicalism are defined—namely, non-factualism, physical-empiricism, and trivialism. The paper argues for the disjunction of these three views. It is then argued that trivialism is false, so that either non-factualism or physical-empiricism is true. Finally, the paper ends with a discussion of whether we should endorse non-factualism or physical-empiricism. An initial reason is provided for thinking that non-factualism might be true, but in the end, the paper leaves this question open. The paper also argues against a certain kind of necessitarianism about the temporal ontology debate; but this isn't an extra job—the falsity of this necessitarian view falls out of the other arguments as a sort of corollary.

1. Introduction

I will do three things in this paper. My main goal is to argue for a certain sort of anti-metaphysicalism about the temporal-ontology debate, i.e., the debate between presentists and eternalists over the existence of past and future objects. There are numerous views of this debate that might reasonably be called anti-metaphysical. Here are three of them:

> *Non-factualism*: There's no fact of the matter whether past and future objects exist—i.e., whether presentism or eternalism (or growing block theory) is true.

> *Physical-Empiricism*: There's a fact of the matter as to whether past and future objects exist, but it's a perfectly ordinary physical-empirical fact; e.g., it's of the same kind as the fact that there are tigers and the fact that there are no 400-story buildings. Thus, it's not a "metaphysical" fact in any interesting sense of the term (if 'metaphysical' just means *about the world*, then it is indeed a metaphysical fact, but then so is the fact that there are no such things as 400-story buildings). Moreover, given that the temporal-ontology question is an ordinary physical-empirical question—along the lines of, say, 'Are there any planets orbiting Alpha Centauri?'—it cannot be settled by a priori philosophical arguments. It can only be settled empirically. (We might not be able to settle the question at all, but if it can be settled, then it can be settled only empirically.)

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> *Trivialism*: There's a fact of the matter as to whether past and future objects exist, but it's an utterly trivial fact—along the lines of the fact that all bachelors are unmarried, or the fact that there are no married bachelors.

In this paper, I will argue for the disjunction of these three views.

(Scholarly aside: I don't know of anyone who has endorsed non-factualism, but I have endorsed views of this kind in connection with other metaphysical debates (e.g., I argue for a non-factualist view of the abstract-object debate in my (1998), and I argue for a non-factualist view of the composition debate in my (MSa)). I also don't know of anyone who has endorsed trivialism, but Hestevold and Carter discuss a view of this kind in their (2002); also, trivialist views have been endorsed in connection with other metaphysical debates by, e.g., Carnap (1950), Putnam (1994), Hirsch (2002), and Thomasson (2007). Finally, while I don't know of anyone who has come out and endorsed physical-empiricism, I suspect that certain eternalists would find it attractive. In particular, I think Quine (1950) and Putnam (1967) would probably endorse something like this view, and I wouldn't be surprised if Sider (2001) would as well, especially given his extreme deflationism about modality (2011).)

The second thing I'll do in this paper is discuss which of the above three views we should endorse. In particular, I'll quickly argue against trivialism, and I'll say a few words about whether we should endorse non-factualism or physical-empiricism. I will indicate what this question turns on, and I will offer an initial reason for thinking that non-factualism might be true, but I won't try to settle the matter in this paper.

Finally, my third aim in this paper is to argue against a certain kind of necessitarianism about the temporal-ontology debate. But this won't be an extra job because the falsity of necessitarianism will follow from my other arguments.

In section 2, I'll take care of some preliminaries (I'll characterize presentism and eternalism, define necessitarian and contingentist versions of these views, and say a bit more about trivialism). In sections 3-5, I'll argue for my disjunctive version of anti-metaphysicalism. Finally, in section 6, I'll argue very quickly against trivialism, and I'll discuss the question of whether we should adopt non-factualism or physical-empiricism.

2. Preliminaries

2.1. Presentism and Eternalism

Presentism (or at any rate, *classical* presentism—for a relativistic version of the view, see my (MSb)) is the view that only present objects exist (see, e.g., Prior (1970), Hinchliff (1996), Zimmerman (1998), and Markosian (2004)). Past objects *used to* exist on this view, and future objects *will* exist, but since they don't exist right now, we can say that they don't *exist* (full stop). *Eternalism*, on the other hand, is the view that past, present, and future objects all fully exist (see, e.g., Quine (1950), Smart (1963), Lewis (1986), Heller (1984), and Sider (2001)). Past and future objects don't exist *at the present time*, on this view, but despite this, they still *exist* (tenselessly). To make sense of this view, it's helpful to note that according to eternalists, time is "like space", so that physical reality is a 4-dimensional spatiotemporal block, and temporally distant objects like dinosaurs are analogous to spatially distant objects like Mars. We're all inclined to say that while Mars doesn't exist at my current location, it still fully exists. It just exists *over there*. Likewise, according to eternalists, while dinosaurs don't exist at my current spatiotemporal location, they still fully exist. They

just exist in a different region of the 4-dimensional spatiotemporal manifold; or as eternalists might put it, they exist *back then*. Presentists, on the other hand, would deny that physical reality is temporally extended; they think that reality is 3-dimensional, not 4-dimensional.

There is a third view that one might endorse here, namely, *growing block theory*, which holds that past and present objects exist but future ones don't. I think this view is untenable, and to make things easy, I'll assume that it's false. It's important to note, however, that I don't need this assumption at all. I could easily rephrase my arguments so they didn't rely on this assumption by simply replacing the word 'eternalism' throughout the paper with the word 'anti-presentism' and replacing all talk of past and future objects with talk of non-present objects. Other than that, my arguments could remain unaltered. But, again, to make things easy, I'll assume that growing block theory is false and eternalism is the only viable version of anti-presentism.

2.2. Necessitarianism and Contingentism

Let *factualism* (about the temporal-ontology debate) be the view that there's a fact of the matter whether past and future objects exist—i.e., whether presentism or eternalism is true. We can distinguish two different kinds of factualism—namely, *necessitarianism* and *contingentism*—and in this section, I will define these two views.

Necessitarianism (about the temporal-ontology debate) is the view that necessitarian presentism or necessitarian eternalism is true; and contingentism is the view that contingentist presentism or contingentist eternalism is true. All the real work, then, is done in defining necessitarian and contingentist versions of presentism and eternalism. This is easy to do for presentism: necessitarian presentism is the view that presentism (i.e., the view that all objects are presently existing objects) is necessarily true; and contingentist presentism is the view that presentism is contingently true. We can't do the same thing with eternalism, however, because it's plausible to think that there are certain very strange worlds (e.g., a completely empty world) where eternalism is false for trivial reasons. So I don't want to take necessitarian eternalism to be the view that eternalism is absolutely necessary. I want to take it to be a slightly weaker view. We can get at the view I've got in mind by focusing on possible worlds of a certain kind that I'll call *NH-worlds* (short for "normal-history worlds"). We can define these worlds as follows:

> An *NH-world* is a world that has a history, or a "normal" history; i.e., it's a world in which there's a historical progression of events (i.e., in which there's at least one event that occurs after some other event) and in which physical objects exist at multiple times.

Let me make a few points about this definition. First, to say that a world is an NH-world is not to say anything about whether presentism or eternalism is true in that world. So the talk here of physical objects "existing at multiple times" has to be read in a way that's neutral between presentism and eternalism. For instance, on the lingo I'm employing here, regardless of whether presentism or eternalism is true, we can say that the *actual* world is a world in which physical objects exist at different times—because, e.g., I exist now and Sputnik existed in 1957. And, more generally, we can say that the actual world is (obviously) an NH-world—again, regardless of whether presentism or eternalism is true. Another point worth making here is that in order for a world to count as an

NH-world, it doesn't need to have *multiple* objects existing at different times. Imagine, for instance, a world that lasts for only ten seconds and that consists of nothing but David Lewis hovering in empty space for five seconds and then bending his arm and then hovering for another five seconds. I would count this as an NH-world, and I assume that eternalists would say that eternalism could be true in such a world (it could be true because at, say, the 5-second mark of a world like this, it could be the case that past and future time slices of Lewis exist in a tenseless, eternalistic way). So a world doesn't have to be *that* normal to count as an NH-world. In fact, the only worlds that aren't NH-worlds are worlds that are seriously *ab*normal in terms of their histories—e.g., worlds in which there are no progressions of events, or in which there are no physical objects.

(The notion of an NH-world is, of course, not perfectly precise. But it's precise enough for our purposes here; it simply won't matter in what follows if there's some fuzziness about whether certain very strange possible worlds count as NH-worlds.)

In any event, given the notion of an NH-world, we can define necessitarian eternalism as the view that eternalism is true in all NH-worlds (including the actual world); and we can define contingentist eternalism as the view that (a) eternalism is true in the actual world, but (b) it isn't true in *all* NH-worlds (i.e., there are some presentistic NH-worlds).

Finally, given what I'm going to argue in section 4, we need to take note of a certain fact about necessitarian eternalism, namely, that it entails that sentences like the following are necessary:

> (if-Dinosaur) If there used to be dinosaurs, then there *are* dinosaurs—in particular, there are dinosaurs that exist in a tenseless, eternalistic sort of way, in a past region of the 4-dimensional spatiotemporal block.

It's important to note that when necessitarian eternalists say that (if-Dinosaur) is necessary, what they mean is that it's *metaphysically* necessary. Now, usually, when philosophers say that a sentence is metaphysically necessary, what they mean is that it's true in all possible worlds. But in the present case, we should read necessitarian eternalists as saying something a bit stronger than this, namely, that (if-Dinosaur) is true *at every moment* in every possible world.[2]

2.3. A Bit More Detail on Trivialism

Prima facie, the debate about past and future objects seems to be a debate about ontology—about whether objects of a certain kind (namely, non-present objects) really exist. But advocates of trivialism think this is confused; they don't think there's a substantive ontological question here at all; they think that the question of whether there are past and future objects is an entirely *trivial* question that can be answered by simply getting clear on what certain kinds of sentences mean, without ever doing any substantive ontological inquiry. This view can be combined with both presentism and eternalism. For instance, you might try to combine it with eternalism by saying something like the following:

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[2] I'm assuming here—to make things easy—that there *are* such things as possible worlds; I think this assumption can be discharged, but I won't bother with this here.

Trivialist Eternalism: Eternalists are committed to the truth of sentences like

(E) If dinosaurs used to exist, then dinosaurs exist.

But this sentence is utterly trivial. To see why, consider the following sentence:

(Dinosaur) Dinosaurs exist.

Read at face value, the logical form of this sentence is $(\exists x)Dx$. But that's not it's deep logical form. What (Dinosaur) is saying is that dinosaurs exist *tenselessly*, and given this, we should take (Dinosaur) to be synonymous with the following: 'Either dinosaurs used to exist, or they will exist, or they do exist at the present time.' But given this, (E) is trivially true. Indeed, it's *analytic*. And given this, it follows that eternalism is trivially true.

Alternatively, you might try to combine trivialism with *presentism* by saying something like this:

Trivialist Presentism: Presentists are committed to the truth of sentences like

(P) If dinosaurs don't exist at the present time, then dinosaurs don't exist.

But this sentence is utterly trivial. To see why, notice that to say that something *exists* is to say that it exists *now*. Thus, the sentence (Dinosaur) is just synonymous with 'Dinosaurs exist at the present time.' But given this, (P) is entirely trivial. Indeed, it's *analytic*. And given this, it follows that presentism is trivially true.

You could also be a trivialist without taking sides by claiming that the debate can be settled by figuring out what sentences like (Dinosaur) mean. In particular, you could say that if (Dinosaur) is synonymous with 'Dinosaurs exist at the present time', then presentism is true, and if it's synonymous with 'Dinosaurs did exist or do exist or will exist', then eternalism is true.

I don't think any of these trivialist views are tenable, and in section 6.1 I'll say why. But for now, I want to move on.

3. The Argument

I'm now ready to formulate my argument for anti-metaphysicalism about the temporal-ontology debate. In outline, the argument proceeds as follows:

(1) If non-factualism and trivialism (about the temporal ontology debate) are both false, then contingentism is true.

(2) If contingentism is true, then physical-empiricism is true. Therefore,

(3) If non-factualism and trivialism are both false, then physical-empiricism is true. But this is just equivalent to

(4) Either non-factualism or trivialism or physical-empiricism is true.

Both of the inferences in this argument are clearly valid, so I just need to argue for (1) and (2). I will do this in the next two sections.

4. The Argument for (1)—The Case Against Necessitarianism

My argument for (1) proceeds as follows:

(1a) If non-factualism and trivialism are both false, then the temporal-ontology debate is a *substantive* debate, in particular, a substantive *ontological* debate.

(1b) If the temporal-ontology debate is a substantive ontological debate, then necessitarianism is false.

(1c) If non-factualism is false, then either necessitarianism or contingentism is true. Therefore, from (1a)-(1c), it follows that

(1) If non-factualism and trivialism are both false, then contingentism is true.

Once again, this argument is valid. Moreover, the only really controversial premise here is (1b). (1c) is entirely trivial—if non-factualism is false, then factualism is true, and so it follows that either necessitarianism or contingentism is true. And (1a) is pretty obvious as well. If non-factualism is false, then the temporal-ontology debate is a *factual* debate. Now, if trivialism were true, then this debate wouldn't be a substantive debate; but if trivialism is false—and this is built into the antecedent of (1a)—then the temporal-ontology debate *is* a substantive debate, and it's presumably a substantive *ontological* debate, i.e., a debate about whether objects of a certain kind (namely, past and future objects) really exist. Thus, it seems to me that (1a) is pretty obviously true.

If this is right, then I just need to argue for premise (1b). I will do this as follows: in section 4.2, I'll argue that if the temporal-ontology debate is a substantive ontological debate, then necessitarian eternalism is untenable; and then in section 4.3, I'll argue very quickly that a similar argument can be used to undermine necessitarian presentism. But before I do any of this, I want to argue for a background point.[3]

4.1. The Non-Necessity of Genuine Existence Claims

I want to begin by arguing that no genuine existence claims—i.e., no sentences of the form '$(\exists x)Fx$'—are necessarily true. In other words, the claim here is that no objects exist necessarily. Now, in connection with most objects (e.g., donkeys and tables), this is pretty obvious. But, of course, some philosophers think there are certain kinds of objects (e.g., numbers and Gods) that do exist necessarily. It seems to me, however, that necessitarian views of this kind are implausible, and in this section, I'll say a few words against them. I will be brief, though, because this issue is something of an aside—I don't really need the result that these necessitarian views are false. Nonetheless, it will be helpful in what follows to have run through the idea behind the argument against these views.

Let's focus on the example of necessitarian platonism—i.e., the view that platonism is metaphysically necessary, or more precisely, that abstract objects like numbers exist in

[3] Most metaphysicians are necessitarians about the various debates they're engaged in, so in arguing against the necessitarian view of the temporal-ontology debate, I will be arguing against a pretty orthodox view. But it's not as if I'm alone here. For instance, the necessitarian view of the abstract-object debate has been rejected by, e.g., Field (1989) and myself (1998); and the necessitarian view of the composition debate has been rejected by, e.g., Cameron (2007) and Miller (2010).

all possible worlds. I think we can undermine this view by arguing for the following two claims:

(I) Necessitarian platonists need to provide some way of motivating or explaining the idea that there aren't any worlds without abstract objects—i.e., that there aren't any worlds where *nominalism* is true.

(II) Necessitarian platonists have no way of providing the needed argument or explanation.

One might try to argue for (I) by claiming that nominalism is *epistemically* possible and that, given this, necessitarian platonists need to explain why it's not also metaphysically possible. But I'm not wild about this way of arguing for (I). I'd rather do it by pointing out that nominalism *seems easily conceivable* to us. In other words, *prima facie*, it seems easy to imagine worlds where there are no abstract objects—where, say, there's just a pile of physical stuff. Now, of course, just because something seems conceivable doesn't mean it's genuinely possible (indeed, it doesn't even mean it's genuinely conceivable), but it seems fair to say that if something seems easily conceivable to us, then this gives us at least a defeasible *prima facie* reason to think it's possible. Thus, since nominalism seems easily conceivable, it seems to me that we couldn't rationally endorse necessitarian platonism—couldn't rationally claim that nominalism isn't a genuine metaphysical possibility—unless we had some *argument* for this. If we have *no reason* to think that nominalism isn't genuinely possible, then it would just be irrational to endorse necessitarian platonism. And this is why necessitarian platonists need to provide some way of motivating or explaining the alleged impossibility of nominalism.

Now, I suppose you might try to resist (I) by claiming it's just a *brute fact* that there aren't any nominalistic worlds. But this is pretty hard to believe. Modal facts just don't work that way. Imagine someone claiming it's a brute fact that there are no worlds without donkeys—that the donkeyless worlds we think we can imagine just *aren't there*. This would seem insane to us, and if someone asked us to justify this attitude, all I think we could do is throw up our hands and say that this just isn't how things work with modal facts. There can't just be an unexplained *hole* in the space of possibilities. And this is exactly what I want to say about the suggestion that it's a brute fact that there are no nominalistic worlds; if nominalism isn't a genuine possibility, there has to be some *reason* for this. Thus, if platonists don't have any story to tell about why there aren't any nominalistic worlds, then since we seem to be able to easily conceive of such worlds, the idea that there *aren't* such worlds seems as bizarre and unmotivated as the idea that there aren't any donkeyless worlds.

Let's move on now to thesis (II), i.e., to the claim that platonists don't have any way of motivating or explaining the alleged impossibility of nominalism. One thing that platonists might say here is that the reason their view is metaphysically necessary is that it's *conceptually* necessary, or analytic. But this is extremely implausible; on the standard way of thinking, existence claims can't be analytic because we can't define objects into being, i.e., because it can't be true solely in virtue of meaning that some object really exists. Now, to this you might respond that there are numerous *a priori* arguments for platonism in the literature and that if any of these arguments are traceable to claims about our concepts, then we would have reason to think that platonism

is conceptually true. But the fact that platonism is a straightforward existence claim gives us reason in advance to think that no such argument could be sound—again, because it can't be true solely in virtue of meaning that some object really exists. (Here is perhaps a more gentle way of making this point: There can't be any *non-trivial* analytic existence claims. There may be sentences with a surface form of 'There are some Fs' that are analytic; but if there are, then they are in some sense trivial; they wouldn't be genuine existence claims—i.e., they wouldn't be saying that objects of some kind really exist in the world—again, because no such sentence could be true solely in virtue of meaning.)

Now, of course, there are arguments for necessitarian platonism that don't involve the idea that platonism is analytic, and if any of these arguments are cogent, then necessitarian platonists would have the required motivation for their view. But I don't think any of these arguments are cogent, and I think the *reason* they're not cogent is that none of them can reasonably be seen as giving us an explanation of *why* nominalistic worlds aren't genuinely possible. Now, I obviously can't argue for this sweeping claim here, but I'd like to say a few words about how the story goes in one case. Thus, consider the following argument for necessitarian platonism:

> For any possible world w, there's a sentence of the form 'There are n donkeys' that's true at w. But from this it follows that there's a sentence of the form 'The number of donkeys is n' that's true at w. But from this it follows that there's a sentence of the form 'The number n exists' that's true at w.

This is supposed to be an argument for necessitarian platonism, but it doesn't even *try* to explain why nominalistic worlds aren't genuinely possible. *Prima facie*, it seems that there are nominalistic worlds that contain 27 donkeys and *no* numbers; there doesn't seem to be anything impossible about this at all; but if there are worlds like this, then the claim that there are 27 donkeys simply doesn't entail that the number of donkeys is 27. This follows only if we assume that the number 27 *exists*. So the above argument is just question-begging, and the *reason* it's question-begging is that it doesn't explain why nominalistic worlds aren't genuinely possible; in particular, it doesn't explain why there can't be a world containing 27 donkeys and no numbers.

Now, again, we can't conclude that thesis (II) is true from the failure of this one argument. If I were going to provide a really satisfying argument here, I would need to explain what's wrong with all of the arguments for necessitarian platonism in the literature. I obviously can't do that here, but, fortunately, I don't need to, because this whole discussion is something of an aside—i.e., because I don't really need the falsity of necessitarian platonism. All I will say is that if I'm right that the various arguments for necessitarian platonism fail to provide us with an explanation of why nominalism isn't a genuine possibility, then necessitarian platonism seems not just unmotivated, but mysterious and implausible.[4]

Finally, similar points can be made about other existence claims. *Prima facie*, it seems that there are worlds in which there are no Gods, no numbers, no donkeys, and so on.

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[4] Notice that I haven't committed here to the claim that nominalism *is* a genuine possibility. It seems to me that the debate over abstract objects might be factually empty, and if it is, then neither platonism nor nominalism is genuinely possible. Thus, I'm claiming here only that *platonists* can't explain why nominalism isn't a genuine possibility. I think that *non-factualists* might be able to do this.

Moreover, I don't think necessitarians (about any of these kinds of objects) have any way of explaining why the apparent possibilities here aren't *genuinely* possible. If this is right—and, of course, I haven't argued the point here—then I think we have good reason to think that no genuine existence claims are metaphysically necessary.

4.2. Against Necessitarian Eternalism

Even if everything I just argued is true, it doesn't undermine necessitarian eternalism because that view doesn't say that any existence claims are necessary. But as we saw in section 2.2, it does entail the necessity of certain *conditional* existence claims—i.e., claims of the form, '$A > (\exists x)Fx$'. In particular, necessitarian eternalism entails that sentences like the following are necessarily true:

> (if-Dinosaur) If there used to be dinosaurs, then there *are* dinosaurs—in particular, there are dinosaurs that exist in a tenseless, eternalistic sort of way, in a past region of the 4-dimensional spatiotemporal block.

In this section, I will undermine necessitarian eternalism by undermining the view that sentences like (if-Dinosaur) are necessary. My argument proceeds as follows:

(A) If the temporal-ontology debate is a substantive ontological debate, then necessitarian eternalists have no way of motivating or explaining the alleged necessity of sentences like (if-Dinosaur). But

(B) If necessitarian eternalists have no way of motivating or explaining the alleged necessity of sentences like (if-Dinosaur), then their view is mysterious, unmotivated, and implausible. Therefore,

(C) If the temporal-ontology debate is a substantive ontological debate, then necessitarian eternalism is mysterious, unmotivated, and implausible.

This argument is valid, so I just need to argue for (A) and (B). I will start with (B).

4.2.1. The Argument for (B)

The argument for (B) is based on the claim that it seems easy to imagine a world where (if-Dinosaur) is false. In particular, it seems easy to imagine a world where there used to be dinosaurs but they all died out and they don't exist at all anymore because presentism is true—i.e., because reality is a 3-dimensional manifold in which all objects are presently existing objects, and past and future objects don't exist at all. Given this, it seems fair to say that the falsity of (if-Dinosaur) *seems easily conceivable to us*. Now, of course, it doesn't follow from this that the falsity of (if-Dinosaur) is genuinely possible; indeed, it doesn't even follow that it's genuinely conceivable. But given that the falsity of (if-Dinosaur) seems easily conceivable to us, it seems that we have at least a defeasible *prima facie* reason to think that the falsity of (if-Dinosaur) is possible. And given this, it seems that necessitarian eternalists need to provide some way of motivating or explaining the idea that this *isn't* possible. If we have *no reason* to think that the falsity of (if-Dinosaur) isn't genuinely possible, then it would simply

be irrational to endorse necessitarian eternalism. The view would be not just unmotivated, but mysterious and implausible.

Now, I suppose you might try to resist (B) by claiming it's just a *brute fact* that (if-Dinosaur) is necessary. But as was the case with platonism, this stance is untenable. Modal facts just don't work this way. There can't just be an unexplained *hole* in the space of possibilities; it can't be that (if-Dinosaur) is necessary because it's a brute fact about the space of possibilities that worlds where (if-Dinosaur) is false just *aren't there*. If there aren't any worlds where (if-Dinosaur) is false, there has to be a *reason* for this.

You might also try to resist (B) by saying that even if necessitarian eternalists can't explain why (if-Dinosaur) is necessary, if contingentists can't explain why it's *not* necessary, then we're in a stalemate. But I don't think this is right—I don't think we would be in a stalemate in this scenario. For the contingentist's claim here is so weak, and the necessitarian's claim is so strong, that the burden of proof is on necessitarians. The contingentist is making a mere *possibility* claim, and possibility claims are extremely weak. When something seems *prima facie* possible, we need a reason to give this up, not to accept it. Imagine someone asking us to *motivate* the view that there are worlds with 400-story buildings, or to explain *why* there are such worlds. All we could say in response to this, I think, is that there doesn't seem to be anything impossible about 400-story buildings and that absent a reason to think they're not possible, we should accept the idea that they *are*. Likewise, if eternalists don't have any reason for thinking that (if-Dinosaur) is necessary, then the idea that it *is* necessary seems to be little more than an unmotivated claim to the effect that certain apparently possible worlds (namely, presentistic worlds in which dinosaurs used to exist and then stopped existing) just *aren't there*.

So it seems to me that (B) is true; if necessitarian eternalists can't motivate or explain the alleged necessity of sentences like (if-Dinosaur), then their view is mysterious, unmotivated, and implausible.

4.2.2. The Argument for (A)

I turn now to premise (A)—i.e., to the claim that if the temporal-ontology debate is a substantive ontological debate, then necessitarian eternalists have no way of motivating or explaining the alleged necessity of sentences like (if-Dinosaur). Now, as I pointed out above, (if-Dinosaur) is not an existence claim; it's a conditional existence claim. And I want to start by pointing out that there are lots of conditional existence claims that are necessary. Consider, e.g., the following two sentences:

> (if-Bachelor) If there's a bachelor, then there's an unmarried thing.

> (if-Water) If there's a sample of water, then there's a sample of H_2O.

It's pretty obvious that these sentences are necessary, and it's equally obvious that we can explain *why* they're necessary. We can do this by saying something like the following:

> The reason (if-Bachelor) is necessary is that its antecedent has an existential commitment, and the thing that needs to exist to make the antecedent true (namely, a bachelor) is already itself a thing of the kind that needs to exist to make the consequent true. This is

> simply because the concept *bachelor* already contains the concept *unmarried* (or if you'd rather, because *bachelor* analytically entails *unmarried*), and so anything that's a bachelor is automatically an unmarried thing. Similar points can be made about (if-Water): this sentence is necessary because its antecedent has an existential commitment, and the thing that needs to exist to make the antecedent true (namely, a sample of water) is already itself an object of the kind that needs to exist to make the consequent true. This is because water just *is* H_20 (because we use the term 'water' as a rigid designator of H_20), and so anything that's a sample of water is automatically a sample of H_20.

But necessitarian eternalists can't explain the necessity of (if-Dinosaur) in anything like this way. First of all, since (if-Dinosaur) isn't analytic, it's clearly not analogous to (if-Bachelor). But more importantly, there's an easy way to see that (if-Dinosaur) isn't analogous to (if-Bachelor) *or* (if-Water). For (a) the antecedent of (if-Dinosaur)—i.e., the sentence 'There used to be dinosaurs'—doesn't have any existential commitments, and (b) the fact that the antecedents of (if-Bachelor) and (if-Water) have existential commitments plays a crucial role in the explanation of why these sentences are necessary.

I suppose that necessitarian eternalists might respond here by saying that the antecedent of (if-Dinosaur)—i.e., the sentence 'There used to be dinosaurs'—*does* have existential commitments. In particular, they might say that this sentence commits to the existence of dinosaurs that exist in a past region of spacetime. But unless they can say *why* this is true, this claim would be unhelpful and question-begging. I'm asking for an explanation of *why* (if-Dinosaur) is necessary. To say that the antecedent of (if-Dinosaur) commits to the existence of a past dinosaur is just to say that it entails the consequent of (if-Dinosaur). But if necessitarian eternalists just *assert* that the antecedent of (if-Dinosaur) entails the consequent, that's no explanation at all. We need to know *why* the existence of past objects is forced on us by the claim that there used to be dinosaurs; i.e., we need to know why it couldn't be the case that the dinosaurs that used to exist simply *stopped* existing—or, in short, why there aren't any worlds where (if-Dinosaur) is false.

Now, to this, one might respond that if it's question-begging for necessitarian eternalists to claim that the antecedent of (if-Dinosaur) has existential commitments, then it's equally question-begging for contingentists to claim that it *doesn't*. But in the present context, this is irrelevant. All I'm trying to argue here (i.e., in the present subsection) is that necessitarian eternalists have no way of explaining why (if-Dinosaur) is necessary. If it turns out that contingentists have no way of explaining why it's *not* necessary, that doesn't change the fact that necessitarian eternalists have no way of explaining why it *is*.

Given that (if-Dinosaur) isn't analogous to (if-Bachelor) or (if-Water), how else might necessitarian eternalists try to motivate or explain the alleged necessity of (if-Dinosaur)? I will now consider three different ideas that they might pursue here, and I will argue that none of these ideas will work.

First, someone who was attracted to Kit Fine's (2005) way of thinking of these issues might argue that (a) the presentist-eternalist debate is about the essential nature of reality, so that if any of the standard arguments for eternalism are correct, then they suggest that reality is essentially 4-dimensional; and (b) if reality is essentially 4-dimensional, then eternalism is true in all worlds (or at least all NH-worlds), and so (if-Dinosaur) is necessary. But I think that even if (a) is true, (b) is false. If reality is essentially 4-dimensional, then it follows that the world couldn't exist without eternalism being true. But it doesn't follow that there aren't *other* worlds (or other NH-worlds) where presentism is true. All that follows is that any world where presentism is true isn't the

actual world. But so what? This is perfectly consistent with the existence of presentistic NH-worlds, and more specifically, it's consistent with the existence of worlds where (if-Dinosaur) is false. Now, I suppose you might think that 4-dimensionality would be a part of the essence of *any* reality (or at least any NH-world). But that requires argument, and I can't see how one might argue for it. It may be that all *eternalistic* worlds are essentially 4-dimensional, but if there are any presentistic NH-worlds, then they're obviously not essentially 4-dimensional. So it seems to me that to get from this way of thinking to the desired result—i.e., the result that all NH-worlds are essentially 4-dimensional—you would need to have independent motivation for the idea that there are no presentistic NH-worlds. But, of course, that's precisely what's at issue here.

Second, necessitarian eternalists might try to argue that 4-dimensionality is part of the essence not of *reality*, but of ordinary concrete objects like dinosaurs. For instance, one might argue as follows:

> Dinosaurs are essentially concrete objects—i.e., they're essentially *spatiotemporal* objects—and spatiotemporal objects are essentially 4-dimensional. Therefore, if dinosaurs exist at all, then they're 4-dimensional.

But this argument is flawed in the same way that the last one was. It relies crucially on the claim that ordinary physical objects—i.e., concrete, spatiotemporal objects like dinosaurs—are essentially 4-dimensional. But why should we believe this? I'm happy to grant (for the sake of argument) that if there are any eternalistic worlds with dinosaurs, then the dinosaurs in those worlds are essentially 4-dimensional. But if there are any *presentistic* worlds with dinosaurs, then the dinosaurs in those worlds are obviously not essentially 4-dimensional. So to get the result that all dinosaurs are essentially 4-dimensional, we would need to have some reason to believe that there aren't any presentistic worlds containing dinosaurs. But, again, that's precisely what's at issue here.

Third and finally, necessitarian eternalists might try to claim that the necessity of sentences like (if-Dinosaur) is analogous to the necessity of mathematical sentences like

> (Prime) 3 is prime.

What we say in response to this depends on whether we endorse a platonist or an anti-platonist semantics for (Prime)—i.e., on whether we think the truth of (Prime) requires the existence of abstract objects. Anti-platonist semantic theories say that the truth of (Prime) doesn't require the existence of abstract objects, and the most plausible of these theories say that it doesn't require the existence of any objects at all. For instance, one view here is that (Prime) is just a shorthand way of saying this:

> (if-Prime) If the natural numbers existed, then 3 would be prime.

I think that anti-platonist views like this are implausible—I think it's fairly easy to argue that the right semantic theory for mathematical sentences is the platonistic one[5]—but in the

[5] Of course, it doesn't follow that I think that platonism is true, because the platonist semantics is also consistent with fictionalism, the view that our mathematical theories aren't true because (a) they're supposed to be about abstract objects, and (b) there are no such things as abstract objects.

present context, this doesn't matter. For if the necessity of (Prime) boils down to the necessity of (if-Prime), then this is completely unhelpful to necessitarian eternalists; for (if-Prime) is necessary for essentially the same reason that (if-Bachelor) is—in a nutshell, because it's *analytic*—and as we've seen, (if-Dinosaur) isn't necessary for anything like this reason. So if necessitarian eternalists are going to claim that the necessity of (if-Dinosaur) is analogous to the necessity of (Prime), they're going to have to endorse a platonistic semantics; they're going to have to say that the necessity of (Prime) depends on the necessity of platonism and that (if-Dinosaur) is necessary for the same reason (or something like the reason) that platonism is. But I've already argued that the claim that platonism is necessary is problematic. Thus, necessitarian eternalists can't make any progress here by hitching their wagon to the necessitarian platonist train because necessitarian platonism is just as bad off—just as mysterious and unmotivated—as necessitarian eternalism is.

In sum, then, as long as we assume that the temporal-ontology debate is a substantive ontological debate, I don't see any way for necessitarian eternalists to motivate or explain the alleged necessity of (if-Dinosaur). Moreover, I think we can say something about *why* they can't explain this. For if the antecedent of (if-Dinosaur) doesn't have any existential commitments, then it's hard to see how that sentence could be necessary. If all we're told is that there *used to be* dinosaurs, it doesn't seem that we're forced to say that *anything* exists; in particular, we don't seem forced to say that past objects exist; the idea that such objects don't exist seems at least *possible* (again, even if the antecedent of (if-Dinosaur) is true, i.e., even if there used to be dinosaurs), and it's hard to see what necessitarian eternalists could say to motivate the idea that this is in fact *not* possible. In short, given that the antecedent of (if-Dinosaur) doesn't have any existential commitments, the idea that that sentence is necessary seems just as perplexing as the idea that bare existentials like 'There are donkeys' and 'There are abstract objects' are necessary. Eternalists just don't seem to have any story to tell about why there aren't any worlds where (a) dinosaurs used to exist, and (b) they went extinct, and (c) there is no 4^{th} dimension (i.e., there are no past or future objects), so that the dinosaurs that used to exist don't exist at all anymore.

4.3. Against Necessitarian Presentism

I just argued for the following claim:

> (C) If the temporal-ontology debate is a substantive ontological debate, then necessitarian eternalism is mysterious, unmotivated, and implausible.

But we can motivate an analogous claim about necessitarian presentism in essentially the same way. In particular, we can do this by arguing as follows:

> (A*) If the temporal-ontology debate is a substantive ontological debate—if the question at issue is whether objects of a certain kind (namely, past and future objects) really exist—then necessitarian presentists have no way of motivating or explaining the idea that there are no worlds where the relevant objects *do* exist, i.e., no worlds where eternalism is true.
>
> (B*) If necessitarian presentists have no way of motivating or explaining the idea that there are no worlds where eternalism is true, then their view is mysterious, unmotivated, and implausible. Therefore,

(C*) If the temporal-ontology debate is a substantive ontological debate, then necessitarian presentism is mysterious, unmotivated, and implausible.

I can't develop this argument here, but it's deeply analogous to the argument in (A)-(C). Indeed, the argument for (B*) is more or less identical to the argument for (B). The argument for (A*) isn't literally identical to the argument for (A), but it's deeply similar. In a nutshell, the argument would proceed by undermining the various ways in which one might try to explain the alleged impossibility of eternalistic worlds. For instance, I would argue that we can't say that past and future objects are impossible for anything like the reasons that married bachelors and non-H_2O water are impossible; and I would respond to the idea that presentism is true in all NH-worlds because NH-worlds involve *change*, and (as Hinchliff (1996) has argued) change requires presentism. But, again, I can't run through the details of this argument here.

If I'm right that (C*) can be motivated in essentially the same way that (C) can, then when we put these two claims together, we get the following result:

(C**) If the temporal-ontology debate is a substantive ontological debate, then the necessitarian view of that debate is mysterious, unmotivated, and implausible.

Now, I suppose you might respond to this by pointing out that it's possible to construct cases where A and B are both implausible but A-or-B is *not* implausible. In other words, you might worry that even if necessitarian presentism and necessitarian eternalism are both implausible, it doesn't follow that necessitarianism is implausible. But I think it can be argued that this worry is misplaced, that arguments of the kind I've been giving against necessitarian presentism and necessitarian eternalism do undermine necessitarianism. Taken together, what these arguments suggest is that if the temporal-ontology debate is a substantive ontological debate, then there should be two different possibilities here; it should be that the relevant objects (i.e., past and future objects) could either exist or not exist; and so it should be that contingentism is true.

But if (C**) is true, then this gives us an argument for premise (1b), which just says that if the temporal-ontology debate is a substantive ontological debate, then necessitarianism is false. Moreover, if we combine this with the above remarks about (1a) and (1c), we get an argument for premise (1) of the main argument.

(Finally, if we combine (1b) with the argument against trivialism that I'll give in section 6.1, we get an important corollary—namely, that the necessitarian view of the temporal-ontology debate is false.)

5. The Argument for (2)—From Contingentism to Physical-Empiricism

If contingentism about the temporal-ontology debate is true, then presentism and eternalism are both possible. (Or to be more precise, the two relevant possibilities here are eternalism and presentistic NH-worlds; for if completely empty worlds are possible, then presentism is in some sense trivially possible.) In any event, what I want to argue now is that if there are indeed two different possibilities here, then there are two different *physical* possibilities. Or to put the point differently, I want to argue for the following:

(Physical) If presentism and eternalism don't pick out two different *physical* possibilities—or two different ways that the physical world could be—then they don't pick out two different possibilities at all.

I'll argue for this in a moment, but first, let me quickly note that when I speak here of "physical possibilities," I'm not speaking of things that are *physically possible* (where something is physically possible iff it's consistent with the laws of nature, or something like that). Rather, I'm speaking of physical states of affairs that are metaphysically possible. To appreciate the difference between these two things, consider the following two possibilities:

(i) I weigh 10,000 pounds, and I'm still alive.

(ii) 3 is prime.

It may be that (i) is physically impossible (i.e., that it's inconsistent with the laws of nature), but whatever we say about this, it's clear that (i) is a physical possibility in the sense that I have in mind because it's a physical state of affairs that's metaphysically possible. (ii), on the other hand, is obviously physically possible in the sense that it's not inconsistent with the laws of nature, but it's not a physical possibility in the sense that I have in mind for the simple reason that the state of affairs of 3 being prime isn't a *physical* state of affairs at all.

Let me argue now for (Physical). The first point to note here is that presentism and eternalism are competing theories of the nature of the physical world. Eternalists say that the physical world is 4-dimensional, whereas presentists say that it's 3-dimensional; and eternalists say that past and future objects really exist as parts of physical reality (in past and future regions of the 4-dimensional manifold), whereas presentists say there are no such things. This already suggests that (Physical) is true, but we can really drive this point home by taking note of what we would have to say if we rejected (Physical). We would have to say that there are two different possible worlds—call them PW and EW—such that (a) PW and EW are physically identical, and (b) presentism is true in PW and eternalism is true in EW. This seems crazy to me. What could the difference between PW and EW possibly amount to? Given that PW and EW are physically identical, what could it even *mean* to say that reality is 3-dimensional in PW and 4-dimensional in EW? This just seems incoherent. In other words, it seems to be an analytic truth that if reality is 3-dimensional in PW and 4-dimensional in EW (i.e., if past and future objects exist in EW but not PW), then there's a *physical* difference between the two worlds. But if this is right, then (Physical) is true.

(I suppose you might think that there are certain kinds of abstract objects that can be thought of as past and future objects. E.g., you might think there's an abstract object that corresponds exactly to Socrates. But no such object would really *be* Socrates; moreover, it wouldn't count as a *past* object, for it wouldn't exist in a past region of a 4-dimensional spacetime manifold. And finally, the belief in such objects couldn't rightly be called *eternalism*; it would be a kind of *platonism*. At best, you could think of this view as a kind of *ersatz* eternalism, and you could think of the objects in question as ersatz past objects. When I say that the debate between presentists and eternalists is a debate about the nature of the physical world, I'm not talking about this ersatz view; I'm talking about the view that the physical world is a 4-dimensional manifold and that objects like Socrates—the *original* Socrates—exist in past regions of this manifold. Given this, I think that (Physical) is more or less obvious.)

In any event, given that (Physical) is true, we can now argue for premise (2), i.e., for the claim that if contingentism is true, then physical-empiricism is true. If contingentism is true, then the question of whether presentism or eternalism is true is a contingent question about the nature of the physical world. In this scenario, there would be two different ways that the physical world could be, and the question would be whether the actual world has the one nature of the other. But given this, it's hard to see how this question could be answered by means of an *a priori* philosophical argument. Presumably, it could be answered only empirically. If there are two different ways that the physical world could be here—if it could either have or not have a fourth dimension—then in order to figure out whether it actually does have a fourth dimension, we would need to perform some test to see whether the extra objects really exist, i.e., whether there really are past and future objects and events that exist along a fourth dimension. Now, we might not know *how* to settle this question empirically—indeed, it may be that we could *never* settle it empirically—but it wouldn't follow from this that the question was a philosophical one. For even if we can't settle the question empirically, it's hard to see how we could settle it with an *a priori* argument; indeed, it's hard to see how we could make any progress at all on this question with an *a priori* argument. Given contingentism, the question of whether presentism or eternalism is true is of the same general kind as, say, the question of whether Alpha Centauri has planets—it's just an extremely difficult question about the contingent nature of the physical world. Now, it seems pretty obvious that *a priori* arguments are entirely powerless in connection with the question about Alpha Centauri; we just can't make any progress at all on that question with *a priori* arguments. And it seems that if contingentism is true, then the same goes for the temporal-ontology question; it seems that in this scenario, *a priori* arguments can't give us any good reason to favor presentism over eternalism or vice versa. Therefore, once again, it seems that if contingentism is true, then we could only settle the temporal-ontology question empirically; we might not be able to settle it at all, but if we can, then we can settle it only empirically. For if contingentism is true, there just doesn't seem to be any other way of settling it.

Now, to really motivate my position here, I would need to explain what's wrong with the various *a priori* arguments that philosophers have attempted for presentism and eternalism. I think this can be done, but I obviously can't do it here. It's important to note, however, that if contingentism is true, then even if we haven't run through all of these arguments to see what's wrong with them, we have good reason in advance to think that *something* must be wrong with them. For if the question at issue is a contingent question about the nature of the physical world, then it's hard to see how an *a priori* argument could work. The prospects for finding a good *a priori* argument in the temporal-ontology case wouldn't seem to be any better than they are in the Alpha Centauri case.

Let me back this claim up by explaining how we can run an analogue of the cross-time-relation argument in the Alpha Centauri case. Suppose that Bea believes that Alpha Centauri has four planets, and suppose that she has developed strong feelings for the third of these planets, which she has named "Veruca". Suppose, in particular, that Bea has sketches of Veruca on her walls, that she dreams of vacationing there, and that she openly admits to loving Veruca. Then, intuitively, it seems that the following sentence is true:

(V) Bea loves Veruca.

It also seems that this is true:

(H) Kripke admires Hume.

The cross-time-relation argument proceeds from the intuitive truth of (H) to the conclusion that Hume must exist (because this is required for the truth of (H)) and, hence, that eternalism must be true. Now, I actually doubt that this argument is *a priori* because I think (H) is an empirical claim, but the more important point here is that we can argue just as easily from the intuitive truth of (V) to the conclusion that Veruca exists and, hence, that Alpha Centauri has planets. Let's call this the *cross-planet argument*.

The cross-planet argument is obviously a *bad* argument. The problem is that if the truth of (V) really requires the existence of Veruca, then before we could have good reason to believe that (V) is literally true, we would need to have reason to believe that Veruca exists. In fact, this argument just seems silly—we can't argue for a substantive claim of astronomy by analyzing some folk sentence that seems intuitively true. This isn't even the right *kind* of argument to use. But it seems to me that the very same points can be made about the cross-time-relation argument: First of all, if the truth of (H) really requires the existence of Hume, then before we could have good reason to believe (H), we would need to have reason to believe that Hume exists. Second, it seems bizarre and wrongheaded to try to motivate a substantive theory about the structure of physical reality by analyzing some folk sentence that seems intuitively true to us. As before, it seems that this isn't even the right *kind* of argument to use. What's needed, it seems, is an empirical reason for thinking that past and future objects are really *there*.

Now, of course, this is just an example—there are other philosophical arguments for presentism and eternalism in the literature, and to really justify my position, I would need to say what's wrong with all of them. But, again, I think we have good reason to think that if contingentism is true, then *a priori* arguments just won't work, and if this is right, then we have good reason to think that there must be *something* wrong with the various *a priori* arguments in the literature.

(By the way, I'm not claiming that *all* contingent questions are physical-empirical questions. You might think that the abstract-object question is a contingent question (because you might think that platonism and nominalism are both possible), but it wouldn't follow from this that it was a physical-empirical question. All I'm saying is that if the *temporal-ontology* question is a contingent question, then *it's* a physical-empirical question. And, again, the reason is that it's about the nature of the physical world.)

At any rate, we now have an argument for premise (2), i.e., for the claim that if contingentism is true, then physical-empiricism is true. And if we combine this with the above argument for (1), we arrive at the anti-metaphysical conclusion that either non-factualism, physical-empiricism, or trivialism is true.

6. Which of the Three Views Should We Endorse?

6.1. Against Trivialism

In this section, I will provide a quick argument against trivialist views of the temporal-ontology debate, i.e., views of the kind described in section 2.3. These views rely heavily on analyses of sentences like

> (Dinosaur) Dinosaurs exist.

Let's say that a *P-language* is a language in which (Dinosaur) is synonymous with 'Dinosaurs exist at the present time.' And let's say that an *E-language* is a language in which (Dinosaur) is synonymous with 'Either dinosaurs did exist, or they will exist, or they do exist at the present time.' Given this, we can say that trivialist presentists (of the kind described in section 2.3) think that English is a P-language, and trivialist eternalists (of the kind described in section 2.3) think that English is an E-language. Now, as empirical theories of ordinary English, I don't think either of these views is very plausible, but this doesn't really matter. The question I'm concerned with here is whether the debate over past and future objects is a substantive ontological debate. Thus, it doesn't really matter what sentences like (Dinosaur) mean in ordinary English. The more important question is what these sentences mean in the language of serious metaphysicians who are debating the existence of past and future objects. For instance, when eternalists like Lewis and Sider are engaged in arguing for eternalism and they utter sentences like (Dinosaur), what are they saying? Well, according to trivialist eternalists, all they're saying is that there either were, are, or will be dinosaurs. In other words, they're not saying anything metaphysically controversial. But this seems wrong. They seem to be saying more than this. In particular, they seem to be saying something like the following:

> (O-Dinosaur) Dinosaurs exist somewhere in spacetime; in other words, either (a) dinosaurs exist at the present time, or (b) reality is a 4-dimensional block in which past and future objects are just as real as present ones, and dinosaurs exist in either a past or a future region of the 4-dimensional block.

At any rate, this is what eternalists are *trying* to say, and it's what they *think* they're saying. Of course, they could be confused about what they mean by their own words, but that seems pretty hard to believe. Likewise, when presentists like Markosian are engaged in arguing for presentism and they say that (Dinosaur) is false, it seems that they're doing more than just making the trivial zoological point that dinosaurs don't exist in the 21st Century. It seems that they're also saying that it's not the case that dinosaurs exist in a past or future region of a 4-dimensional spatiotemporal block. In other words, they seem to be saying that (O-Dinosaur) is false. At any rate, this is what they're *trying* to say, and it's what they *think* they're saying.

Given all this, the first point I want to make against trivialist views of the temporal-ontology debate is that they involve implausible interpretations of the assertions of presentists and eternalists. When presentists and eternalists are engaged in the temporal-ontology debate and they utter sentences like (Dinosaur), or the negations of these sentences, they don't seem to be speaking a P-language or an E-language; on the contrary, they seem to be speaking an *O-language*, where an O-language is a language in

which (Dinosaur) is essentially equivalent to (O-Dinosaur). But if these people are speaking an O-language, then their assertions and denials of sentences like (Dinosaur) aren't trivial claims of zoology; on the contrary, they're controversial ontological claims about whether physical reality has a 4th dimension. And if this is true, then it would seem that trivialism is false.

You might object here by claiming that O-languages are hopelessly confused, or imprecise, or some such thing; for you might think that talk of dinosaurs existing in a past region of a 4-dimensional spatiotemporal block is confused, or imprecise, or factually empty, or whatever. I'm actually partial to this idea, but it doesn't undermine the argument I'm giving here against trivialism. For even if O-languages are confused (or imprecise or whatever), it doesn't follow that serious metaphysicians who are engaged in the temporal-ontology debate aren't speaking an O-language; for it could be that their language is confused (or imprecise or whatever). (I'll say more about this possibility in section 6.2; we'll see there that if the language of presentists and eternalists is imprecise in a certain way—if sentences asserting the truth of eternalism (or presentism) are so imprecise that they lack truth conditions—then this gives us reason to endorse non-factualism.)

The second point I want to make against trivialist views of the temporal-ontology debate is that (a) they're based on analyses of the meanings of certain sentences, and (b) nothing metaphysically interesting follows from such analyses—in particular, nothing follows about whether physical reality is 3-dimensional or 4-dimensional. Suppose, for instance, that trivialist eternalists are right that the sentence (Dinosaur) is synonymous with 'Dinosaurs did exist, or do exist, or will exist'. If this were right, then (Dinosaur) would be obviously true. But it wouldn't follow that *eternalism* is obviously true; indeed, it wouldn't even follow that eternalism is *true*, because it wouldn't follow that reality is a 4-dimensional block in which past and future objects really exist. Likewise, if trivialist presentists were right that (Dinosaur) is synonymous with 'Dinosaurs exist at the present time', then (Dinosaur) would be obviously false; but it wouldn't follow that presentism is true, because it wouldn't follow that reality *isn't* a 4-dimensional block.

So I don't think that trivialist views of the temporal-ontology debate are plausible. The semantic theories that these views are based on seem false, and what's more, I don't think there's any plausible way to move from these semantic theories to the conclusion that the temporal-ontology question—i.e., the question of whether physical reality has a 4th dimension—is trivial.

This argument against trivialism is admittedly pretty quick.[6] But if it's right, then we get the result that either non-factualism or physical-empiricism is true.

6.2. Non-Factualism vs. Physical-Empiricism

Which view should we endorse, non-factualism or contingentist physical-empiricism? Well, one way to argue for the latter view would be to actually produce an empirical argument for presentism or eternalism. For instance, some people (e.g., Rietdijk 1966 and Putnam 1967) think that the special theory of relativity (STR) is incompatible with presentism and, hence, that all of the empirical arguments that support STR support eter-

[6] For other arguments against views of this kind, see, e.g., Sider (2006), Eklund (2008), and Bennett (2009).

nalism as well. I can't get into this here, but I have argued elsewhere (MSb) that this argument doesn't work. Thus, while I think it's conceivable that someone might someday produce a good empirical argument for presentism or eternalism, I don't think we have such an argument right now.

Now, of course, even if we don't have a good empirical argument for presentism or eternalism, physical-empiricism could still be true. But I have some doubts about physical-empiricism, and I want to bring out an initial reason for thinking that it might be false and that non-factualism might be true. My objection to physical-empiricism is based on the fact that it entails the following thesis:

> (2-possibilities) Presentism and eternalism pick out two different physical possibilities, or two different ways that the physical world could be. In other words, there are robust physical possibilities in which presentism is true, and there are robust physical possibilities in which eternalism is true. (To be more precise, the two possibilities here are eternalism and presentistic NH-worlds, but I won't keep bothering to be this precise.)

My worry about physical-empiricism is very simple: it entails that (2-possibilities) is true, and it's not clear that this is right. I won't try to argue that (2-possibilities) is definitely false, but I want to argue that for all we know right now, it *might* be false. And I'm going to start by arguing for the following claim:

> (#) We don't have a genuine physical *picture* of the two different possibilities here; i.e., we don't have a picture of the physical difference between presentist worlds and eternalist worlds.

As a first step toward arriving at an argument for this claim, let's imagine that there are two different possible worlds, *P-world* and *E-world*, that have the following two traits: first, P-world and E-world are historically identical (i.e., they have the same history, or the same progression of events); and second, P-world is an evolving 3-dimensional block, so that at any moment in P-world only present objects exist, whereas E-world is a 4-dimensional block, and all of the various objects and events from the whole history of the word exist in different temporal regions of that block. Question: Do we understand what the difference between P-world and E-world really *amounts* to? It might seem that we do. For we can say that unlike P-world, E-world is a 4-dimensional block, and so on. But it's not clear what this *means*. What does it mean to say that dinosaurs exist in an eternalistic way, or that the Battle of Hastings is happening in an eternalistic way? No one thinks that the Battle of Hastings is happening in 2014. And we all think that it did happen in 1066. Eternalists want to say (in 2014) that 1066 exists in an eternalistic way; but again, it's not clear what this really means. It's not clear what the physical world needs to be *like* in order for it to be the case that 1066 exists in an eternalistic way.

One way to get at my worry here is to ask what presentists and eternalists are really disagreeing about. They agree that (a) the Battle of Hastings occurred in 1066, and (b) it's not occurring right now, in 2014. So if their dispute is factual, then they must be disagreeing about whether some *further fact* obtains. Eternalists say that this further fact does obtain, and presentists say that it doesn't. But I don't know what the alleged further fact is supposed to be. It's not just that I don't know how to *verify* whether this fact obtains; it's that I don't know what it's supposed to *be*. I don't know what worldly condition is being

specified such that if *it* obtains, then eternalism is true, and if it doesn't, then presentism is true. All we really have here are *words*; we're told, for instance, that in order for eternalism to be true, it needs to be the case that "reality is a 4-dimensional block" and that "dinosaurs exist in an eternalistic way." But I don't know what this *amounts* to. I don't know what the world needs to be *like* in order to count as a world in which physical reality is 4-dimensional. I know what it means to say that dinosaurs used to exist, but I don't know what's needed for it to *also* be the case—i.e., for there to be a further fact that makes it the case—that dinosaurs exist in a past region of spacetime. And I don't think anyone else does either.

(By the way, I'm not suggesting here that we can't construct *mathematical models* of presentist worlds and eternalist worlds. Indeed, I think it's obvious that we *can*; we can construct one model in which the physical world is 3-dimensional and another in which it's 4-dimensional. But the problem is that we don't know whether these two models pick out two different physical possibilities.)

So all of this leads me to think that (#) is true: we don't have a genuine physical picture of the two different possibilities here, i.e., of presentist worlds and eternalist worlds, and we don't know what the world needs to be like in order to count as a presentist world or an eternalist world. Now, of course, it doesn't follow from this that there *aren't* two different physical possibilities here. After all, we humans are conceptually and imaginatively limited. But it seems to me that if (#) is true, then this ought to give us pause. If we don't have a genuine physical picture of the two different possibilities, then we ought to allow that it *might* be that there just *aren't* two different possibilities here; in other words, we ought to allow that it might be that (2-possibilities) is false.

Now, it might seem that what I'm suggesting here is incompatible with what I argued in section 4; for it might seem that I argued there that presentism and eternalism are both possible. But that's not what I argued in section 4; what I argued was that *if* the temporal-ontology debate is a substantive ontological debate, *then* there are two different possibilities here. But, of course, this is perfectly compatible with the claim that there *aren't* two different possibilities here. Indeed, these two claims fit together perfectly to form an argument for the thesis that the temporal-ontology debate is *not* a substantive ontological debate. And, of course, if we combine this result with my argument against trivialism, we get an argument for non-factualism.

Now, I suppose you might think that if (2-possibilities) is false, then what this shows is that eternalism isn't a genuine physical possibility and, hence, that we ought to endorse presentism—indeed, necessitarian presentism. But I think this would be a mistake. If presentists and eternalists haven't succeeded in picking out two different ways the world could be, then why should we assume that the one way the world can be with respect to this dispute is a presentist way? Moreover, if we don't know what the world needs to be like in order to count as an eternalist world, then we presumably don't know what it needs to be like to count as a presentist world either. And given this, it's hard to see why we should think that the falsity of (2-possibilities) would fit better with presentism than eternalism.

If (2-possibilities) is false, the right conclusion to draw isn't that presentism is true—it's that *non-factualism* is true. For if (2-possibilities) is false, then contingentism is false, and if we combine this with my earlier argument for the falsity of necessitarianism, we get the result that *factualism* is false—and hence that non-factualism is true.

Another way to appreciate this point is to notice that if (2-possibilities) is false (and if necessitarianism is also false), then presentism and eternalism don't have any truth conditions. Or to be more precise, the sentences that assert the truth of these two theories don't have *possible-world-style* truth conditions. For if (2-possibilities) is false, then presentism and eternalism don't pick out two different possibilities, and so they don't pick out two different sets of possible worlds, and so they don't have possible-world-style truth conditions. But if presentism and eternalism don't have possible-world-style truth conditions, then they don't have truth *values*, and if this is right, then non-factualism is true, i.e., there's no fact of the matter whether presentism or eternalism is true.

So, again, if (2-possibilities) is false, then we should endorse non-factualism. Moreover, it's entirely obvious that if (2-possibilities) is *true*, then contingentism is true, and as we've already seen, if contingentism is true, then physical-empiricism is true. Thus, it seems to me that our question here—the question of whether we should endorse physical-empiricism or non-factualism—boils down to the question of whether (2-possibilities) is true; i.e., it boils down to whether presentists and eternalists have succeeded in picking out two different physical possibilities, or two different ways that the physical world could be. I won't take a stand here on this question, but, again, given (#)—given that we don't have a physical picture of the two different possibilities—we ought to take non-factualism very seriously. On the other hand, it certainly doesn't follow from our inability to picture the two possibilities that they don't exist. After all, we can't picture two different physical possibilities in connection with sentences like 'Electron e is in a superposition state with respect to spin in direction d', but it doesn't follow from this that there *aren't* two different physical possibilities here.

In the end, I'm not sure how to decide whether (2-possibilities) is true, but it seems to me that this is at least partially a question for physicists. I say "partially" because it's not really an empirical question. But insofar as the question is whether presentism and eternalism pick out distinct physical possibilities, it seems that if nothing else, the question should be answered in consultation with physicists.

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