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Future Contingents are all False! On Behalf of a Russellian Open Future

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Abstract

There is a familiar debate between Russell and Strawson concerning bivalence and 'the present King of France'. According to the Strawsonian view, 'The present King of France is bald' is neither true nor false, whereas, on the Russellian view, that proposition is simply false. In this paper, I develop what I take to be a crucial (and unnoticed) connection between this debate and a different domain where bivalence has been at stake: future contingents. On the familiar 'Aristotelian' view, future contingent propositions are neither true nor false. However, I argue that, just as there is a Russellian alternative to the Strawsonian view concerning 'the present King of France', according to which the relevant class of propositions all turn out *false*, so there is a Russellian alternative to the Aristotelian view, according to which future contingents all turn out *false*, not neither true nor false. The result: contrary to millennia of philosophical tradition, we can be open futurists *without* denying bivalence.

1. Introduction

There are at least two familiar philosophical motivations for denying bivalence, the thesis that all propositions are either true or false. One we can trace back to Strawson and the famous debate about 'the present King of France'. According to Strawson, the proposition that 'The present King of France is bald' is of course not *true*, but neither is it quite right to call it false either – someone asserting this proposition does not *assert* something false, but rather *presupposes* something false. Of course, if you know the Strawsonian view in this domain, you will also know the Russellian view to which he was responding, namely, that

'The present King of France is bald' is not neither true nor false, but simply *false*.[1] The other, older motivation for denying bivalence can be traced back at least as far as Aristotle's famous discussion of the sea-battle tomorrow in *On Interpretation 9*.[2] In short, various philosophers, for various different reasons, have been attracted to the thesis of the *open future*, according to which, intuitively, given indeterminism, there does not now exist a complete 'story of the future'. And the standard view (often simply called the Aristotelian view) in this domain is this: future contingent propositions – propositions saying of some presently undetermined event that it will happen – are neither true nor false. For instance, if 100 years ago it was not then determined that I write this paper, then 100 years ago it was neither true nor false that I would write it.

The primary goal of this paper is to argue that, just as there is a Russellian alternative to the Strawsonian view concerning the present King of France, according to which the relevant class of propositions (involving presupposition failure) are simply false, so there is, for open futurists, a Russellian alternative to the Aristotelian view, according to which the relevant class of propositions (future contingents) all turn out *false*. The view I develop has it that if 100 years ago it was not determined that I write this paper, then 100 years ago it was simply *false* that I would write it, and, of course, false that I would not – and *not* because of a failure of any principle of classical logic. On the relevant semantics for 'will', something 'will' happen (as a first approximation) if and only if 'the unique actual future' features the thing happening. But if there is no 'unique actual future', as open futurists contend, then (on a Russellian analysis) such a proposition simply comes out false, for precisely the same reason as that 'The present King of France is bald' comes out false, according to Russell. Further, on this view, a proposition such as that 'Obama will sign the bill, or Obama will not sign the bill' is, on inspection, no more an instance of $p \vee \sim p$ than is 'The present King of France is bald, or the present King of France is not bald' (which is, of course, a disjunction Russell would say is *false*). The latter can certainly *seem* at first blush like an instance of $p \vee \sim p$, but in fact it is not, and – contrary to what nearly everyone in this debate has seemed to assume – neither is the former. Appearances sometimes deceive, and in this case, I believe, appearances have been deceiving us for quite some time.

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[1] There is, of course, an enormous literature on these issues. But for the classics, see Russell 1905, Strawson 1950, and Russell 1957.

[2] A more recent motivation for denying bivalence concerns *vagueness*, but, for purposes of this paper, I set this issue aside.

I wish I could claim that the 'all false' view I aim to develop is entirely original to me, but in fact it is not – or, as we will see, at least not entirely. What I regard as a precursor to the view I develop here was first articulated and endorsed in 1941 by Charles Hartshorne, and was later (it seems independently) developed (though not explicitly endorsed) by the founder of tense logic himself, A.N. Prior, in the 50s and 60s.[3] Hartshorne and Prior showed that one could have an open future without denying bivalence, given (at least what most will regard as) a rigged, causally-loaded semantics for the future-tense 'will', according to which to say that something *will* happen is (roughly) to say that it is determined to happen. However, I aim to show that one can have such an open future *without* adopting these semantics. That is, even on the standard semantics for 'will', future contingents will *still* turn out false; the way Hartshorne and Prior get to the 'all false' view is thus radically different than my own. In any case, though Hartshorne's and Prior's development of the given view remains largely unknown[4], having their views on the table will be a useful contrast in presenting my own.

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[3] An anonymous referee for *Mind* has noted that the claim the Prior developed his view independently of Hartshorne might be questioned: Prior referred to Hartshorne in his 1962a paper, 'Limited Indeterminism', and kept at least five papers by Hartshorne in his personal collection of offprints (housed in the Prior Archives at the Bodleian Library, Oxford). However, neither this reference nor any of the relevant offprints mention or pertain to Hartshorne's views on future contingents. In any case, to my knowledge, Prior nowhere cites Hartshorne as having earlier developed the same (or a similar) view.

[4] It would almost be easier (and more appropriate) to cite the handful of authors who *are* aware of the view than to cite authors who have written about future contingents (or related issues) who are not; there is the small (specialist) corner of the literature aware of the view (a good portion of which is cited at some point below), and there is *everything else*. Various reasons might be offered for this comparative neglect. For instance, while Hartshorne's articulation of the view was clear and relatively straightforward, there is, for one reason or another, something of a sociological divide between the tradition of 'process philosophy' in which he was so influential and what now (perhaps problematically) gets called 'mainstream analytic philosophy'. Further, while Prior's influence in analytic metaphysics has been considerable, much of his work in these areas has been highly formal in nature, and Prior's only developments of the view (with the exception of Prior 1976, published posthumously [and somewhat obscurely]) came at the ends of books that presupposed an entire system of ('Polish') formal notation that remains foreign to most readers. At any rate, the core view in question is in fact quite simple, and appreciating its structure requires hardly any technical apparatus at all. It is my conviction that part of the reason this view has not entered into the mainstream philosophical consciousness is that (with few exceptions) the only places one can find it discussed are highly technical and formal in nature (e.g., Thomason 1970, Øhrstrøm 2009, and Øhrstrøm and Hasle 2011), and are thus of interest (and are accessible) only to experts in the field. My aim here is thus to keep things (comparatively) 'intuitive' and simple – both in presenting the Hartshorne/Prior view, and in developing my own.

I begin by briefly presenting the open future view as developed by Hartshorne and Prior. As I will simply stipulate it here, the 'open future view' is the view that there are some events (or states of affairs, or…) such that it is not true that they *will* occur and not true that they *will not* occur.[5] Again, the standard way of getting this result is to say that there are events such that it is neither true nor false that they will occur, and neither true nor false that they will not. The view at issue here is different: there are events such that it is *false* that they will occur, and *false* that they will not. (Being neither true nor false is one way of not being true; being false is the other.) Before beginning, however, it is worth noting that I will not here *argue* for an open future view. The motivations for having an open future view may be dubious, but what is at issue here for me is what sort of open future view you should have, *if* you are going to have one. Further, I will not address *general* objections to open future views – objections that apply *both* to the Aristotelian view and to the 'all false' view I develop. It is well-known that such views face difficulties; it is also well-known that open future views are widely held and endorsed nevertheless. What I mean to show is that if the Aristotelian view is taken seriously (and it is), then so should the 'all false' alternative I develop.

2. The 'all false' view in Hartshorne and Prior

Though Hartshorne began in 1938 by defending the Aristotelian view, within a few years he had abandoned it.[6] Having first articulated the basic view in 1941[7], he put it much better, I believe, in his 1964 reply to Richard Taylor in the *Journal of Philosophy*:

> Although I am very much in agreement with most of Richard Taylor's fine article on "Deliberation and Foreknowledge," I do wish to comment on a dubious remark in the last paragraph. This is that "there can be no truth or falsity in any assertion about what any man's future deliberate act will be." Taylor is here assuming that "X will

[5] Again, I mean simply to *stipulate* this definition of 'the open future view' for purposes of this paper. I am not claiming that 'the open future view' so-defined is required in order to account (say) for our intuitive, pre-theoretical belief that the future is 'open' to our agency in some important sense in which (arguably) the past is not. Whether 'the open future view' as I have defined it is indeed required to account for this intuition is deeply controversial; see, e.g. Besson and Hattiangadi 2013 and Barnes and Cameron 2009 for recent arguments that it is not.
[6] See Hartshorne 1938. I owe this historical fact to Shields and Viney 2003, p. 215.
[7] See Hartshorne 1941, pp. 100-01.

> occur" and "X will not occur" must be either contradictories (rather than contraries) or else not well-formed statements capable of truth or falsity. But his previous argument is compatible with the view that the two statements are contraries, and thus may both be false in case the truth is "X may or may not occur." On this view, "real (causally conditioned) possibilities" are not merely subjective or linguistic, and "X will occur" means "all the real possibilities include X," while "X will not occur" means "none of the real possibilities include X," and "X may or may not occur" means "some only of the real possibilities include X." This third statement contradicts both of the others, which therefore must be alike false if it is true. In this way we save Excluded Middle for statements, and put our "third value" into the meaning of statements, rather than into their truth status. This seems to me preferable. (Hartshorne 1964, p. 476)

Perhaps Hartshorne's fullest statement of the view (and the metaphysical picture which motivated it) came the following year, in his 1965 *Mind* paper, 'The Meaning of 'Is Going to Be", but nothing there adds significantly to the view as presented above.[8]

Prior's first statement of the view seemingly came at the end of his *Time and Modality* in 1957.[9] At least, Prior there certainly came *close* to articulating the view in question, but, in my view, like Hartshorne, he put it better in later work. In Chapter 7 of his 1967 *Past, Present, and Future*, Prior writes:

> Turning now to the other way of answering the argument [for fatalism]…that of denying *Fnp* [It will be the case *n* units of time hence that *p*] always implies *PmF*(n + m)*p* [It was the case *m* units of time ago that *n* + *m* units of time hence it will be the case that *p*], I begin by modifying the ancient and medieval presentation of this alternative at one point. What is said by writers like Peter de Rivo is that predictions about an as yet undetermined future are neither true nor false. It did seem to me in the early 1950s that this was the only way to present an indeterminist tense-logic, but

[8] The most thorough discussion and defense of Hartshorne's views concerning future contingents is the excellent Shields and Viney 2003. Hartshorne's writings on this topic have not attracted much attention, but see this essay for a defense of Hartshorne's view against criticisms in Cahn 1967 and Clark 1969. See further Shields 1988 and Viney 1989.
[9] See Prior 1957, p. 95-6.

> in *Time in Modality* two alternatives to this were mentioned, one…which I now want to pursue further. What here takes the place of a third truth-value is a sharp distinction between two senses of 'It will not be the case the interval *n* hence that *p*'. This may mean either
>
> (A) 'It will be the case the interval *n* hence that (it is not the case that *p*)', i.e. *FnNp;*
>
> or
>
> (B) 'It is not the case that (it will be the case the interval *n* hence that *p*)', i.e. *NFnp*.
>
> 'Will' here means 'will definitely'; 'It will be that *p*' is not true until it is in some sense *settled* that it will be the case, and 'It will be that not *p*' is not true until it is in some sense settled that not-*p* will be the case. If the matter is not thus settled, both these assertions, i.e. *Fnp* and *FnNp*, are simply false… There is now no question of denying the Law of Excluded Middle…and moreover the allied metalogical 'Law of Bivalence'…is not abandoned either.[10] (Prior 1967, pp. 128-9)

It seems to me that Prior is here suggesting precisely the same view as was developed by Hartshorne. Note first that, like Hartshorne, Prior puts the point in terms of *meaning*; as he says, "Will' here means 'will definitely". And something will happen (in this sense) just in case it is causally settled that it happen; thus, it will be the case that *p* just in case *p* is true in all causally possible futures. (More about such 'futures' shortly.) And if 'the matter is not settled either way' – that is, if *p* is true in some but not all such futures – then both 'It will be that *p*' and 'It will be that not *p*' are false. (I think we can safely assume that 'It will be that not *p*' is logically equivalent to 'It will not be that *p*'.[11]) Thus, in Prior's language (which I will adopt henceforth), we can state the view as follows:

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[10] Note: Prior here assumes (as did Hartshorne) – and so will I – the controversial thesis that (at least some) propositions (a) are true at times and (b) can change their truth-value over time. I certainly cannot defend (or even adequately discuss) this thesis here. However, it is worth noting that this thesis was in fact the dominant view historically until the 20th century (as is shown in Uckelman 2012), and has many able defenders, including, of course, Prior himself. For the contrary view, however, see, e.g., Evans 1985 and chapter two of van Inwagen 1983; for discussion, see Percival 2002 and Schaffer 2012.

[11] Prior seems to suggest that the proponent of the given view should (or would want to) deny this thesis, but to discuss this issue would take us too far afield. See Prior 1957, pp. 95-6 and Prior 1967, p. 129. In the end, I am not entirely sure whether it is fair to say that the view I have presented here

(1) The falsity of 'It will be the case that *p*' does not imply the truth of 'It will not be the case that *p*'. The real contradictory of 'It will be the case that *p*' is, of course, 'It is not the case that it will be the case that *p*'. But 'It is not the case that it will be the case that *p*' is not logically equivalent to 'It will not be the case that *p*'. Accordingly, 'It will be the case that *p*, or it will not be the case that *p*' is not an instance of *p* v ~*p*.

(2) It will be the case that *p* iff *p* is true in all causally possible futures

It will not be the case that *p* (it will be the case that ~*p*) iff *p* is true in no causally possible future (~*p* is true in all causally possible futures)

It might become the case that *p* iff *p* is true in at least one causally possible future

It might not become the case that *p* (it might become the case that ~*p*) iff ~*p* is true in at least one causally possible future

I will leave it open how we should formalize the notion of truth in a possible future. However, in order to set the stage, we will need to say something slightly more about 'causal possibility' and the relevant 'futures'. Clearly, the relevant 'possible futures' are intimately related to the more traditional notion of an abstract possible *world* (as developed by, e.g., Plantinga and Stalnaker) with which I assume familiarity; they are, in short, segments of such worlds. In order to obtain the class of causally possible futures at a time *t*, first take the class of logically or metaphysically possible worlds. Then narrow that class down to only those worlds that share the same past as the actual world up to *t*, and the same natural laws.[12] The segments of these worlds after *t* are the causally possible futures at *t*. What you will be left with, in short, is the set of (metaphysically and logically possible) ways things could go relative to *t*, consistently with the past and the laws. If something holds (or is true) in all such

(as stated in (1) and (2) below) is exactly the same view Prior had in mind; at any rate, the view presented here is certainly similar to (and could easily be inspired by) the one Prior was suggesting.

[12] When I say 'share the same past as the actual world up to *t*', 'same past' should be understood to contain an implicit restriction; I mean the 'same past', intrinsically considered, or in which all the so-called 'hard facts' about the past remain the same. For an account of the 'hard/soft fact' distinction implicit in this restriction, see Todd 2013a.

futures relative to *t*, then it is causally necessary/determined at *t*.[13] Now, on determinism, of course, you will have narrowed the relevant set of worlds (or futures) down to *one*. On indeterminism, however, there will be various such ways things could go from here, consistently with the past and the laws.

Well, what should we make of the view developed by Hartshorne and Prior? The first thing to say is that, given indeterminism, it plainly generates an open future, *without* complicating one's logic with a denial of bivalence (or the Law of Excluded Middle). Suppose that whether Obama signs a given bill is now undetermined either way; in some causally possible futures, he signs it, and in others, he does not. Then it is false that Obama will sign it, and false that he will not – and here we have, then, an event such that it is not true that it will happen and not true that it will not. The view is plainly coherent. This is enough, I think, to show that 'the open future view' (as I have defined it) cannot simply be *identified* with the denial of bivalence (or the Law of Excluded Middle) for future contingents. Further, I think it must be admitted that, given the relevant understandings of what it is to say that something 'will' happen, 'will' and 'will not' clearly are not contradictories. From the fact that something is not determined to happen, we can hardly conclude that it is determined *not* to happen; obviously, it might not yet be determined either way.[14] If the relevant semantic claims about 'will' and 'will not' can be defended, then, the 'all false' view concerning future continents (propositions which say of an undetermined-either-way event that it will happen) will obviously follow. Clearly, it will always be false to say of an event that happens in only some but not all causally possible futures that it happens in all such futures.

Finally, I think it must be admitted that there is a usage of 'will' and 'will not' that corresponds to the semantics just considered. Sometimes, to say that an event will happen is (at least in part) to say something about *today* and what today makes inevitable. But now we can come to the problem. For there also seems to be a merely *predictive* usage of 'will' that

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[13] Note: on this construal, anything that is metaphysically or logically necessary is *ipso facto* also causally necessary. Of course, it sounds a bit strange to say that it is now causally necessary (and especially causally determined) that 2 + 2 shall equal 4, but the consequence seems harmless. In fact, I rely on this consequence to solve a minor problem below.

[14] Two comparisons, also noted by Prior: from the fact that it is not the case that one is obligated to do X, it does not follow that one is obligated *not* to do X; one might have no obligation either way. And from the fact that it is not the case that one believes that *p,* it does not follow that one believes that ~*p*; one might lack a belief either way. See Prior 1967.

does *not* correspond to these semantics. Hartshorne and Prior are plainly right that future contingents will all turn out false, *given* the relevant 'causally loaded' semantics for 'will' and 'will not'. The crucial question, however, is whether future contingents will still turn out false, even on the *non-loaded* semantics. This is the claim that stands in need of defense. And this is the claim I now aim to defend. At least, I defend the following conditional: *if* you side with Russell (against Strawson) concerning presupposition failure, then you should, if you are an open futurist, think that future contingents all turn out false.

3. The different senses of 'will'

After laying out the above semantics – which Prior calls the 'Peircean' semantics (after C.S. Peirce, though not because Peirce endorsed them[15]) – Prior considers the obvious rejoinder:

> Nevertheless, the way of talking that I have just sketched shares with the three-valued way of talking one big disadvantage, namely that it is grossly at variance with the ways in which even non-determinists ordinarily appraise or assign truth-values to predictions, bets and guesses. Suppose at the beginning of a race I bet you that Phar Lap will win, and then he does win, and I come to claim my bet. You might then ask me, 'Why, do you think this victory was unpreventable when you made your bet?' I admit that I don't, so you say, 'Well then I'm not paying up then – when you said Phar Lap would win, what you said wasn't true – on the three-valued view, it was merely neuter: on this other view of yours, it was even false. So I'm sticking to the money.' And I must admit that if anyone treated a bet of mine like that I would feel aggrieved; that just isn't the way this game is played. (Prior 1976, p. 100.)

If, like Prior, you would feel aggrieved in these circumstances, then you have a grasp of the foundational principle of what Prior calls an 'Ockhamist' tense-logic, and the 'Ockhamist' semantics of 'will', on which to say that something 'will' happen is simply to say that it 'does' (in the future) happen, nothing more.[16] (I return to these semantics in a moment.) As Prior

[15] See Prior 1967, p. 132.
[16] I borrow this construction from Rhoda et al. 2006. For an excellent recent defense of Ockhamism, see Rosenkranz 2012.

notes, the Peircean 'will' simply corresponds to the Ockhamist 'will definitely'. Following Prior 1976, we can use all-caps to indicate the Peircean (causally-loaded) sense of 'will' developed above, and lower-caps to indicate the Ockhamist usage. Our question thus becomes this. Clearly, when the futurition of *p* is undetermined either way, the open futurist should (as indeed everyone must) say that 'It WILL be that *p*' and 'It WILL NOT be that *p*' are both false. But what should she say about 'It will be that *p*' and 'It will not be that *p*' – where the 'will' here is the ordinary, merely predictive 'will' of the Ockhamist?

That this is the core issue is, I think, nicely picked up on by Dale Tuggy. Tuggy himself defends the open future view, but of the Aristotelian variety. Tuggy writes:

> There are different tenses we can use in talking about the future. J. R. Lucas, following Hans Reichenbach, distinguishes between the "simple future" and "posterior present" tenses. The English sentence "There will be a sea battle tomorrow," Lucas explains, can be understood in two ways.
>
> > [T]he simple future speaks only about tomorrow, that it is a sea-battle day, whereas the posterior present says something about today too, that it is a day-before-a-sea-battle-day.
>
> Thus the assertion that Howard will scream can be understood as "At some future time or other, Howard screams" (simple future tense) or as "As of now, Howard will (definitely) scream" (posterior present tense). The importance of this distinction is that when it comes to statements about future contingents in the posterior present tense, there is no need to deny bivalence, as all such claims are presently true or false… However…we know that as of now, when p is a future contingent, reality doesn't presently feature p happening or not happening in the future. Hence, both "it will be that p" and "it will be that ¬p" (simple future tense) are presently neither true nor false. The failure to distinguish between simple future and posterior present manifests in persistent confusion [concerning whether] ¬Fp and F¬p make the same assertion. If we read "F" as simple future, these are logically equivalent. But reading

> the "F" as posterior present, it is clear that they mean different things.[17] (Tuggy 2007, p. 37)

Tuggy thus admits that 'It is not the case that it WILL be that *p*' is not logically equivalent to 'It WILL NOT be that *p*'. However, Tuggy contends that (lower-case) 'It is not the case that it will be that *p*' *is* logically equivalent to 'It will not be that *p*'. Thus, Tuggy maintains that 'It will be that *p*' and 'It will not be that *p*' are contradictories, and in order to generate an open future, we will therefore have to deny bivalence (or the Law of Excluded Middle), contra Hartshorne and the view developed above. So Tuggy contends. But why think that ~Fp and F~p (where 'F' is read with the Ockhamist's 'simple future tense') are logically equivalent? This is the question for the following section.

4. The 'all false' view recovered

It is crucial to my Russellian case for the 'all false' view that we see, on the one hand, what the Ockhamist's 'will' presupposes, and, on the other, what the open futurist *qua* open futurist denies. As a first approximation, what the Ockhamist's 'will' presupposes is that there exists what we might call 'the unique actual future'. And that there is such a future is precisely what open futurists deny.

Reconsider the above discussion concerning the causally possible futures at a time. First, take the logically or metaphysically possible worlds, and then narrow the focus to those worlds that share the same laws and the same past (up to *t*) as the actual world; the relevant segments of these worlds will be the causally possible futures at (and relative to) *t*. And recall: on determinism, you will have narrowed the relevant set of worlds down to *one*. And this is, of course, 'the actual world', and its relevant segment is what we might call 'the unique actual future'. More particularly, on determinism, once you 'add in' the past and the laws, you thereby 'narrow down' the range of candidates for being the 'actual world' (or the 'actual future') to a single world (or future). On indeterminism, not so. If we are going to

[17] Tuggy here criticizes the Peircean/Hartshornean view as defended by Rhoda et al. 2006 (which contains what I consider an interesting strategy for defending the Peircean/Hartshornean semantics for 'will').

narrow down the candidates for being the actual world to one, we are going to have to do it in a different way; the past and the laws will not suffice.

At this point, we must consider (though, again, I will certainly not defend) the guiding thought behind the open future view, as I am conceiving of it in this paper. That thought is this: there is, given indeterminism, *no further way to narrow down the set of causally possible futures to a unique actual future*; there is, then, on indeterminism, no *unique actual future* of the sort just specified, or, said differently, no possible world that is, as of now, uniquely specifiable as 'the actual world'. The various possible worlds perhaps *exist* (as abstract representations of total histories), but no one of them is currently 'actual'. According to the open futurist, there is only an 'actual world' (in the relevant sense) from (a) the standpoint of the end of time, so to speak, or (b) from the standpoint of a time at which all indeterminism in the world has been eliminated. Suppose, by way of illustration, that, necessarily, human free will is the only source of objective indeterminism in the universe. And suppose, by way of further illustration, that God is now (at *t*) wanting to have in mind a complete 'blueprint' concerning 'how things go' – that is, God wants to know at *t* which of the causally possible futures at *t* is the 'actual' one, the privileged one, or more generally, which world is the 'actual world'. According to the open futurist, if this is what God wants to know, God will be sorely disappointed, for there simply *is no* such privileged future of those various futures that remain causally possible. If, however, human beings go out of existence (or come irrevocably to lack free will, or…), *then* God could (given our assumptions) construct such a 'blueprint'; God could, of course, simply *deduce* all future facts from present conditions and laws. At that point, the causally possible futures at *t* will be reduced to a single future – and, at that point, and at that point only, will there exist 'the actual world' (and 'the unique actual future') in the traditional sense.[18][19]

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[18] Making essentially the same points in a slightly different framework, Tuggy writes:

> A couple of interesting things follow from this picture. First, there is at present no actual world! … one can reason about possible and impossible worlds, which would be maximal branches through the tree, but there won't now be any actual world. Further, if God essentially has libertarian freedom and necessarily exists, and time doesn't end, there is at *no* time an actual world. (Tuggy 2007, p. 33)

Similarly, Kodaj 2013 argues that

> Since realistically conceived possible worlds are maximal in the sense that they contain/represent the full history of a possible spacetime, past and future included, if such a

So the open futurist denies that there exists 'the unique actual future'. And the core disagreement between the open futurist and the Ockhamist is this: whether, even in the presence of indeterminism, there could be a 'unique actual future', or, in other words, a so-called 'thin red line' marking a privileged future of those that remain causally possible (I return to this terminology in a moment). The Ockhamist says 'yes'.[20] The open futurist says 'no'.[21] That is, the Ockhamist thinks that, even if the past and the laws do not uniquely pick out a single future, nevertheless one such future is indeed 'privileged'. What makes it so? Ultimately, the Ockhamist seemingly (or anyway allegedly) must say *nothing* – that it just *is* privileged in this way. The core *metaphysical* dispute between the open futurist and the Ockhamist comes down, I believe, to whether this answer is ultimately acceptable. The question is one concerning *grounding*. The open futurist thinks that the existence of such a 'privileged' future would be unacceptably arbitrary or brute. The Ockhamist disagrees.[22]

> world is actual now, the future is fully settled now, which rules out openness. The kind of metaphysical indeterminacy required for an open future is incompatible with the kind of maximality which is built into the concept of possible worlds. (Kodaj 2013, p. 417)

The point is clear: if the future is open in the relevant sense, then there is no 'actual world', and *ipso facto* no 'unique actual future'.

[19] There has recently been an explosion of interest in precisely this conception of God's relationship to time and the future; this sort of picture amounts to one version of what has become known as 'open theism'. In fact, though the view is religiously non-traditional (and therefore historically unpopular), Hartshorne and Prior were themselves both theists of basically this stripe; see Hartshorne 1941 and Prior 1962b. In short, if we combine the open future view with theism, God's omniscience *does not* imply that, for anything that happens, God always knew it would happen. For recent developments of this sort of theistic view, see Rhoda et al. 2006, Rhoda 2007, and Tuggy 2007. For criticism, see Pruss 2010 and Craig and Hunt 2013.

[20] What I am calling 'Ockhamism' is thus distinct from what Øhrstrøm 2009 and Malpass and Wawer 2012 call 'Priorean Ockhamism', which denies this thesis – I am identifying it rather with what they call 'True Ockhamism' (which better captures Prior's intended Ockhamism than 'Priorean Ockhamism', at it were), but I set these issues aside. There is, I should note, another form of 'Ockhamism' discussed in a related (but almost entirely non-overlapping) literature, according to which God's past beliefs about future contingents, since constitutively oriented towards (or otherwise dependent on) the future, are 'soft facts' about the past, and consequently do not possess the fixity (or necessity) of the past. John Martin Fischer's 1989 collection is the *locus classicus* of the debate about Ockhamism thus understood; see also Todd 2013a and Todd 2013b. How these 'Ockhamisms' relate to one another, and to the historical Ockham, is an interesting question beyond the scope of this paper.

[21] As Rosenkranz says, 'The Ockhamist allows…while both the Peircean and the Supervaluationist Indeterminist [the Aristotelian] deny… that there is a thin red line marking out the one and only course of events, of all the possible future ones, that is going to unfold'. (2012, pp. 625-6)

[22] See Rosenkranz 2012 for an excellent review of (and contribution to) this debate.

Thankfully, we need not resolve (or further unpack) this *metaphysical* dispute here; my aim is simply to bring out what one should say *if* one comes down on the side of the open futurist with respect to this question.[23] So return to the Ockhamist *semantics* for 'will'. To say that something will happen (in this mode) is simply to say that it belongs to the unique actual future, *not* that the thing is determined to happen. The thing may *be* determined to happen (in which case it is certainly part of the unique actual future), but to *say* that it will happen is not *ipso facto* to say that it is determined – again, it is only to say that the thing happens in the unique actual future, in the actual way things go from here. After all, that there is such a 'unique actual future' is supposed to be the precise upshot of the objection to the Peircean semantics considered above; from the fact that Phar Lap *has* won, it follows that it would have been correct to predict that Phar Lap *would* win – that, at the time of the prediction, Phar Lap's winning was part of the 'actual future' relative to that time.[24] And so on, of course, for everything else that happens; from the fact that something has happened, it follows that it was all along part of 'the actual future'. And, so the Ockhamist says, sometimes to say that something will happen is only to say something about that future – and *not* to say something about what today makes inevitable.

We could also put the point this way. Intuitively, the idea behind 'the unique actual future', given indeterminism, is that there exists what Nuel Belnap and Mitchell Green have

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[23] Though perhaps I should simply register my judgment that open futurist arguments against a privileged future often strike me as weak or otherwise defective. MacFarlane 2003, for instance, argues against a 'thin red line' marking a privileged future (thereby motivating, in part, his much-discussed brand of relativism) as follows:

> [P]ositing a thin red line amounts to giving up objective indeterminism. The non-red branches in the tree are supposed to represent objectively possible futures, but their non-redness indicates precisely that they will not be the continuations of the history that includes the utterance in question. Looking down on the tree of branching histories from above, God can see that given the past and the context of utterance, only one continuation remains in play: the one marked with the thin red line. In what sense, then, are the others really 'possibilities'? They are possibilities in an epistemic sense: the utterer does not know which history is marked out with the thin red line. But objectively speaking they are not genuine possibilities at all. (2003, p. 325)

But this hardly seems conclusive; in fact, it seems to me that MacFarlane is moving without argument from the fact that the relevant futures *will not* be continuations of the present to that they *cannot* be – but this is precisely what is at issue. How best to argue against a privileged future is no trivial matter; nevertheless, there does seem to be a compelling intuition in the neighborhood. For discussion, see Todd and Fischer forthcoming.

[24] However, see MacFarlane 2003 for an ingenious argument that this is not, in fact, the 'upshot' of the naturalness of making such retrospective assessments of truth to predictions.

called 'the thin red line' – that is, that of all the causally possible ways things could go from here, there is a 'thin red line' marking one such way as the special one, as the 'actual way things will go'.[25] Given 'the thin red line', one given future is 'metaphysically privileged' – and this is the 'unique actual future'. Associated with the thin red line is a semantics for future contingents. Intuitively, the core idea is this: once we help ourselves to a 'privileged future' or a 'thin red line', the semantics for 'It will be the case that *p*' will simply fall out – namely, in terms of truth (or holding, or obtaining…) in that future.[26] *Modulo* a revision I note below, we thus get the following analysis (which could, of course, be stated [and more formally developed] in different ways):

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[25] See Belnap and Green 1994, who though they reject the thin red line, introduced the term; the basic idea, however, was developed in McKim and Davis 1976. For a nice overview of the theory, see Øhrstrøm 2009. As Malpass and Wawer note,

> The thin red line is a theory about the semantics of future-contingents. The central idea is that there is such a thing as the 'actual future', even in the presence of (perhaps radical) indeterminism. (2012, p. 117)

There are, then, as I shall understand it, at least two ways there could be a 'unique actual future'. One is if determinism is true; the unique actual future will simply be the sole future consistent with the past and the laws. The other is if indeterminism is true, but that nevertheless there exists a thin red line. As I will have it (though nothing of substance turns on the terminology), there exists a 'thin red line' only on indeterminism; if determinism is true, the sole future consistent with the past and the laws is not marked with the thin red line, as it were, but attains its privileged status another way. Thus, if there is a thin red line, there is a unique actual future, but if there is a unique actual future, it does not *automatically* follow that there is a thin red line – for determinism may be true.

[26] Perhaps the most sophisticated development of these semantics is Malpass and Wawer 2012, which, given its technical complexity, I certainly cannot adequately discuss here. However, a few quotations may give us the flavor of the theory:

> It is a delicate point that Ockham is making. The plain future tense [which the model is meant to capture] is modally thicker than 'possibly might', but modally thinner than 'necessarily will'. (120)

The model, then, is meant precisely to capture the sense of 'will' at stake. They go on:

> This means that to construct the True Ockhamism we should have the notion of the 'actual course of history' as a structural feature of the model… we need to add to the semantical models we are considering. The addition we make is a distinguished history, called the thin red line (or *TRL).* (124)

> The basic *TRL* semantics, found in Øhrstrøm (1981), is based on an idea that we need to intimately bind the interpretation of the F operator with the *TRL*. So, "There will be a sea battle" is true if there is a sea battle in the actual future. (125)

Note: if we make this latter claim a biconditional (as would seem appropriate), the result is (more or less) what I call UAF below.

(UAF) It will be the case that *p* iff the unique actual future features *p*

But I think we can now state the case for the Russellian 'all false' view I favor, and notice the substantial parallels between these issues and the debate about 'The present King of France is bald'. The parallels here are obvious: just as everyone denies that there exists 'the present King of France', so the open futurist denies that there exists 'the unique actual future'. Indeed, such a denial is precisely what makes one an open futurist (in the sense at stake). But if there exists no 'unique actual future', what becomes of 'The unique actual future features *p*'? That, in turn, depends on the logical form of 'The unique actual future features *p*'. If Russell is right, then its logical form is (roughly) as follows: 'There exists a unique actual future, and that future features *p*'. And, then, given open futurism – that there is no unique actual future – this claim will turn out false, since its first conjunct is false. And then future contingents will turn out false. That is the basic idea.

The idea, then, is that, given Russell's view, UAF should be further 'parsed' as follows:

(UAF-R) It will be the case that *p* iff there exists a unique actual future, and that future features *p*

And it is clear how, on this analysis, 'It will be the case that *p*' comes out false, in the absence of a unique actual future. The claim, then, is that the 'simple future tense' or the Ockhamist's 'will' implicitly quantifies over 'the unique actual future' and thus, given open futurism, the relevant propositions simply come out false. The situation is, I believe, precisely parallel to the case of 'the present King of France'. Suppose someone says that the present King of France is bald. And suppose Russell presses her to clarify. Russell thinks such a clarification will (or ought to) go (roughly) as follows:

> I am saying that there exists a person – the present King of France – and that this person is bald.

And then Russell will tell her: then what you are saying is false, if that is what you are saying, for there is no present King of France – and similarly if you were to say that the present King of France is *not* bald. According to Russell's analysis, since the present King of France fails to exist, it is false that the present King of France is bald, and it is false that the present King of France is *not* bald. Likewise, suppose someone says that Phar Lap will win. I ask her to clarify. And suppose the clarification goes as follows:

> I am saying that there exists a unique actual future, and that that future features Phar Lap winning.

Given indeterminism, the open futurist should thus say: then what you are saying is false, and similarly if you were to say that Phar Lap *will not* win. And future contingents will thus all turn out false. Again, the parallels are clear.

Of course, it is not for no reason that the Aristotelian view has been favored for so long, and it is worth considering what could be said on behalf of such a perspective. The Aristotelian – or, as I am trying to show, the Strawsonian open futurist – would contend that UAF *should not* be further 'parsed' as UAF-R. And they would, I suspect, suggest the following:

> When someone says that something will happen (in the Ockhamist's mode), she says that the unique actual future features that event happening. But it turns out that (given indeterminism) there is no unique actual future. Thus, there is nothing that could make her statement true, and nothing that could make it false (viz., that future featuring, or not featuring, the given event). Thus, her statement *isn't* true and it *isn't* false. Further, if someone says, 'Phar Lap will win', or, in other words, 'Phar Lap's winning is part of the unique actual future', the proper thing to say back to her is not, 'That's false', but instead something like, 'Well, that's not quite true and not quite false, you see – for there is no unique actual future for it to be part of'. If you say 'That's false', that obviously seems to indicate that you take it that Phar Lap's winning *isn't* part of the unique actual future, when what you really want to indicate is that there is no such privileged future for it to be part of in the first place.

Similarly, on a Strawsonian approach, if someone says, 'The present King of France is bald', there is nothing that could make her statement true, and nothing that could make it false (viz., that King having, or not having, hair). Further, we would not normally reply to such a statement by saying, 'That's false', for that would (normally) conversationally imply that we take it that the present King of France is in fact perfectly hirsute. Rather, we would reject the statement as somehow inappropriate – as not even rising to the level of falsehood, as it were.

I certainly cannot here settle the (extensive) debates between the Russellian and Strawsonian views about definite descriptions, presupposition failure, and bivalence. The important point, for my purposes, is simply that the issue concerning future contingents is isomorphic to this debate. And this much seems clear. That is, there is a familiar debate concerning whether

The present King of France is bald

ought to come out neither true nor false, or simply false, given that there is no present King of France. Similarly, there ought to be a similar debate concerning whether

The unique actual future features Phar Lap's winning (i.e. Phar Lap will win)

ought to come out neither true nor false, or simply false, given that there is no unique actual future. Given open futurism, the 'all false' view concerning future contingents is exactly as strong as the Russellian case concerning 'the present King of France'. And, given the prevalence of the Russellian view, I believe most will agree that this case is very strong indeed.

5. A complication, and a modification

That is the basic idea of this paper. But now we must turn to a slight complication, and make a corresponding modification. The complication is this: UAF (and, in turn, UAF-R) is meant to give the truth conditions for the 'simple future' – for the Ockhamist's 'will'. But the open futurist will have trouble accepting UAF as it stands. Consider, for instance,

necessary truths. Suppose someone says – in the simple future tense – that it will be the case that 2 + 2 = 4. Intuitively, the open futurist should be able to grant that what this person says is true (even if someone's saying such a thing would be more than a bit odd). But, on open futurism, it is false, given UAF-R (and neither true nor false on the Strawsonian approach), since there is no unique actual future (and so 2 + 2 = 4 fails to be true in that future). Or suppose someone says that Phar Lap will win, and, as it happens, he WILL – that is, his winning is determined by the past and laws. Intuitively, again, the open futurist should be able to grant that what this person says is true (that is, that WILL entails will).[27] But it could be that though Phar Lap's winning is *locally* determined, much else about the future is *not* determined, and thus there is still no unique actual future. (The open futurist thinks there is a fully complete, maximal 'unique actual future' only on global determinism.) In short, on UAF, and on open futurism, WILL does not entail will – and this seems to be a problem.

Thankfully, there is a solution to this problem, and that is simply to make the analysis harmlessly disjunctive[28]:

(UAF-R*) It will be the case that *p* iff there exists a unique actual future, and that future features *p*, OR *p* is true in all causally possible futures

The additional clause takes care of our two cases: 2 + 2 = 4 is true in all *causally* possible futures, simply because 2 + 2 = 4 in any possible future at all, and if Phar Lap's winning is determined, then he wins in all causally possible futures. Thus, on UAF-R*, the relevant propositions come out true, even in the *absence* of a unique actual future, just as desired. Of course, the Ockhamist will regard the additional clause as wholly redundant, for if *p* is true in all causally possible futures, it therefore follows that it is true in the unique actual future; that *p* is locally determined (or is logically or metaphysically necessary) is just a way of its being *guaranteed* that *p* is part of the unique actual future. But the addition for this reason seems harmless – and it has the desired result that open futurists can accept the analysis. Moreover, the addition leaves the case for the Russellian 'all false' view I have developed just

[27] For what amounts to a denial of claim that WILL entails will, however, see Rhoda 2010.
[28] I am deeply grateful to Andrew Bailey for suggesting this disjunctive approach, thereby saving me from a great many complications.

as it was. Clearly, in the case of a future *contingent*, the relevant new clause will never be triggered. Thus, on UAF-R*, in the absence of a unique actual future, future *contingents* will all turn out false.

6. An open future without denying bivalence

Before concluding, it is worth seeing more clearly how the view developed here will generate an open future, *without* denying bivalence (or the Law of Excluded Middle). Suppose someone comes to Russell saying the following:

> The present King of France is bald, or the present King of France is not bald. That's simply a tautology, an instance of $p \vee \sim p$. But here you are saying that it's false that the present King of France is bald, and false that the present King of France is not bald. So both disjuncts of the disjunction turn out false, on your view, and so the disjunction too turns out false. But the disjunction is simply an instance of $p \vee \sim p$, and is accordingly a necessary truth. What do you have to say for yourself?

Russell should reply that this person is confused. Russell should say:

> 'The present King of France is bald, or the present King of France is not bald' may *look* to you at first blush like an instance of $p \vee \sim p$, but in fact it isn't. Of course, the real instance of $p \vee \sim p$ is this: 'The present King of France is bald, or it is not the case that the present King of France is bald'. And *that's* a disjunction that I say comes out true, and necessarily so. For consider the second disjunct. This is the negation of 'The present King of France is bald'. And, as I have explained, on my view, 'The present King of France is bald' is false (though I will not rehearse my case for that claim here). Accordingly, its negation is true, and so the disjunction is true. In general, there is no way that 'The present King of France is bald, or it is not the case that the present King of France is bald' could come out false. For suppose the present King of France exists. Well, then he is either bald or he isn't.[29] But suppose

[29] As I note below, I am of course setting aside worries about the vagueness of 'is bald'.

> he doesn't exist. Then the second disjunct will *still* be true, and the disjunction true. Plainly, you'll never catch me having to deny a real instance of $p \vee \sim p$.

Similarly, suppose someone comes to the Russellian open futurist saying the following:

> Phar Lap will win, or Phar Lap will not win. That's simply a tautology, an instance of $p \vee \sim p$. But here you are saying that it's false that Phar Lap will win, and false that Phar Lap will not win. So both disjuncts of the disjunction turn out false, on your view, and so the disjunction too turns out false. But the disjunction is simply an instance of $p \vee \sim p$, and is accordingly a necessary truth. What do you have to say for yourself?

The Russellian open futurist ought to reply as follows:

> 'Phar Lap will win, or Phar Lap will not win' may *look* to you at first blush like an instance of $p \vee \sim p$, but in fact it isn't. Of course, the real instance of $p \vee \sim p$ is this: 'Phar Lap will win, or it is not that case Phar Lap will win'. And *that's* a disjunction that I say comes out true, and necessarily so. For consider the second disjunct. This is the negation of 'Phar Lap will win'. And, as I explained, on my view, 'Phar Lap will win' is false, at least if Phar Lap's winning isn't determined (though I will not rehearse my case [via UAF-R*] for that claim here). Accordingly, its negation is true, and so the disjunction is true. In general, there is no way that 'Phar Lap will win, or it is not the case that Phar Lap will win' could come out false. For suppose Phar Lap's winning is in fact determined. Then the first disjunct will be true, and the disjunction true.[30] But suppose Phar Lap's winning is *not* determined. Then the second disjunct will *still* be true, for the second disjunct is simply the negation of 'Phar Lap will win', and, as we just saw, that proposition turns out false when Phar Lap's winning isn't determined. And the negation of a falsehood is a truth. So the disjunction itself will come out true. Plainly, you'll never catch me having to deny a real instance of $p \vee \sim p$.

[30] In this case, the latter clause of UAF-R* will be triggered; Phar Lap wins in all causally possible futures.

It is worth bringing out here exactly what, as I see it, makes the case of future contingents so controversial, and so vexing. Note why 'The present King of France is bald, or the present King of France is not bald' has the ring of a tautology. This is because, I think, this is a proposition that indeed could not fail to be true, *if* indeed there exists the present King of France. (That is, in every world in which there exists the present King of France, this disjunction is true.) If the present King of France exists, then he is either bald or he is not. (Of course, the example is slightly [and a bit ironically] unfortunate; I am setting aside worries about the famous vagueness of 'is bald'.) We can only see that this *is not* a necessary truth once we see the possibility that there could simply fail to be a present King of France to begin with. Exactly the same effect, I believe, explains why 'Phar Lap will win, or Phar Lap will not win' can so easily seem that it could not fail to be true ('It has to be one or the other!'), at least not without some failure of classical logic. For this is indeed something that could not fail to be true, *if* the open futurist is wrong, and if there is indeed a unique actual future.

Look at it this way. On the open future view I am suggesting, to assert that 'Phar Lap will win, or Phar Lap will not win' is indeed to assert something that could not fail to be true, *if* open futurism is false, and there is indeed a unique actual future (whether because determinism is true, or because, even in its absence, there is a 'thin red line'). On the background metaphysics of the non-open-futurist, there *does* exist a unique actual future. Against this background, it is obvious that 'Phar Lap will win, or Phar Lap will not win' is a proposition that could not fail to be true, without a failure of classical logic. More generally, if there exists a fully complete 'unique actual future', then that future either includes Phar Lap's winning or it does not; if it does, he will win, and if it does not, he will not. But precisely my point is this. The open futurist – rightly or wrongly – rejects these background metaphysics. And once we see – and only once we see – the possibility that there could simply fail to be such a privileged future can we see how the relevant disjunction is *not* a tautology, is *not* an instance of $p \vee \sim p$, and accordingly could fail to be true, without any violation of the classical logical principles of bivalence and Excluded Middle.

6. Conclusion

Return to the view articulated by Hartshorne and Prior developed above. What Hartshorne and Prior showed was that one could maintain that future contingents are uniformly false, without denying bivalence (or the Law of Excluded Middle). The Russellian open future view I have developed ends up in the same place, but in a radically different way. Recall that for Hartshorne (and on the 'Peircean' view articulated by Prior), to say that something will happen is to say that it happens in all causally possible futures. Future contingents thus end up containing something like an internal contradiction: to say that something will happen is to say that it is determined to happen, but what makes a proposition a future *contingent* is precisely that the events are *not* determined to happen either way. The problem for this view, of course, is that it advances what nearly everyone will agree is a highly implausible view about (to use Hartshorne's own paper's title) 'The Meaning of 'Is Going to Be". To say that something will happen is not *ipso facto* to say that the thing is determined to happen.

But this is *not* how I have tried to generate the conclusion that future contingents all come out false. Instead, I have argued that, even on the standard, 'Ockhamist' semantics for 'will', the open futurist can *still* plausibly maintain that future contingents all turn out false. As the open futurist sees it – anyway, as this open futurist sees it – if there are many ways things *could* go from here, then there could be nothing that grounds why any given such way is nevertheless 'specially marked' as the way things 'actually go' from here. On my view, when we try to talk about 'what will happen', we presuppose a metaphysical picture of time and the world that philosophical reflection ultimately recommends that we reject: that there is a unique actual future. This is not an easy philosophical road to walk – and perhaps no one should walk it. But my point here is this: *if* you are going to walk it, then, contrary to at least two millennia of philosophical tradition, you can do so without abandoning any principle of classical logic. You can – and if Russell is right, you should – maintain that future contingents are simply false.[31]

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