Future ontology: indeterminate existence or non-existence?

Michael Tze-Sung Longenecker

***This is a pre-print of an article published in *Philosophia*. The final authenticated version is available online at: https://doi.org/10.1007/s11406-020-00171-z

Abstract

The Growing Block Theory of time says that the metaphysical openness of the future should be understood in terms of there not being any future object or events. But in a series of works, Ross Cameron, Elizabeth Barnes, and Robbie Williams have developed a competing view that understands metaphysical openness in terms of it being indeterminate whether there exist future objects or events. I argue that the three reasons they give for preferring their account are not compelling. And since the notion of "indeterminate existence" suffers conceptual problems, the Growing Block is the preferable view.

1. Introduction

The Growing Block theory says that though the past exists, there are no future objects or events. The view is appealing since it preserves the idea that the future is metaphysically[1] *open*. If the future contains, say, WWIII, then such an event would be inevitable. By denying the existence of future objects, The Growing Block avoids such inevitability. But a new view has come onto the scene, vying to replace the Growing Block theory. In a series of works, Elizabeth Barnes, Ross Cameron and Robbie Williams (Barnes and Cameron 2009, 2011; Barnes and Williams 2011a, 2011b; Cameron 2015) have developed and argued for what I'll call 'Indeterminate Futurism'—the view doesn't deny the existence of future events, it instead says it's *indeterminate* whether

[1] As opposed to being merely *epistemically* open—that is, the openness is simply a matter of us not being able to figure out if the events would take place.

there are any.[2] Furthermore, Barnes and Cameron argue that Indeterminate Futurism not only accommodates the open future intuition, but that it's preferable to the Growing Block Theory.

In this paper, I will argue that the desiderata that Barnes and Cameron claim favor Indeterminate Futurism over the Growing Block theory in fact fail to do so. Cameron (2015, 196-201) lists the advantages as follows: (i) Indeterminate Futurism fits better with an attractive solution to a puzzle about the open future developed by Barnes, Williams and Cameron, (ii) it better accounts for our cognitive attitudes towards future contingents, and (iii) it is more flexible concerning *how* open the future is. For each proposed advantage, I will argue either that the Growing Block theory can preserve the desideratum just as well, or the putative desideratum is no desideratum at all.

If there is no such motivation for Indeterminate Futurism, then the Growing Block would seem more appealing. (I'll set aside Presentism—the view that only presently existing objects exist—and a 'branching' view of the future (see Cameron [2015, 145-52] against Presentism and Barnes and Cameron [2011, 9-16] against branching)). Indeterminate Futurism not only agrees with the Growing Block that future contingents such as 'there will be a third world war' are indeterminate in truth value, but it makes the further claim that it's indeterminate what the domain of the completely unrestricted quantifier includes—where the Growing Block says that there are no future events like WWIII to quantify over, Indeterminate Futurism says that it's indeterminate whether there are such things in its domain. But such domain indeterminacy is puzzling. As David Lewis (1986, 212) says 'the idioms of quantification, so long as they are unrestricted [aren't vague]. How could any of these be vague? What would be the alternatives between which we haven't chosen?' If I'm right that Indeterminate Futurism can't claim any

[2] At least if it's open whether the present is the end of the world—if everything could be destroyed in the next moment.

advantage over the Growing Block, this gives us reason to prefer the Growing Block theory—Indeterminate Futurism is left jobless.

2. The Open Future Problem

One motivation given for preferring Indeterminate Futurism over the Growing Block is that the former fits better with an attractive solution to what I'll call the 'Open Future Problem'. We can illustrate the Open Future Problem as follows. Suppose that Jones claims 'there will be a sea battle tomorrow' at t_1. Since, as we'll suppose, it's metaphysically open whether there will be a sea battle tomorrow, Jones' utterance has an indeterminate truth-value. Nevertheless, at t_2 (tomorrow) when we discover that there in fact is a sea battle, we are inclined to think that what Jones said at t_1 was true. That is, not only is it *now* true that 'there is a sea battle', but it seems that Jones' utterance that 'there will be a see battle tomorrow' at t_1 *was* true. So we want to be able to preserve these two claims:

Indeterminacy

At t_1, it's metaphysically open whether there will be a sea battle tomorrow.

Truth

At t_2, it was true at t_1 that 'there will be a sea battle tomorrow'

Yet these seem to conflict. Truth seems to tell us 'there will be a sea battle tomorrow' is true at t_1, yet Indeterminacy seems to tell us that it's not.

John MacFarlane (2003) has proposed one influential solution to this that adds a relativization to a *context of evaluation*. Thus we can say:

(i) 'There will be a sea battle tomorrow' is not true or false at t_1 relative to context of evaluation t_1.

(ii) 'There will be a sea battle tomorrow' is true at t_1 relative to context of evaluation t_2.

Claim (i) captures the Indeterminacy intuition and (ii) captures the Truth intuition. And since (i) and (ii) are consistent, we have a resolution to The Open Future Problem. But Barnes and Cameron (2009, 295-8) think this view is unnatural since it requires that we hold that 'there will be a sea battle tomorrow' is neither true nor false at t_1 (relative to context of evaluation t_1). (Barnes and Williams (2011b, fn. 4) elaborate that we should seek to preserve classical logic (which includes bivalence) because "classical logic and semantics are simple and elegant relatively expressively powerful, with well-understood semantics and proof theory". They further add "we're certainly not convinced that classical logic is the only way of doing logic, or the clearly and undoubtedly correct way of doing logic. But if it can be maintained, then it's a pro-tanto good thing to maintain it" (*ibid.*, 180).) They instead propose a solution that upholds bivalence. They offer the following:

(iii) 'There will be a sea battle tomorrow' is neither determinately true nor determinately false at t_1.

(iv) 'There will be a sea battle tomorrow' is true or false at t_1.

They claim that (iii) and (iv) are consistent and capture the Indeterminacy and Truth intuitions respectively. Let's call this the 'Metaphysical Indeterminacy Solution'.

What does the Metaphysical Indeterminacy Solution have to do with the Growing Block theory? Cameron (2015, 194-5) claims that the two are incompatible:

> the growing blocker treats claims about what did happen as being sensitive in some way or other to past ontology; in that case, due to considerations of parity, claims about what will happen should be sensitive to future ontology in just the same way…. Given that the moving spotlighter [who adopts Indeterminate Futurism] believes in future ontology, she believes in the relevant portion of reality that should speak to the truth or falsity of any claim about how things will be.[3]

The point is that contingent past- and future-tensed truths must be grounded in reality. For instance, the past-tensed truth 'there were dinosaurs' must be grounded in something like the existence of dinosaurs that are located in the past.[4] Both parties agree on this point. But the Growing Block doesn't have the resources to ground future contingents like 'there will be a sea battle tomorrow' if it were in fact true. Indeterminate Futurism, on the other hand, does. Advantage: Indeterminate Futurism.

There are two related reasons that I don't take this to actually be an advantage for Indeterminate Futurism. First, the Metaphysical Indeterminacy Solution seems incoherent and, second, saying that Indeterminate Futurism can ground future contingents saddles the view with incoherent implications. Let me begin with the first point.

The Metaphysical Indeterminacy Solution requires that there be propositions that are simultaneously true and not determinately true. For instance, (iv) tells us that 'there will be a sea

[3] If it's open whether the entire universe comes to an end right now, it would be better for Cameron to say that 'the moving spotlighter believes it's not determinate that there's no future ontology'.

[4] This isn't exactly the way Cameron grounds such truths. Instead he appeals to temporal distributional properties (see (2015, 137-44)).

battle tomorrow' is true or false at t_1. But notice that merely saying that the claim is true or false at t_1 isn't enough to satisfy our intuitions about the Jones case. For Jones doesn't just believe that the claim is true or false at t_1, but, more importantly, he believes that it's *true* at t_1. Hence, for the solution to work, we must hold that the claim is also true at t_1. Claim (iii), on the other hand, tells us that it is *not* determinately true at t_1. So 'there will be a sea battle tomorrow' is both true and not determinately true at t_1. But this seems incoherent. If a claim is true, how could it simultaneously fail to be *determinately* true? I can see how it could fail to be *epistemically* determinate: it's true at t_1 that there will be a sea battle tomorrow, but at t_1 Jones can't figure out that it's true. But this isn't the claim, since it doesn't preserve the Indeterminacy intuition, which says that the openness is *metaphysical* in nature. I could see how this would go if by 'the claim is true but not determinately true at t_1' we mean: the claim is true at t_1 relative to context of evaluation t_2 but not determinately true at t_1 relative to context of evaluation t_1. But that's just Macfarlane's solution to the Open Future Problem. Is there any sensible way to understand the claim? (There are also many other puzzling features of the solutions brought out by Eklund (2011)[5].)

Barnes and Cameron (2009, fn. 21) respond 'we grant the 'p and it is indeterminate that p' sounds a bit strange. But we have a diagnosis of *why* it sounds strange: it's that it can never be *determinately* true.' But I don't find this diagnosis illuminating. It simply tells us that the puzzling claim applies to itself: the claim '*p* is true but is not determinately true' is both true and not determinately true. But such self-application doesn't illuminate how the principle could be

[5] For instance (see Eklund 2011, 160-1): the semantics developed in (Barnes and Williams (2011a) says that 'there will be a sea battle tomorrow' is indeterminate because the precisifications (possible worlds that aren't determinately false) don't agree on whether there will be a sea battle—in some worlds there is a sea battle tomorrow, in others there aren't. But if 'there is a sea battle tomorrow' is true, as Barnes and Cameron think, shouldn't all the precisifications agree that there will be a sea battle? Eklund (*ibid.*, 164) suggests this might not be problematic since we can define different kinds of truth predicates—in which case 'there will be a sea battle tomorrow' is 'true' on one definition of 'true' but not on another. But then the issue becomes a merely verbal one. (For further discussion, see Barnes and Williams [2011b].)

true. Furthermore, their reply violates the principle that you can only assert what is *determinately* true—if it's right that 'there is a proposition that is both true and indeterminately true' is indeterminately true, then we shouldn't be able to assert that claim.

This brings me to my second, and related, objection. Cameron claims that only Indeterminate Futurism can ground the future contingent claims made by the Metaphysical Indeterminacy Solution. So suppose that 'there will be a sea battle tomorrow' is true (though not determinately true). The Growing Block can't ground that claim since it doesn't have future ontology to serve as those grounds. But does Indeterminate Futurism do any better? The view claims that it's indeterminate whether there's a sea battle tomorrow in the domain of the unrestricted quantifier. But surely that fact isn't enough to do the grounding work. For every future contingent claim (whether true or false), it's indeterminate whether there's a corresponding event in the domain. To put the point a different way: consider world W_1 where it's true that there *will be* a sea battle tomorrow (though it's also not determinately true) and another world W_2 where it's true that there *will not be* a sea battle tomorrow (though it's also not determinately true). Given that both claims are indeterminate, wouldn't both worlds contain the same indeterminately existing future ontology (at least with respect to tomorrow's sea battle)? If so, then there's no relevant difference between W_1 and W_2 in Indeterminate Futurism which makes it that W_1 grounds "there will be a sea battle tomorrow" while W_2 grounds "there will not be a sea battle tomorrow". So Indeterminate Futurism's ontology also fails to be discriminating enough to ground future contingents.

But perhaps Cameron would reply that the relevant difference between the worlds is that W_1 in fact *does* have (whereas W_2 lacks) a sea battle event in the tomorrow location of the future. For just as 'there will be a sea battle tomorrow' is true without being determinately true in W_1 (at

t_1), so there is a sea battle event in the quantifier's domain *even though it's indeterminate whether there is such an event*. But if this is the claim, I find it baffling—how could something exist even though it's indeterminate whether it exists? If *x* exists, doesn't *x* also determinately exist? For the above reasons, I much prefer MacFarlane's solution to the Open Future Problem. Even if that solution isn't completely 'natural'—as Barnes, Cameron and Williams charge—at least it's coherent.

3. Cognitive Attitudes Towards the Future

A different reason Barnes and Cameron give for preferring Indeterminate Futurism is that it makes better sense of our cognitive attitudes towards the future. As Cameron (2015, 199) puts it

> [Suppose] you are supremely confident that 'it will rain tomorrow' is neither true nor false. *Prima facie*, this means you ought to completely reject both the claim that it will rain tomorrow and its negation. If I am completely confident that some claim is not true, I ought to completely reject that claim. But this seems wrong: my confidence in it being open whether it will rain should not lead me to completely reject the claim that it will rain.

To put this argument in more concrete terms, let's consider the following scenario:

> Fran is a farmer who is supremely confident that the Growing Block theory is true (and that future contingents are neither true nor false). Now Fran is considering whether to plant seeds in her field. Since it's a contingent matter whether it will rain on Fran's seeds (perhaps because it's a contingent, though extremely unlikely, matter whether a bomb will fall on the field destroying the seeds), Fran should think that it's not true that the seeds will get rain.

In this situation Cameron would say that Fran's attitude towards the future requires her to not have any confidence in the claim 'it will rain on the seeds'.

I agree that the lack of confidence is absurd—the fact that there's a chance, however small, that a bomb will destroy the seeds is not good reason to completely lack confidence that the seeds will get rain. But I don't agree that the Growing Block theorist is forced into such an attitude. As Barnes and Cameron (2011, 19) point out elsewhere, Growing Block theorists could avoid the problem 'simply by denying that truth norms belief. But if they do so, they owe us an alternative explanation of what *does* norm belief.' So what could an alternative explanation look like? I think the natural thing to say is that objective probability or *chance* does the job.[6] Suppose we toss a fair coin, and it's metaphysically open whether or not it will land heads or tails. Intuitively, our level of confidence that it will land heads should be .5 since there's only a 50% chance that it will come out true. And the Growing Block theorist can make use of such an account. The fact that the coin has a 50% chance of landing heads doesn't depend at all on there being future ontology. Perhaps it's closely aligned with possible worlds—roughly, the coin has a 50% chance of landing heads just in case the measure of possible worlds in which it lands heads is equal to the measure of possible worlds in which it does not (for further explication see Bigelow [1976]; van Inwagen [1996, 223-5]). But the Growing Block theorist can have possible worlds (assuming that they are abstract objects).

Cameron (2015, 200) tries to further his point by giving this example:

[6] Barnes and Cameron refer the reader to Williams (ms) for objections to alternative accounts. But Williams doesn't quite discuss the view that chance norms belief. The closest he comes is in giving an argument that if one has an Aristotelian view of the future, then one should completely reject any future contingent claims. The Aristotelian view involves the claims, that for any future contingent p: (p v ~p), but not (T(p) v T(~p)). From this it follows that for some p: p & ~T(p). But from this further claim, Williams shows that absurdities follow. The Growing Block theorist can avoid this problem by applying MacFarlane's semantics. Say that *t* is the present and p is a claim concerning what will happen by time *t**. Then we can accept both: (p v ~p relative to *t**) and (T(p) v T(~p) relative to *t**). And we can deny both: (p v ~p relative to *t*) and (T(p) v T(~p) relative to *t*). Thus we can't get anything like the claim (p & ~T(p)): we can't derive either (p & ~T(p) relative to *t**) or (p & ~T(p) relative to *t*).

> suppose that a fair coin is due to be tossed at noon tomorrow, and I am utterly confident that the future is open with respect to whether or not it will land heads when tossed, and God tells me that He is going to zap my house with lightning if and only if it is true that it will land heads tomorrow. Intuitively, I think, I ought to evacuate. My belief that it is open what will happen does not conflict with, indeed it *mandates*, my thinking that the coin's landing heads is something that might happen.

But if chance norms belief, then the Growing Block theorist can agree with all of this. Since my confidence level that my house will be zapped is .5, this should move me to evacuate. Staying in the house isn't worth the risk.

4. Requires a Totally Open Future

The last reason Barnes and Cameron give for preferring Indeterminate Futurism is its flexibility in how open the future is:

> it is a *pro tanto* virtue of an account of openness that it allows such flexibility: that while it allows that the future is open in every contingent respect, it also allows that it be open in some but not all contingent respects. Ideally, our account of *what it is* for the future to be open should remain silent on the extent of *how* open the future is.
>
> This, I think, speaks against the growing block view. It looks inevitable that the growing blocker has to hold that the future is open with respect to every contingent way it might be…. There seems to be no room for the growing blocker to say that *some* future contingents are fixed: what would make it true (or false) that things will be that way, given that the relevant features of reality that would speak to the issue—future ontology—are simply lacking? (Cameron (2015, 197); see also Barnes and Cameron (2011, 6))

The challenge is that the Growing Block can't accommodate the possibility that there be 'fixed future contingents'. Unfortunately, Cameron and Barnes fail to give an example illustrating what might count as a 'fixed future contingent'. But I will present two cases that I take as representative candidates and argue that the Growing Block *can* accommodate them.

For the first case, consider the following. Suzy is a middle-class woman working an ordinary job. While daydreaming about being rich and famous she confesses to herself 'I could never afford a private jet!' In this situation, we might say that the proposition <Suzy can't afford a private jet> is *fixed* because her income is too low. But it's also clearly only *contingently* true, since she could devote herself to drastically changing her situation and eventually earning an enormous salary. So the proposition <Suzy can't afford a private jet> seems to be well-deserving of the label 'fixed future contingent'. But is the Growing Block too inflexible to make sense of it?

I don't think so. Suzy is (tacitly) thinking about those futures where her financial situation stays the same (or improves in only minor or predictable ways)—in none of those futures can she afford a jet. This is compatible with the fact that there are futures where her financial situation drastically improves. And the Growing Block theorist can account for all of this in terms of possible worlds: Suzy is tacitly quantifying over only those possible worlds in which all of her earnings come through her meager salary. So the Growing Block theorist needn't appeal to indeterminately existing future ontology.

Or consider a different sort of example. Suppose we discover that faster-than-light-speed travel is physically impossible. In this case, there seems to be a perfectly good sense in which it's both fixed that we can't travel faster than light, but also a contingent truth. But do we need to appeal to indeterminately existing future ontology to make sense of this? No. We need only appeal to the laws of nature and possible worlds: the laws of nature make it *fixed*—i.e. no possible world in which the laws of nature are the same is there faster-than-light-speed travel—but it's also *contingent* since there are possible worlds with different laws of nature and faster-than-light-speed travel. (Of course, one might deny that there are possible worlds with different

laws of nature. But if so, neither should such a person think that it's a *contingent* truth that we can't travel faster than the speed of light.**)**

I have presented a couple of examples that I take to be some of the clearest cases of fixed future contingents; but I have also explained why the Growing Block theory is compatible with them. Of course, Barnes and Cameron might have something substantially different in mind when they speak of 'fixed future contingents', but it's not at all clear to me what that would be.

5. Conclusion

I've evaluated the three reasons for preferring Indeterminate Futurism over the Growing Block theory and have found them all wanting. Either the putative desideratum is no desideratum at all—as in the case of providing a ontological ground for The Metaphysical Indeterminacy Solution—or it can be accommodated by the Growing Block theory—as in the cases of our cognitive attitudes towards the future and fixed future contingent truths. Insofar as Indeterminate Futurism runs into conceptual issues concerning indeterminate existence (as explained in section 1) that the Growing Block Theory avoids, the latter is the preferable view of the open future.

References

Barnes, E. & Cameron, R. (2011). Back to the open future. *Philosophical Perspectives*, 25, 1-26.

Barnes, E. & Cameron, R. (2009). The open future: bivalence, determinism and ontology. *Philosophical Studies*, 146(2), 291-309.

Barnes, E. & Williams, R. (2011b). Response to Eklund. In K. Bennett & D. W. Zimmerman (Eds.), *Oxford studies in metaphysics. Volume 6* (pp. 173-182). Oxford: Oxford University Press.

Barnes, E. & Williams, R. (2011a). A Theory of Metaphysical Indeterminacy. In K. Bennett & D. W. Zimmerman (Eds.), *Oxford studies in metaphysics. Volume 6* (pp. 103-148). Oxford: Oxford University Press.

Bigelow, J. (1976). Possible worlds foundations for probability. *Journal of Philosophical Logic*, 5(3), 299-320.

Cameron, R. P. (2015). *The moving spotlight: an essay on time and ontology*. Oxford: Oxford University Press.

Eklund, M. (2011). Being Metaphysically Unsettled. In K. Bennett & D. W. Zimmerman (Eds.), *Oxford studies in metaphysics. Volume 6* (pp. 149-172). Oxford: Oxford University Press.

Lewis, D. (1986). *On the plurality of worlds*. Oxford: Blackwell Publishers.

Macfarlane, J. (2003). Future contingents and relative truth. *Philosophical Quarterly*, 53(212), 321-336.

van Inwagen, P. (1996). Reflections on the essays of Draper, Gale, and Russell. In D. Howard-Snyder (Ed.), *The evidential argument from evil* (pp. 219-243). Bloomington: Indiana University Press.

Williams, R. Aristotelian indeterminacy and the open future. *Unpublished Manuscript*.