PRESENTISM, PROPOSITIONS, AND PERSONS:

A SYSTEMATIC CASE FOR ALL-FALSISM

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Amy E. Seymour

Michael C. Rea, Director

Graduate Program in Philosophy

University of Notre Dame

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Abstract

by

Amy E. Seymour

I present a systematic case for all-falsism – the view that all undetermined future contingent propositions are false. I show that all-falsism is not only defensible, but attractive. It allows one to keep a wide range of philosophical intuitions and views, including bivalence, classical logic, libertarianism about free will, the fixity of the past, the openness of the future, non-existentialism about propositions, grounding for truth of propositions about the past, truth supervenes on being, and modal realism, all while being a presentist par excellence.

Presentism, the view that there are no non-present objects, is objected to in part because detractors think presentism requires one to give up at least one of the previously listed intuitive positions. These objections assume that some undetermined future contingents must be true. In chapter one, I show this assumption must go – all-falsism is an option. The common objection that all-falsism is a contradictory position fails. The
all-falsist maintains that propositions about the future – *will* propositions – behave like modals. ‘Will’ is a kind of necessity operator.

In chapter two, after showing that the all-falsist can account for truths about the past, I argue that if one thinks ‘will’ a kind of necessity operator, one should reduce times to possible worlds. I demonstrate this reduction and show that it nicely accounts for similarities between times and possible worlds. This reduction allows the all-falsist, unlike other open future theorists, to be a modal realist.

All-falsism proves not only advantageous to presentists, but turns out to be the best open future view (OFV). There is currently widespread disagreement regarding requirements for OFVs. In chapter three, I settle the dispute. OFVs deny the tense logic axiom (K): p → HFp (if p, then it has always been the case that it will be that p). With this requirement in hand, I show all-falsism superior to all rivals.

In chapter four, I answer epistemological and pragmatic objections. I present the beginnings of semantics which answers the objections. The all-falsist can account for assertions people commonly make. In addition, I show that all-falsism provides a useful explanation of our behavior in lottery cases and the beginnings of a middle-ground position between contextualism and traditional epistemology.
For Mom and Dad

“Supposing a tree fell down, Pooh, when we were underneath it?”

“Supposing it didn’t,” said Pooh after careful thought.

Piglet was comforted by this, and in a little while they were knocking and ringing very cheerfully at Owl's door.

-A.A. Milne
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CHAPTER 1:
ALL-FALSISM CONSIDERED

1.1 Introduction

In this chapter, I build a case for all-falsism – the view that all undetermined future contingent propositions are false. The all-falsist maintains that propositions such as *there will be a sea battle at t* (where *t* is a future time and it is not currently determined that a sea battle will occur) are false.¹ Likewise for *there will not be a sea battle at t*. The occurrence of a sea battle tomorrow is unsettled, as whether *there is a sea battle at t* is true depends on there being a sea battle at *t* – and *t* hasn’t happened yet.² It is not that the propositions in question lack truth values or that the truth value is somehow indeterminate. All-falsists take the absence of truth to simply entail falsity.³

I argue that, in particular, it is a view that should be attractive to presentists, as it allows them to hold onto a wide variety of intuitive positions in the face of objections. The view has not been given the consideration that it deserves, since many assume the

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¹ Propositions will be indicated by italics throughout.

² Or so say the adherents of no-future views, which reject the existence of future objects and events and views on which there is a “moving spotlight” that moves from past to future times.

³ But the fact that the truth values of undetermined future contingent propositions are presently unsettled with respect to whether or not the truth value that they have now – that is, false – does not mean they will remain false. See chapter two for more on this point.
view is logically contradictory. Of those who recognize the view to be logically consistent, most dismiss the view as untenable.

This is to our detriment, for all-falsism has much to offer. I aim to rectify this oversight and give all-falsism its due. Advantageously, all-falsism permits the following views many presentists want to endorse: bivalence, classical logic, that truth is grounded in or supervenes on being, libertarianism about free will, the fixity of the past and the openness of the future (and thus the asymmetry of time), anti-existentialism about singular propositions, modal realism and actualism, and is one of only two views that respects the ontic openness of the future without resorting to ontic vagueness.

I am not the first to offer all-falsism – it is found or discussed in Hughes (2012), Hartshorne (1964) & (1965), Markosian (2014), McArthur (1974), Prior (1967a), Rhoda, Boyd, & Belt (2006), and Tuggy (2007). But the view has received little attention, since it has been assumed that it is incredibly costly while offering no real benefit.

The view in question has been referred to by several different names, “the Peircian view” being most prominent. I think it time a more perspicuous term was offered, first, because “all-falsism” is indicative of the position and second, because it is

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4 Notable historical exceptions include Hartshorne, McArthur, and Prior.

5 See Barnes and Cameron, Hughes, and Tuggy. Tuggy calls the view “too simple to work” (24). Barnes and Cameron think the view entails that “nothing happens” (2011, 15). There is not a laundry list of names here, since most consider the view so implausible that they do not interact with it in print. In addition, the view it has until recently been largely ignored by the metaphysical community, since recent discussions of all-falsism have occurred in philosophy of religion literature regarding divine foreknowledge and providence (See Hughes, Rhoda (2009), and Rhoda, Boyd, and Belt).

6 The other view is “Geachianism: (P)[a proposition about what happens at t10] can go from being true to being false, and from being false to being true, but must remain false when t10 is present or past” (Todd, 228), falls to grounding problems. Ontically vague rivals include traditional bivalence theorists, Barnes & Cameron, and MacFarlane.
unclear where much of the credit for the view is due. Prior gives Peirce credit (1967a, 130ff), but much of the work explicating the view appears to be Prior’s. Meanwhile, Hartshorne presented the beginnings of the view (which he takes to be novel) before Prior. And McArthur is the first to explicitly identify the view with the modal operator. Thus, any sort of naming convention based on the discoverer or a particular elaborator of the view appears unfair (and a bit unwieldy, since major views in other areas in metaphysics typically get their own moniker).

I show that all-falsism is an advantageous position for the presentist, as it allows her maintain the positions noted above. Not only does all-falsism allow the presentist to endorse the intuitive positions listed above, but it is the only position that allows the presentist to affirm all of the above intuitive positions taken together. This is notable, since fatalist objections aim to show that those positions are inconsistent. All-falsism provides a way out, and is able to do so without incurring any obvious metaphysical costs. As such, it is a view ripe for enumeration and exploration.

1.2 Motivations

1.2.1 Presentism

Before launching into the inner workings of all-falsism, it is helpful to note some motivations which could lead one to endorse it. I assume presentism for the purposes of this dissertation, but all-falsism can be used by any no-future view (e.g., growing block

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7 The main potential costs of the view are epistemological and pragmatic. These objections can and will be dealt with in chapter four.
theory). I provide no defense of presentism here, though I do consider the case for all-falsism to be some support for presentism, since it demonstrates that presentism is not susceptible to certain problems. One can be an all-falsist without being a presentist, but there are highly intuitive positions which motivate presentism that turn out to only be compatible with the position if one endorses all-falsism.

Presentism is the thesis that there are no nonpresent objects. Only present things exist. According to presentism, while dinosaurs used to exist, they no longer exist (since they are not part of the present). Presentism is a highly intuitive position if one endorses certain commonly held views about persons. One is that human persons experience the passage of time. According to presentism, there is passage of time. Things change from how they were – dinosaurs used to roam the earth, but they do no longer. Human persons

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8 According to growing block theory, only past and present objects and events exist – but given the progression of time, times that were present become past and new presents come into existence, bringing along with them new objects and events to the spacetime block. The temporal extent of reality thus grows over time. All-falsism can also be used by growing-block theorists, since it allows one to say that depending on what is in the spacetime block, past propositions can be true or false but all future propositions are false (since there are no future things in the block). Additionally, growing-block theorists will not have to wrestle with the grounding concerns raised in chapter two, since they can easily point to what gives the propositions about the past their truth value – it is the existing objects located in the past. However, growing-block theory has come under fire from Trenton Merricks (2006) and the presentist avoids Merrick’s criticism. Growing blockers will also (almost universally) identify times as concrete, rather than abstract, and as such cannot say that times reduce to possible worlds (as I argue in chapter two).

9 For such a defense, see Crisp 2007, 2005, 2003; Markosian, 2012.

10 Depending on one’s views, they may wish to add “necessarily” or “always” to the above definition. An addition of “necessary” is for those who believe that the correct theory of time is necessarily the correct one. An addition of “always” is for those who believe that what theory of time is correct cannot change (e.g., without “always”, presentism would be true for one instant on the growing block view, but then growing block true ever after). This issue is further discussed in chapter two.

11 This isn’t quite right, since perhaps it’s possible for presentism to be true and there be no passage (i.e., there is no change in objects, events, or relations and time is relational rather than absolute). This can safely be set aside, as there are different objects and/or events at different times. There were dinosaurs 150 million years ago and there aren’t any in the present day.
at the very least appear to experience the passage of time.\textsuperscript{12} Yesterday’s breakfast has passed and the new dawn of tomorrow is before us. And this passage and change appears to be a genuine or fundamental feature of reality, though it is hard to capture outside of metaphors such as “time flows”. Presentism accounts for passage and change by saying that the only things that exist are present – everything is simultaneous with everything else.\textsuperscript{13} Yesterday’s breakfast has passed out of existence (as it is no longer simultaneous with us) and the dawn of tomorrow is yet to come. There are other theories of time which subscribe to passage, but I think presentism the most intuitive of them.

Non-dynamic views (that is, views which deny that there is genuine passage of time) have attempted to explain away the seeming experiential content we have of passage (see Paul, Prosser). Our seeming experience of passage, they say, is akin to optical illusions such as Müller-Lyer lines (wherein two lines of identical length appear to be of different lengths due to arrows attached to the ends of each – the line with arrowheads pointing outward appears to be longer than the line with arrowheads pointing inward). I regard these explanations as unconvincing. The seeming experiential evidence we have of passage is strong – and there are remaining questions about why time appears to pass if it in fact does not (e.g., Why are our thoughts temporally perspectival? Why do

\begin{quote}
\textsuperscript{12} I sidestep questions about divine persons and passage at this point. But I think it the case that if there is genuine passage for human persons, there is genuine passage for all persons, contra Stump.

\textsuperscript{13} “Things” is meant to refer to all there is, quantifiers unrestricted. This includes objects, relations, events (if there are any), et cetera. This is meant to be inclusive and avoid commitment to unnecessary positions. For instance, the sort of change needed for genuine passage (as opposed to simply, say, being hot-at-t1 and cold-at-t2) is heavily debated. It used to be safe to discuss passage and change in terms of an existence thesis: objects come into and go out of existence. But this has come under fire from those who want to endorse necessary existents (Sullivan 2012; Williamson 2002).
\end{quote}
we not experience them atemporally)? Other illusions, such as the Müller-Lyer lines, have their illusory character readily explained.

Another intuition is the openness intuition. According to the openness intuition, there is not simply passage: the future is metaphysically open. It is not simply that we do not know what will happen or that our language cannot account for it. Instead, it is now metaphysically unsettled what happens in the future – this is the Open Future Thesis (OFT).

Endorsement of OFT typically goes hand-in-hand with the asymmetry intuition: the future is importantly unlike the past. The past is fixed, while the future is open. There are now multiple ways the future might go. And if we are free with respect to future actions, then we have an important role in bringing the future about – we can now affect the way things turn out to be in the future. This is in direct contrast with the past, which we cannot change. There is, after all, no use crying over spilled milk – for nothing we can do can unspill it. OFT rules out static eternalism: the view that things from all times, past, present, and future, exist and have the same ontological status. Dinosaurs and your future great-great grandchildren exist in the same way you do.\(^{14}\) This is important because, as we will see below, one of the easiest ways to escape fatalism is by denying OFT (and has thus been used to argue for static eternalism).

\[^{14}\text{OFT does not rule out all eternalists. Notably, eternalist A-theorists think there is genuine passage and some affirm that the future is different than the past, since according to the future it is unsettled what occurs (Barnes and Cameron 2011 and 2009).}\]
1.2.2 Endurantism

Another consideration about persons that weighs particularly in favor of presentism is endurantism. Endurantism is the thesis that objects persist by being wholly present at each moment they exist. Objects do not persist through time in virtue of having temporal parts. I regard this view as highly intuitive but will not defend it here.

Presentism can account for an object’s being wholly present at every moment of its existence – if the only time is the present, there are never other competing times in which the same object exists, is wholly present, and has incompatible properties with those it has at present. It is never the case that I wholly exist at t₁ and wholly exist at t₂ and that I have property p at t₁ and ~p at t₂.

While a few have argued that temporal ontologies other than presentism are consistent with endurantism (Brogaard, 2000 and Rea 1998), I do not find these convincing. Endurantism appears to also tell against all dynamic views which are not presentist. Dynamic views of time think that there is genuine passage of time and that one particular time, the present, is somehow privileged. But suppose an eternalist A-theory is true. According to eternalist A-theories, all things – past, present, and future – exist. But unlike static eternalists, eternalist A-theorists do not believe that these things are equally ontologically privileged. Unlike the past and future, the present and present things are privileged.

However, this privileging of the present will not help them escape the problem of incompatible properties. Suppose endurantism and eternalist A-theory are both true. Both January 1, 1995 and January 1, 2015 exist and I am wholly present at both times. But I have incompatible properties – I have the property being five feet tall at 1995 and
the property *being five foot nine* at 2015. It is hard to see how ontologically privileging 2015 helps one escape the contradiction.\(^{15}\) At the very least, it is easy to account for endurantism according to the presentist picture. The other theories must explain how they escape the problem of incompatible properties if they wish to be endurantist.

1.2.3 Propositions

All-falsism is a view about undetermined future contingent propositions. I take propositions to be the abstract objects, the meanings of utterances, and the contents of sentences. They are the objects of mental states (and so are things that can be thought, asserted, believed, et cetera), essentially have some truth value or other (that is, bivalence holds), and require some sort of correspondence or grounding in the world in order for them to have the truth value that they do (although just what this correspondence or grounding amounts to is up for debate).

There are two types of propositions – tensed and detensed (these are sometimes labeled temporal and eternal, respectively. I will also refer to detensed propositions as “tenseless”).\(^{16}\) A tensed proposition is one which is not time-indexed, e.g. *Sally will stand tomorrow*. Since these propositions are not time-indexed, they may change their truth

\(^{15}\) One could try to sidestep this problem by indexing the properties to times – I have the property of *being-five-feet-at-1995* and the property of *being-five-foot-nine-at-2015* and I always have these properties. This will not help matters – for there are two concrete objects located at two different times, and I am supposed to be identical to each.

\(^{16}\) The reader should note that my use of tensed and detensed propositions will not map on directly to the literature’s conflation of these terms with temporal and eternal propositions. In the literature, “temporal” propositions are those that can change their truth value, while “eternal” propositions cannot (See Zimmerman, 2005, 407). But it has been (wrongly) assumed that detensed propositions cannot change their truth values, and are thus eternal. I thus violate common usage, since I end up saying that some “eternal” propositions are temporal.
value (as time goes on, it may cease to be the case that Sally stands tomorrow, though it used to be true). These propositions are thus temporally perspectival.

Detensed propositions are time-indexed, e.g., Sally stands on October 19, 2013. It is commonly assumed that these propositions do not change their truth value – either it is the case that Sally stands on October 19, 2013 or she doesn’t, and so the truth value shouldn’t change. I reject this assumption. While detensed propositions always have a truth value, but they need not always have the particular truth value that they do. Their truth value can change depending on what happens in the world.17

If something is undetermined, it is not necessitated by the history of the world and the laws of nature taken together. An undetermined proposition, then, is one about which the history and the laws do not necessitate its truth. The truth of an undetermined proposition is up to something else – if it is about what an agent will freely do, then its truth is up to the agent in question. If Sally stands tomorrow is undetermined and Sally is free with respect to standing, then whether Sally stands tomorrow is up to Sally. If Sally stands tomorrow is true, it must be because of something Sally will do – stand. The same holds for detensed propositions such as Sally stands on October 19, 2013. Thus, the truth of the proposition is importantly grounded in or depends on something Sally does.

Future propositions are propositions about something at a time that isn’t past or present. If a proposition is ‘wholly future’, whether what it is about comes to pass cannot be determined based on what exists (that is, what is present). Contingent propositions are those of which it is possible they be false. Sally stands tomorrow is a good example of a

17 Implications of this are further discussed in chapter two.
contingent proposition – the world could have been such that Sally does not exist, and so it need not be true that she stands tomorrow.\textsuperscript{18} Altogether, then, undetermined future contingent propositions (from here on also referred to as future contingents or UFCs) are those which are about something future which is not only not necessary – it is currently not necessitated to occur according to the history and the laws. It is on these propositions that this dissertation will turn.

1.2.4 Libertarianism

One reason people are concerned to secure undetermined future contingent propositions is that they think that one must have them in order to be free – these people want to be libertarians.\textsuperscript{19} Libertarianism is the thesis that determinism (the view that the history and the laws entail a unique future) is false, that free will is incompatible with determinism, and that we are free. If we are free, we are able to do other than we in fact do. Libertarianism helps preserve some of our most important intuitions about the openness of the future and the relationship between free actions and truths about free action. If there are undetermined future contingent propositions, there are propositions whose subjects need not come about – they are not necessitated, either by the ways things must be simpliciter or by the history of the world and laws of nature. And since what they are about is not yet instantiated (according to the presentist) and need not be instantiated, whether we will bring about what those propositions are about is unsettled. We “bring

\textsuperscript{18} Pace Spinoza and others who think that everything that happens is necessary.

\textsuperscript{19} Compatibilists, who think that free will is compatible with determinism, may also be all-falsists (and all-falsism is consistent with determinism). But the compatibilist lacks certain key motivations that drive many all-falsists, motivations concerning what is required for an action to be the result of me or my agent-causal power, for instance.
about” the future in a robust sense.\textsuperscript{20} If there are undetermined future contingent propositions and we are free (according to the libertarian) with respect to their truth, the truth value of those propositions must be grounded, supervene on, or be made true by what we do.

1.2.5 Truth Supervenes on Being

One of the biggest motivations in adopting all-falsism is that the view takes very seriously the need for the truth value of propositions to depend on reality such that reality determines their truth value. The all-falsist wants something stronger than the following minimum requirement:

\textbf{ACCURACY}: A proposition is true if it accurately represents reality.\textsuperscript{21}

The reason ACCURACY is currently unacceptable is that the principle does not tell us how robust this accurately representing need be. The principle is thus open to an unacceptable amount of boot-strapping: if propositions are to be considered a part of reality (and they should be), then a proposition’s truth value accurately represents reality. Thus, \textit{there will be a sea battle tomorrow} could be true because \textit{there will be a sea battle tomorrow} is true. There is accurate (self) representation in this case, but this sort of

\textsuperscript{20} I argue in chapter three that unsettledness requires that determinism be false.

\textsuperscript{21} The specific formulation for this is taken from Sullivan, 2012, 475.
representation alone is not what we desire – the truth of *there will be a sea battle tomorrow* should depend on a sea battle.

In the case of non-necessary propositions, the intuition goes, there should be asymmetrical, non-reflexive dependence of the proposition on non-propositional parts of reality. And this dependence should explain why propositions have the truth value that they do. One who endorses this intuition will endorse some sort of grounding, truth-making, or (weak) truth supervenes on being requirement. That is, one will endorse some sort of theory that makes sense of the nebulous “in virtue of” talk often used by metaphysicians.

There are many ways of spelling out this condition (some stronger than others), and the all-falsist need not endorse a particular theory. The all-falsist is able to endorse many of them (save, perhaps, some incredibly strong ones that would by definition entail eternalism). One way to attempt to fulfill this demand without overcommitting oneself is with the following Supervenience Principle:

\[(SP): \text{For any proposition } p \text{ and worlds } w \text{ and } w^*, \text{ if } p \text{ is true in } w \text{ and not } w^*, \text{ then (a) according to } w, \text{ something exists which doesn’t exist in } w^* \text{ (or vice versa) or (b) according to } w, \text{ some objects instantiate a fundamental property or relation that they don’t instantiate in } w^* \text{ (or vice versa)” (Crisp 2007, 91).}^{22}\]

\[22\] Crisp’s formulation is derived from David Lewis’ (2001, p. 612) formulation of what he calls the strongest acceptable truthmaker principle. However, Lewis readily admits that this is truthmaking only in name (and wonders if we can still call it that, p. 612) and is meant to account for the difference needed in the world that renders a proposition true (p. 613). If one thinks that truth and falsity are fundamental relations, they should read (SP) as excluding truth and falsity and any fundamental relations entailed by them (Crisp, 2007).
But this formulation does not itself capture the dependence that we require. Thankfully, this is easily fixed. The principle can be strengthened to:

(SP*): For any proposition p and worlds w and w*, if p is true in w and not w*, it is because (a) according to w, something exists which doesn’t exist in w* (or vice versa) or (b) according to w, some objects instantiate a fundamental property or relation that they don’t instantiate in w* (or vice versa).

The ‘because’ in (SP*) is to be read as asymmetric and thus meant to exclude the move to make truth and falsity fundamental. Truth and falsity of propositions must be accounted for in terms of other things.23

Notably, SP* is a weak dependence relation, and is meant to be so. While all-falsists (and others) may want something stronger, they disagree about how strong the requirement need be. I intend to sidestep these debates. Since the fatalist and grounding objections (found below) to presentism can be generated by using SP*, it is important for the sake of common ground to use a principle that we can agree on.24 All-falsists can endorse many different forms of grounding or truth-making. But it is important to see the

23 What if existential facts or propositions can self-ground? Suppose part of what accounts for the truth of there is a proposition is the proposition there is a proposition. This is acceptable according to SP* - it is the truth value that needs to be explained in terms of dependence on reality. SP* does not rule out all cases of propositions doing the explanatory work. Indeed, it shouldn’t – consider, for instance, necessary propositions.

24 Of course, not all presentists will agree on SP*, cf. Merricks 2007. But SP* avoids the problems Merricks is concerned with, namely truth-makers for negative existentials and non-existents. And as I show below, to deny SP* is simply to fail to see the force of fatalist puzzles. To the extent one feels their pull, one will endorse SP*. 

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challenges facing the view first. Thus, SP* will be the principle used when discussing the intuition and implications of truth supervenes on being.

The reason the presentist wants to endorse such a requirement is that she wants to say that what is true depends on the present – if there will be a sea battle tomorrow is true, then the truth of that proposition is grounded in what is now the case. She rejects the idea that the truth value of contingent propositions can be brute, since such bruteness would lack proper explanatory power (as is the case with the above objection to ACCURACY). In so doing, the presentist takes seriously the need for the truth value of propositions to have a certain special dependence. Further, in the case of free actions, what makes it true that someone freely does something must be somehow importantly grounded in them or exercise of their agent causal power.

1.2.6 Bivalence

Propositions represent reality. If we consider truth to be an accurate representation of reality, it seems that, mutatis mutandis, we should consider falsity to be failure to accurately represent reality. A proposition is false simply if it lacks truth. The intuition that a proposition is false simply by failing to be true supports bivalence – the view that every proposition is either true or false.

While the most common move on behalf of those who want to secure the openness of the future (and control we might have with respect to it) is to say that undetermined future contingent propositions lack a truth value, the rejection of bivalence is a major theoretical cost. Rejection of bivalence entails a rejection of classical logic
(since one must reject LEM, the truth schema, and the falsity schema)\(^2\), and I think that better kept than jettisoned. The all-falsist can keep allegiance to classical logic, the law of the excluded middle, and the classical truth and falsity schemas while rejecting vagueness in the world.\(^2\) Adopting all-falsism is thus preferable to rejecting bivalence \textit{simply} in order to affirm the openness of the future, since the indeterminacy theorist faces the same sorts of concerns as the all-falsist.\(^2\)

By affirming bivalence, the all-falsist is not forced to adopt an account of ontic vagueness or indeterminacy, and is only one of two open future views that does not so commit one to ontic vagueness.\(^2\) One might reject bivalence for other reasons (say, as an answer to Sorites puzzles), but it is better if believing in the openness of the future not commit one at the outset to a rejection of classical logic.

Finally, keeping bivalence allows one to be an actualist modal realist. Actualism is the thesis that there are no objects which do not exist. Modal realism requires maximality and completeness. For every state of affairs, a possible world will include or prelude it (maximality), and this will make it such that there are no gaps in logical space

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\(^2\) LEM: \(p \lor \neg p\)

Truth schema: the proposition that \(p\) is true \(\leftrightarrow p\)

Falsity schema: the proposition that \(p\) is false \(\leftrightarrow \neg p\)

\(^2\) The all-falsist could admit some other kind of ontic vagueness unrelated to unfixed future contingent propositions (e.g., suppose she thinks composition is vague). But she need not admit of any.

\(^2\) And in chapters three and four I argue that she doesn’t do better than the all-falsist.

\(^2\) The other view, Geachianism, endorses bivalence but either cannot endorse SP* or fails to truly be an open future view.
(completeness), because for every proposition, a possible world will include the truth of the proposition or its complement.29

1.3 Escaping Fatalism

At this point, however, all-falsism may seem unmotivated. Why think the above intuitive positions are incompatible? Why not say that some things about the future are true? All-falsism enables the presentist to rebut objections that rely on the truth of propositions in an attempt to force the presentist to adopt unpalatable positions. One major family of such objections are fatalist objections, which use the truth of certain propositions in order to say that no one has, had, or ever will have a choice about the truth of that proposition.

Again, libertarianism is the view that we are free and that freedom is incompatible with determinism. Libertarianism is thus incompatible with the thesis that humans do not have, never had, and never will have a choice about their actions, and hence their actions are unfree. Holding onto libertarianism is incredibly important for anyone who wants to endorse the openness of the future, since avoiding fatalism has historically been the main motivation of open future theorists.30

Fatalist arguments presuppose that the truth-values of detensed propositions have the particular truth values that they do eternally – if proposition p is true, it has always

29 I return to modal realism in chapter two.

30 See Prior, 1962 (for avoiding theological fatalism) and 1967 (for avoiding logical fatalism). Prior began his work on the openness of the future out of a desire to escape the fatalist objection of Diodorus Cronus (1967, 32).
been and will always be true. The past truth about something present (or in the future) is used to argue that no one now has any choice about that truth. After all, you can’t change the past - so if \( p \) was true in the past, it’s not now up to anyone whether \( p \) was true in the past (and mutatis mutandis for falsehoods). Thus, arguments like the following are given:\textsuperscript{31}

1. \textit{Sally will stand at January 1, 3000 CE EST} was true one thousand years ago. (Assumption)

2. If \textit{Sally will stand January 1, 3000 CE EST} was true one thousand years ago, then the truth of \textit{Sally will January 1, 3000 CE EST} is not even partly grounded in the occurrence of any event involving Sally or in any exercising of her agent-causal power. (Premise)

3. Therefore: The truth one thousand years ago of \textit{Sally will stand January 1, 3000 CE} is not even partly grounded in the occurrence of any event involving Sally, or in any exercising of her agent-causal power. (From (1, 2))

4. If the truth of a proposition \( p \) at a past time \( t_n \) was not even partly grounded in the occurrence of any event involving \( S \), or in the agent causal activity of \( S \), then \( S \) has never had and will never have a choice about whether \( p \) was true at \( t_n \). (Premise)

5. Therefore: Sally has never had and will never have a choice about whether (1) is true. (From 1, 3, 4)

6. (1) entails that Sally stands January 1, 3000 CE. (Assumption)\textsuperscript{32}

\[(\beta 3) \text{ If } p \text{ and if } x \text{ never had and never will have a choice about } p, \text{ and if } p \text{ entails } q, \text{ then } x \text{ never had and never will have a choice about } q. \] (Premise)

\textsuperscript{31} The following is a modified version of the fatalist argument Rea (2006) presents, to demonstrate the general machinery of a logical fatalist argument. Van Inwagen (1983, chapter 2) has an excellent treatment of fatalist arguments, but the above is useful since it will be compared to Rea’s fatalist argument against presentism.

\textsuperscript{32} This assumption is typically taken to be trivial, but given Geachianism, it is substantive. The Geachian says that it can now be true that Sally will stand at \( t \) but Sally fail to stand at \( t \).

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7. Therefore: Sally has never had and will never have a choice about whether Sally will stand January 1, 3000 CE is true. (From 1, 5, 6, β3.)

There’s an easy way out of such arguments – all one need do is deny (2) and other instances like it. It’s all a matter of how propositions like Sally will stand January 1, 3000 CE have the truth value that they do. A quick way to respond to this sort of fatalist argument is to endorse SP* and static eternalism. The truth of propositions depends on what the world is like. Given static eternalism, Sally will stand January 1, 3000 CE is true because Sally exists and stands at the relevant time.³³ Thus, the truth and falsity of propositions don’t simply correspond with the world – there’s directionality involved, and it’s quite the opposite of the way the fatalist maintains. The truth values of propositions depend on how the world is.³⁴

But since truth supervenes on being, our rejection of premises like (2) requires the existence of things like Sally’s standing at the relevant time. Those without future objects or events cannot make this maneuver, since, one thousand years ago, there was nothing for the truth to supervene on – Sally did not exist. The presentist appears to be in trouble. And the presentist maintains that there are no non-present objects or relations. So the truth supervenes on being method of rejecting fatalism (that is, endorsing the reality

³³ This response is akin to van Inwagen’s response to fatalism (1983, chapter 2).

requirement) seems to require existing future times, objects, and relations. Rea’s argument is as follows:  

M1) Presentism is true. (Assumption)

M2) Sally will stand exactly 1000 years hence was true at t*. (Assumption)

M3) If presentism is true and if Sally will stand exactly 1000 years hence was true at t*, then the truth of Sally will stand exactly 1000 years hence at t* was not even partly grounded in the occurrence of any event involving Sally or in any exercising of her agent-causal power. (Premise)

M4) Therefore: The truth of Sally will stand exactly 1000 years hence at t* was not even partly grounded in the occurrence of any event involving Sally, or in any exercising of her agent-causal power. (From M1, M2, M3)

M5) If the truth of a proposition p at a past time tn was not even partly grounded in the occurrence of any event involving S, or in the agent causal activity of S, then S has never had and will never have a choice about whether p was true at tn. (Premise)

M6) Therefore: Sally has never had and will never have a choice about whether M2 is true. (From M2, M4, M5)

M7) M2 entails that Sally stands now (at t, one thousand years later than t*). (Assumption)

(β3) If p and if x never had and never will have a choice about p, and if p entails q, then x never had and never will have a choice about q. (Premise)

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35 Note: The presented argument does not appear exactly like this in Rea’s article, since he abbreviates the proposition regarding Sally as PS. I have substituted, salva veritate, the full proposition. Since Rea does not consider Geachianism, he marks M7 ‘trivial’. 
M8) Therefore: Sally has never had and will never have a choice about whether Sally will stand 1000 years hence is true. (From M2, M6, M7, B3.)

Rea’s argument is almost identical to the fatalist argument above – it simply adds the truth of presentism to the argument. The particular way of responding to the classical fatalist argument - rejecting (2) by way of pointing to the right things for the truth to supervene on - does not appear open to the presentist. The analogous M3 looks unassailable, given presentism. For at t*, there is no Sally, nothing is simultaneous with 1000 years hence from t*, and there is nothing about the present that entails that Sally exists and will stand at the appointed time. If truth supervenes on being and there’s no such being as Sally, then how can Sally will stand exactly 1000 years hence be true at t*?

One could attempt to deny M3. One way to reject M3 is to be a Meinongian and say that while Sally does not exist, she subsists and that is enough to ground the truth of propositions about the past and future. However, there are myriad reasons why the presentist should not want to be a Meinongian. Here’s one: the same sorts of intuitions that underlie presentism typically underlie modal actualism.36 Since Meinongianism is a denial of actualism, it is reasonable to think that in adopting Meinongianism the presentist will end up giving up on the very intuitions undergirding her presentism. Also, there is excellent reason to think Meinongianism is contradictory (see van Inwagen, 2003) – and contradictory views are certainly to be rejected. If van Inwagen is correct, endorsing Meinongianism in order to escape the fatalist objection would take us from one contradiction to another. Additionally, it is difficult to see how a subsistent Sally could

36 I will discuss this overlap of intuitions in chapter two.
exercise her agent-causal powers. So it appears this move does not even solve the original problem.

Another way the presentist could reject M3 is by following Timothy Williamson (2002) in declaring that objects never come into or out of existence. Instead, every object that exists always exists – just not in the most interesting way. Everything necessarily exists. Socrates, for instance, has always and will always exist. But before Socrates was born and after Socrates died, he was not a concrete object. The same holds for all objects. So it’s not that there is nothing in the world to grounds propositions about Sally and what she will do – Sally exists! The Williamson response, however, does not appear to be a viable way of escape. At the moment in question, Sally is not concrete and thus cannot exercise her agent causal powers. One could say that non-concrete things like Sally make decisions about what they will do at future times: Action A in Circumstances C, Not-A in circumstances C*, et cetera. But it is wildly implausible that a thing which is not concrete could do this (and have the relevant mental states). So the fatalist problem rears its head again.

One could reject M3 by simply rejecting SP* – but that is a huge price to pay. By rejecting SP* we lose our grip on the relationship between truth and reality. Serious tensers (who say that tense is a primitive part of reality, and so deny the fatalist use of detensed propositions) say “‘It will be the case that Sally stands’, but of course what

37 An additional unpleasantry: this means that any being which will be an agent in the future must always have been a thinking thing at every time before the time of the choice in question, if one is a presentist – something that these (typically) anti-essentialists will not want to endorse. For this tells against the very motivations Williamson and others have for wanting non-concrete things to be so much less robust than concreta.
grounds this isn’t present. We can’t expect anything present to ground this, when what accounts for then truth of the proposition is future. Thus, SP* is to be rejected.”

This does not solve the problem. This response is simply to assert that there isn’t one. The serious tenser is here ignoring legitimate questions: how is it true now, then? What accounts for the proposition’s truth? There are no future things that we can presently appeal to. Thus we must endorse brute truths (and likely an infinite number of them). There is, to my lights, a legitimate demand for explanation here – in virtue of what is the proposition true and in a way that it is within the agent’s power to render that proposition false?38 Tensing by itself doesn’t answer any problems in the free will literature.39

The same applies to Molinist rejections of SP*. Molinists subscribe to counterfactuals of creaturely freedom (CCFs): brute counterfactuals about what agents would freely do in varying circumstances (Flint, 40). CCFs specify that the truth values of the relevant propositions are thus up to the agents. But these counterfactuals do not help explain the agent’s control over the truth value of the propositions in question; it is simply to insist that the agent does have such control. God, at the very least, does have some control over CCFs – for God can choose which circumstances to bring about and

38 Ockhamists have attempted to give accounts, but their accounts amount to mere insistence that there isn’t a problem. See Finch and Rea regarding the failure of the Ockhamist response to this particular sort of fatalist argument.

39 Though taking tense seriously can help with other objections the presentist faces, such as the response of the serious tensers to McTaggart’s argument against the reality of time.
thus can control which world comes about. The agent doesn’t have this choice regarding what circumstances she is placed in (at least initially).\(^{40}\)

One could instead reject M5, by endorsing compatibilism. The compatibilist says that though the truth of \textit{Sally will stand 1000 years hence} was not even partly grounded in Sally or the exercising of her agent causal at \(t^*\) does not make it so that it is not appropriately grounded in Sally or her agent causal power one thousand years later, at \(t\).\(^{41}\) This response escapes fatalism (\textit{if} compatibilism is successful), but at the expense of libertarianism, the openness of the future, and the asymmetry intuition. Thus I will set it aside.

Suppose one wanted to escape the fatalist puzzles above, retain presentism, and reject Meinongianism (and thus affirm Neo-Quineanism and say that everything exists) by simply denying \(\beta_3\). To reject \(\beta_3\) is to reject key intuitions in the free will literature and to simply deny the pull of fatalist puzzles. The presentist who does this must explain how she can deny principles like \(\beta_3\) and get everything she wants. I do not see any such explanation forthcoming.

\(^{40}\) Given these considerations, the pressure is on theists who endorse static eternalism. What is the logical ordering relation between the actions of those in the block and God’s (who is presumably outside the block)? The static eternalists want, in part, God’s providential control and God to know all that happens according to the block (Flint, 82-4). But issues of priority arise here. It’s one thing to say that God knows what happens in the future because God simply sees it happening. But there are problems if God interacts with the block. If God sees Godself performing A, then God is not free. If God waits to see how those in the block freely act before responding, then it’s not a static block – for with God’s actions in the block, the block changes.

\(^{41}\) Ockhamists, Molinists, and serious tensers have, in conversation, attempted to reject M5 and use this type of response as well. But the same problems that apply to their attempted objection of M3 also apply here, since in order for them to make this response they must reject SP*. There are, at some times, brute ungrounded truths about what will happen in the future.
To escape the problem, one must say that at the time in question (barring earlier indeterminacy resolving events), the agent had the power to render the proposition false. And if we’re endorsing presentism, this is just to say that either compatibilism is true or that the proposition in question isn’t settled true!\textsuperscript{42}

The only way to hold onto presentism, libertarianism, Neo-Quineanism, and affirm SP* in the face of Rea’s objection is to reject M2 (and (1) in the general fatalist puzzle) and the claim any future contingent propositions is true (or at the very least, unchangeably true).\textsuperscript{43} It is not the case that \textit{Sally will stand 1000 years hence} was true at t*. This method of escape is used by most who endorse the Open Future Thesis (since the OFT implies that contingent facts about how things will be are presently unsettled.)\textsuperscript{44}

But rejecting M2 and affirming the OFT is not to automatically reject bivalence, since one can be an all-falsist. The answer the all-falsist gives is that \textit{Sally will stand exactly 1000 years hence} is false – for there was no Sally for the proposition to be about, since Sally and the event of her standing did not exist at t*. If Sally does not exist and her standing is not determined, then the world lacks something needed in order for the proposition \textit{Sally stands 1000 years hence} to be true.\textsuperscript{45}

\textsuperscript{42}The Geachian uses this response to reject M3 or M5. Dynamic eternalists must also say that the proposition isn’t settled true (and thus deny either M2 or M5). They cannot simply deny M3 while having the openness of the future – to do this would be to deny SP*.

\textsuperscript{43}This does not mean that all propositions that make reference to future times (e.g. determined future propositions) must be false or that propositions about the past must be false (the truth value of those can be read off the present in that we can, by looking at the present, select the one abstract time that was actual).

\textsuperscript{44} This particular formulation is endorsed in Barnes & Cameron (2009), 291 and MacFarlane, 321.

\textsuperscript{45} This response does not force the presentist to say all propositions that appear to be about the past are false. All the presentist has said is that a future proposition about Sally is false, since Sally does not exist and there is nothing about the present that entails that Sally exists and will stand at the appointed time.
Given all-falsism, it’s easy to see how the presentist can make to escape the conclusion. Rea does recognize that the presentist can make this move. However, he assumes that the presentist will not want to, since in order to do so, he thinks that they must either deny bivalence (indeed, he thinks that to reject M2 just is to give up bivalence) or say that all propositions about the past and future are false. These are high prices indeed. Were the presentist forced to make one of those moves, I think Rea would be right in saying that denying M2 is much too high a price to pay.

Fortunately, the presentist is not forces to make one of the above unpalatable moves or to say all propositions that appear to be about the past are false in order to reject M2. All the presentist has said is that a future proposition about Sally is false, since Sally does not exist and there is nothing about the present that entails that Sally exists and will stand at the appointed time (thus the proposition in question is a future contingent).

Like many in the philosophy of time, Rea has overlooked all-falsism. All-falsism allows the presentist to keep bivalence, reject fatalism, and retain the truth of some propositions about the past. If a presentist endorses all-falsism, objections which rely on the truth of propositions about the future do not succeed.

(Thus the proposition in question is a future contingent). A discussion of how the all-falsist can retain SP* and have truths that seem to be about the past is found in chapter two.

46 Rea, 12.
48 Some of the machinery of all-falsism will also work nicely for growing block theorists. However, the semantics for all-falsism ultimately assumes that times are abstract worlds – something many growing blockers would be loath to accept. But the growing blocker could accept that all unfixed future contingents are false and attempt to adopt the semantics for WILL without committing themselves to statements about the ontology of times simpliciter.
The response of the all-falsist to the above argument respects the asymmetry between past and future. The past is fixed and can’t be changed, while the future is open and full of possibilities. If all-falsism is correct and determinism is false, there is more than one possible future – likely infinitely many. All-falsism accounts for all of this via necessity – the past is accidentally necessary and (if determinism false) there is more than one possible future. If a proposition is true, then it is at the very minimum accidentally necessary (that is, necessary now, given that the world has gone a certain way).

Libertarians want the future to be up to us in a robust way and it is important to note how useful the all-falsist response is to the libertarian. The all-falsist escapes these problems much like the nihilist escapes from problems of material composition – by denying the main assumption that generates the puzzle in the first place (there are true future contingents). The fatalist objections above aren’t the only on offer – there are several prominent fatalist objections that are theological, regarding prophecy and foreknowledge, and omniscience (see Finch and Rea; Fischer; Hughes; Rhoda, Boyd, and Belt; Swinburne; van Inwagen, 2008). These objections are based on God’s knowledge of what will happen in the future and operate on the idea that one cannot be free with respect to an action if someone knows the outcome. Many eternalists respond to theological fatalism by saying that God is outside of time. But there are troubling

49 If determinism true, one can say that all-falsism is trivially true – if there are undetermined future contingent propositions, they would be false. But there just aren’t any undetermined future contingent propositions.

50 As Finch and Rea note against the Ockhamist’s desired use of ontological moments, “But we must not let this notion of ontological moments confuse us: on the eternalist scheme, every concrete event that ever takes place in the course of history exists simpliciter” (Finch and Rea, 15-6). These considerations also come to bear in discussions of divine interaction according to eternalism, though Finch and Rea do not discuss this.
interaction problems facing this maneuver. Others (e.g., Swinburne, van Inwagen, 2008) say that we must revise the definition of omniscience – God cannot know facts about what free agents will do. The all-falsist, on the other hand, can keep the traditional definition of omniscience (God knows the truth value of every proposition) and does not encounter interaction problems of this sort.51 All-falsism provides wholesale response to fatalist objections of all sorts.

1.4 No Contradiction

But in saying that all future contingent propositions are false, hasn’t the presentist gotten herself into a load of trouble? After all, it looks like if a presentist (or anyone!) says that all future contingents are false, then they must deny bivalence (the thesis that every proposition is either true or false) in order to preserve the law of non-contradiction. Here’s why:

\[ t_1 = \text{a time earlier than } t_2 \]

Assumption: at \( t_1 \) it is not determined whether Sally stands at \( t_2 \).

1. \( \text{Sally will stand at } t_2 \) is false at \( t_1 \). (by all-falsism and assumption)

2. For any proposition \( p \) and any time \( t^* \), \( p \) is false at \( t^* \) iff \( \sim p \) is true at \( t^* \). (by bivalence)

3. \( \sim(\text{Sally will stand at } t_2) \) is true at \( t_1 \). (by (1), (2))

4. If \( \sim(\text{Sally will stand at } t_2) \) is true at \( t_1 \), then Sally will not stand at \( t_2 \) is true at \( t_1 \). (premise)

51 Additionally, it’s difficult to see what it is additionally about knowledge, rather than the truth value of the proposition, would constrain freedom. While certain kinds of knowledge preclude deliberation regarding how to act, and deliberation is likely a component of normal free action (see Kapitan), it is hard to see how those considerations do not also bear on a proposition’s being true.
5. Sally will not stand at t₂ is true at t₁. (by (3), (4))

6. Sally will not stand at t₂ is false at t₁. (by all-falsism and assumption)

7. Thus, Sally will not stand at t₂ is both false and true at t₁. (by (5) and (6))

8. ⊥ Contradiction! Thus we must either: (a) admit some propositions regarding future contingents are true, (b) deny bivalence, or (c) deny the law of non-contradiction.

The all-falsist appears to be in deep trouble. The objector may continue: what’s worse for the all-falsist is that this contradiction can be generated with nothing further than (1), (2), and (3). It is not the case that Sally will stand at t₂ is about the future (what will not happen) and so is a future contingent (since we’re assuming that whether Sally stands is undetermined at t₁). So it is not the case that Sally will not stand at t must also be false.

I respond: first, the proposition it is not the case that Sally will stand at t₂ is not a future contingent. It is instead a proposition about the present. For this proposition says ¬(∃x (x = Sally) & ∃y∃t ((y= the state of affairs of x’s standing) & (y is instantiated at t))). This is a statement about what exists; according to no-future views, wholly future things do not exist. Since the state of affairs of Sally’s standing at t₂ is wholly future and does not exist at t₁, the all-falsist may affirm the proposition.52

But there appears to be a problem with this response. Of course it’s true that Sally’s standing at t₂ isn’t instantiated at t₁! That is what the time-indexing indicates.

52This solution is akin to Russell’s solution of what to say about the present king of France and the state of his hair. According to Russell, it is not the case that the present king of France is bald is true, since there is no present king of France. Note, however, that one not need to be a Russelian compositionalist about propositions or subscribe to names as definite descriptions in order to embrace the Russelian-style approach here.
It is not the case that Sally stands at t2 seems to entail Sally will not stand at t2, since it appears to make reference to one definite time, t2, that will come about.\(^{53}\) While t2 isn’t instantiated yet, it will be – and the proposition in question appears to indicate that, at t2, Sally stands.

The objection is mistaken and plays on an ambiguity regarding what is meant by “at t2”. For the all-falsist, if it is undetermined whether Sally will stand, there is no single future t2 which we can select and say of it that it will be instantiated. It is not the case that Sally stands at t2 means something different – that there exists at least one possible future in which Sally does not stand. If there is more than one possible future, “at t2” refers to the set of competing futures of a certain temporal distance (e.g., one hundred years from now), one which will obtain. It is not the case that Sally stands at t2 does not entail Sally stands at t2, if by “t2” we mean a time or set of times which could be instantiated after a particular temporal duration.\(^{54}\) And if whether Sally stands is undetermined and we mean to pick out one specific possible future t2* at which Sally does not stand, then the argument does not go through – (1) is then false, since the fact

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\(^{53}\)This problem arises if the presentist is an abstractionist about times and believes in an ersatz B-series (where the abstract times are ordered on a timeline in earlier-than/later-than relations). Here the concretist about times is in better shape – for they can simply deny that there now exists a time such that Sally stands at it (though they must tell a difficult story about how we can reason and speak about times other than the present). They can interpret it is not the case that Sally will stand at t more simply: \(\neg (\exists x (x = \text{Sally}) \& \exists y (y = t \text{ and } x \text{ stands at } y))\). The proposition is false because the time doesn’t exist (and thus we may treat it like Russell treated propositions about the present king of France).

\(^{54}\)This temporal duration need not imply the falsity of presentism or an ersatz B-series, for temporal duration can be spelled out in terms of a certain number of other times obtaining before the set under consideration (see chapter two).
that there is this particular possible future at which Sally does not stand is a fact about
the present (but this possible future need not come about).\footnote{If indeterminism is true, then it is unlikely that we can pick out a single possible future in this way. Many things may be undetermined and if so there will be futures that agree on Sally’s not standing but will disagree about a whole host of other states of affairs (much like we cannot pick out the essence(s) of Pegasusness, since there are a host of essences which fit the definite description of which we are thinking when we think of “Pegasus”).}

But there is still the full argument to deal with. The all-falsist need not accept the
above argument, since the all-falsist can (and should) reject (4). The truth of \textit{it is not the
case that Sally will stand at t}_2 \ does not entail the truth of \textit{Sally will not stand at t}_2. While
\textit{Sally will not stand at t}_2 \ entails \textit{it is not the case that Sally will stand at t}_2, the converse
does not hold. There is a suppressed premise behind (4): For any times t* and t’, (~WILL(Φx
at t’) is true at t*) $\rightarrow$ (WILL~(Φx at t’) is true at t*). Many have assumed that this is how
negation works with future contingent propositions (hence the popularity of bivalence denial
among open future theorists). But this is not so!

The propositions \textit{Sally will stand at t}_2 \ and \textit{Sally will not stand at t}_2 \ are
contraries rather than contradictories. All that is needed to avoid a contradiction is for
no two contradictories to share the same truth value. So the all-falsist is perfectly within
the bounds of bivalence to declare both \textit{Sally will stand at t}_2 \ and \textit{Sally will not stand at t}_2 \ false. (From here on, the discussion will simplify the discussion by discussing a time
‘t’ rather than ‘t’.)

1.5 The Hidden Modal Operator

The all-falsist maintains that reason that \textit{Sally will stand at t} \ and \textit{Sally will not
stand at t} \ are contraries rather than contradictories is that “will” turns out to be a hidden
modal operator.56 (From here on, when “will” is used as an operator it will be written as WILL). 57 Like other modal operators, the presence of WILL changes how we are able to manipulate propositions according to classical logic. A bit of background is needed before diving into the workings of WILL. The presentist is under great pressure to think times are abstract.58 If abstract, future times are like possible worlds – they are ways the world could be (in the future), and according to the presentist, only one time may obtain (though which time obtains changes). If more than one time obtained, then objects or relations would exist that are not present objects or relations – a violation of presentism.59 What time obtains is constantly changing, however, in accordance with what happens in the world.

The truth-value of propositions depends on whether what they are about exists and is related to the world in the right way (given SP*). WILL propositions, such as Sally will stand at t are modal and select a set of possible future times, {futures}, which are all the futures at a particular temporal distance that could be instantiated given the present state of the world (i.e., the time that obtains). If all of the futures in {futures} are ones where Sally stands, then WILL: Sally stands at t is true. If {futures} contains only those

56 The all-falsist is not the only one to maintain this sort of response – cf. Barnes & Cameron (2009) & (2011), though they do not explicitly draw out the modal nature of the response. The views presented in this section, aside from the reduction of times to possible worlds, are on par with those presented in Hartshorne, Hughes, McArthur, and Prior (1967). Since there is disagreement about the reduction, however, Prior and speaks of a tense operator where I speak of modal operator.

57 Here one may object that “will” is instead read as an indicative – if it is not the case that p will happen at t is true, that simply means that t lacks p. However, there are problems with this reading. First, if a presentist accepts a grounding or truth supervenes on being requirement, she is subject to fatalism. Second, the modal reading makes sense of our behavior in lottery cases (see chapter four).

58 See Mason, 2006.

59 I assume that there aren’t duplicate times – that is, times that are identical in every respect. If one wants to insist on duplicate times, the above should read “if two or more non-identical times obtained…”
worlds where Sally does not stand, then \( \text{WILL}: \sim \text{Sally stands at } t \) is true. Note that these both collapse into IS propositions (i.e., propositions about the present) – if \{futures\} only contains Sally standing futures, then the world is currently such that Sally must stand at \( t \).

If \{futures\} contains some worlds with Sally standing and some without, then \( \text{WILL}: \text{Sally stands at } t \) and \( \text{WILL}: \sim \text{Sally stands at } t \) are both false. What is true, then, is \( \text{IS}: \sim \text{WILL: Sally stands at } t \).\(^{60}\)

Is all-falsism’s treatment of WILL propositions contradictory? No – to say otherwise would be to fail to pay attention to WILL as a modal operator and thus commit a modal fallacy. If both WILL propositions are false, the corresponding negated WILL proposition is true. WILL turns out to be a kind of necessity operator. Compare:

\[
\begin{align*}
\square \text{my cat is ill-tempered: } F & \quad \text{WILL: Sally stands at } t: F \\
\square \sim \text{my cat is ill-tempered: } F & \quad \text{WILL: } \sim \text{Sally stands at } t: F \\
\sim \square \text{my cat is ill-tempered: } T & \quad \sim \text{WILL: Sally stands at } t: T
\end{align*}
\]

All future contingent propositions are systematically false by their very nature, since lack of determinism with respect to \( p \) (along with SP\(^*\)) indicates that the possible futures are mixed between some \( p \) futures and some \( \sim p \) futures. Thus, those WILL propositions are false.\(^{61}\) Claims such as \textit{it is not the case that Sally will stand} are

\(^{60}\) Thus, negations of WILL propositions are not always false, since they can be analyzed in terms of an IS operator – e.g. not-WILL(\( x \)) = not-IS(\( x \)). But not-WILL(\( x \)) doesn’t imply that WILL(not-\( x \)), since the latter has stronger truth conditions than the former.

\(^{61}\) But why think that indeterminism renders the proposition false, rather than truth-value indeterminate? One might think that WILL: Sally stands completely lacking a truth value somehow better captures the unsettledness of the world with respect to whether Sally stands in the future. The reason to prefer a reading of false, rather than indeterminate (other than concerns over keeping classical logic, etc.) is
claims about the present. WILL propositions should be interpreted in relation to the present (IS) in the following way:

(A) WILL(x): it IS the case that all possible futures are x futures.
(B) WILL (~x): it IS the case that all possible futures are not-x futures.
(C) ~WILL(x): it IS the case that at least one possible future is not an x future.62

A and C are contradictories, A and B are contraries, and B is strictly stronger than (strictly entails) C. But A can be false while B is false (my cat is neither necessarily ill-tempered nor necessarily not ill-tempered); and in such a case, C is true. This preserves both bivalence and non-contradiction.

However, one might think that while all-falsism can handle some surface level WILL propositions, it fails once one starts imbedding WILL operators. For example, it may seem like the following proposition must be true, on pain of the law of the excluded middle:

\[
\text{WILL: Sally stands at t or WILL:~Sally stands at t}
\]

that, again, propositions are representational. When something fails to accurately represent, the natural response is that it is wrong - a false representation - rather than something vague.

62 More formally, where the ‘f’ variable is a variable ranging over the set possible futures competing to be a time t:
\[
\text{WILL}(\Phi x \text{ at } t) \leftrightarrow \forall f (\Phi x \text{ in } f)
\]
in which case, it follows that
\[
\text{~WILL}(\Phi x \text{ at } t) \leftrightarrow \forall f (\Phi x \text{ in } f)
\]
which is equivalent to
\[
\text{~WILL}(\Phi x \text{ at } t) \leftrightarrow \exists f (\Phi x \text{ in } f)
\]
The WILL operator, as a standard modal, obeys all rules of classical propositional logic, such as double negation and conjunction elimination.
The above seems to be true for the same reasons that we want to affirm the truth of \(\text{Sally stands at } t\) or \(\neg\text{Sally stands at } t\) (excluding, of course, considerations of ontic vagueness). Surely we want the second proposition to be true, since is a simple propositional substitution for the law of the excluded middle schema (LEM): \(p\) or it is not the case that \(p\). Both propositions appear to have their truth values stand or fall together. So all-falsism appears to fail, since the above WILL proposition is an instance of a true unfixed future contingent.

But here the all-falsist has a simple reply. If one is careful to keep in mind the modal nature of WILL, it’s easy to see how the above proposition is false. One must be careful to keep in mind the modal nature of WILL, it is easy to see how the above WILL proposition is false. If the proposition is to be a proper instance of LEM, WILL must have wide scope. Here again a modal analogue is helpful:

\[
\begin{align*}
\Box \text{my cat is ill-tempered or} & & \text{WILL: Sally stands at } t \text{ or} \\
\Box \neg\text{my cat is ill-tempered}: F & & \text{WILL:} \neg\text{Sally stands at } t: F
\end{align*}
\]

but

\[
\begin{align*}
\Box(\text{my cat is ill-tempered or my cat is not ill-tempered}): T & & \text{WILL:} \neg\text{Sally stands at } t: T
\end{align*}
\]

While \(\text{WILL:} \neg\text{Sally stands at } t\) or \(\text{WILL:} \neg\text{Sally stands at } t\) is false (since the truth of that proposition would entail that all possible futures are such that she stands or all possible futures lack her standing), \(\text{WILL:} (\text{Sally stands at } t \text{ or } \neg\text{Sally stands at } t)\) is true.
Regardless of whether or not Sally ends up standing, \{futures\} contains futures in which Sally stands or futures which lack Sally standing, and those are mutually exhaustive (assuming that there is no ontic vagueness regarding Sally’s existence or whether she stands).

The present is such that the world has to end up either with Sally standing or without her standing, and so the presentist is not forced to abandon bivalence in order to escape fatalist objections. *Sally stands at t or ~Sally stands at t* is true because of the second disjunct – it is not the case that Sally stands at t, since Sally’s standing doesn’t exist and t doesn’t obtain. She is allowed to say that all propositions about future contingents are false, since the world lacks what is needed in order for those propositions to be true. Opponents of all-falsism cannot reject the position simply on logical grounds. They must turn to other objections.

(A note for the reader: from this point on, I shall refer to undetermined future contingent propositions by the phrase “future contingents” or “future contingent propositions”. This is because a kind of necessitation happens when a proposition p (e.g., *there will be a sea battle tomorrow*) is determined to be true – the history and the laws necessitate that a sea battle must come about. There are many different ways of limiting the scope of necessity (given what kind of necessitation is under examination or at issue), and I will narrow the scope to what is determined (i.e., what is necessary given the conjunction of the history of the world and the laws of nature), unless otherwise specified.)

\[63\] The idea of this use of necessity and contingency is shared by Prior: “in an important sense of ‘truths’, there are no contingent truths; once a thing reaches the status of a ‘truth’ there can be no going
1.6 Probability Problems?

However, may worry that though paying attention to the modal nature of WILL may help with some propositions, it cannot be consistently applied due to difficulties accounting for probability.\textsuperscript{64} Consider the case of Alice – a woman in 2011 debating the likelihood of Obama’s winning the 2012 presidential election. Suppose Alice thinks, “there was a 70% objective chance that Obama wins the election and a 30% objective chance that Romney wins”. Alice thus thinks there are multiple possible futures which might come about – some in which Obama wins (.7 of them) and some in which Romney wins.

Alice thus believes it is undetermined whether Obama wins. But Alice is a committed all-falsist, and thus realizes that all undetermined future contingents are false. Doesn’t this force Alice to say, “It will not be the case that Obama wins and there’s a 70% chance that it will be the case that Obama wins.”

At best, this seems odd. For it appears Alice is asserting that something with a probability of zero has a 70% objective chance of occurring. It will not help her to say “I mean that it’s not now the case that Obama wins, but there’s a 70% chance that it will

\textsuperscript{64} The following comes from discussion with Peter van Inwagen.
turn out to be the case that Obama wins”, since *Obama wins the election* is again a future contingent and thus false. It thus looks like Alice is committed to the incoherent belief that “it’s not the case now that it will turn out to be the case that Obama wins, and there’s a 70% chance that it will turn out to be the case that Obama wins.”

To make the above objection is again to confuse the scope of the modal. Alice is entitled to say, “It will not be the case that Obama wins and there is a 70% chance that it will be the case that Obama wins.” Although Alice’s utterance initially sounds like a problematic proposition about the future, the ambiguities of English grammar are confusing here. The utterance can and should be interpreted in one of two all-falsist friendly ways. First:

\[
(\neg \text{WILL: Obama wins}) \land (70\% \text{ of the possible futures include Obama’s winning})
\]

How do we get this? Here is a general strategy for interpretation: “It will not be the case that x As” means “Not every possible future includes X’s A’ing”, that is, \(\neg \text{WILL: X As} \). “There is a Q\% chance that X will A” means “Q\% of possible futures include X’s A’ing”, which is not a WILL proposition – it is a proposition about the present.

In certain contexts, the second conjunct of Alice’s utterance does not use the WILL operator, though the sentence might seem to initially suggest otherwise. Alice’s utterance thus translates in ordinary English to: “It is not the case that Obama must win and 70\% of the possible futures include Obama’s winning”. And this is no trouble for the all-falsist.

But there is a second way of interpreting the above:
\( (~\text{WILL: Obama wins at } t) \& (\text{WILL: there is a 70\% probability at } \text{t-minus that Obama wins at } t) \),

T-minus is the moment of utterance and \( t \) is the deciding moment of the election. The above proposition can be true. Given the interpretation strategy of WILL, the right conjunct means:

\[ \text{Every possible future } f \text{ is such that there is an objective 70\% probability at t-minus that Obama wins at } t. \]

If it is the case at t-minus that 70\% of all possible futures include Obama’s winning, then it WILL be the case that Obama’s winning has a probability of .7. All possible futures include the truth that the probability at t-minus that Obama wins at \( t \) is .7 (given objective probability and accidental necessity). Thus, \( \text{WILL: there is a 70\% probability at t-minus that Obama wins at } t \) is true, since there is now a .7 probability that Obama wins in all possible futures. So the second conjunct is not an undetermined proposition.

This is the same sort of answer the actualist will make regarding probability and the actual world. Consider coin flips. If the coin is fair, the objective probability of it landing heads is .5. Suppose the coin lands heads. The probability that the coin lands heads in alpha is thus 1. But this does not mean probability is shot – for the actual world contains all other world-books, and thus includes information about the total probability space. All possible worlds witness one another.

Since times (like worlds, on actualism) are maximal, they will include truths about other possible futures, and thus objective probabilities. While the probability of a coin’s landing heads is 1 in \( t^* \), landing heads is .5 probable with respect to the set of possible futures that \( t^* \) was in competition with for being the actual time. Every possible
future includes the future-books of other possible futures, just as the actual world includes the world-books of all possible worlds.

If the second conjunct is to be interpreted as a WILL claim (i.e., WILL: there is a 70% probability at t-minus that Obama wins at t), it is one about the set of possible futures. But it is important to note that as time goes on, the objective probability of Obama’s winning can change, since probability is relative to the time of assessment (as of the moment this dissertation is published, the objective probability is 1). Given the state of the world at t₁, it is 70% likely that Obama wins. Suppose, due to excellent campaign strategy, that the probability of Obama’s winning shoots up to 85% at t₂.

That is acceptable, since, after t₁ obtained, it will then always be the case that the probability of Obama’s winning is .7-at-t₁ (given the actual time t₁, the world is such that 70% of the possible futures include Obama’s winning) and that it is .85-at-t₂. (Note that this will only always be the case according to particular unique times that are referred to, not sets of competing times. Probabilities might differ according to other times that had competed with t₁ for actuality, since what obtains at those times is different in at least one respect, assuming there are no duplicate times.) Probabilities are thus to be read in terms of the WILL operator as follows:

\[
\text{WILL}probq: (\Phi x \text{ at } t) \leftrightarrow \forall f (\Phi x \text{ in } q\% \text{ of } f)
\]

The upshot is that we must again pay careful attention to the scope of WILL. And the proper reading of the scope is sometimes tricky business due to the ambiguity of English grammar, especially when combining operators and truth-functional connectives.
The following is a litmus test for reading the scope of the modal: does reading the modal with narrow scope give outrageous consequences? If so, the operator most likely to only be read as having wide scope.

1.7 No Real Openness?

All-falsism thus appears to be an advantageous position, as it allows the presentist to escape the fatalist puzzle while retaining the intuitive positions. Additionally, commits one to the openness of the future without committing one to ontic vagueness. The all-falsist can make sense of the openness of the future – for she does not make sure of primitive indeterminacy or deny bivalence. 65 Barnes and Cameron, however, assert that one must have ontic vagueness in order to affirm the openness of the future. They assert that all-falsism “doesn’t look like it results in the future being open, it looks like it results in it being settled that nothing will happen”. 66

But this objection is mistaken. If everything in the future is undetermined save for the proposition that everything else is undetermined, it is the case that \( \neg \text{WILL}:p \) is true for every proposition but the former. But this does not mean that nothing will happen. For \( \text{WILL}: p \vee \neg p \) is true – either \( p \) will be the case or \( \neg p \) will be the case. Something will happen, but what happens is unsettled.

65 There are those with a sneaking suspicion that the all-falsist is somehow committed to ontic vagueness. The burden is on this group to show how the view is so committed.

66 2011, 15.
The statement “Nothing will happen” is then true in one way and false on another.\textsuperscript{67} If it is true that every possibility (aside from the possibility that there are possibilities) is not determined, then it is true that nothing will happen – that is, the history and the laws do not tell us which of the many possible futures will come about. But this does not mean that \textit{WILL: nothing happens} is true! And if Barnes and Cameron want to insist that the all-falsist affirm that \textit{WILL: nothing happens}, including saying that nothing at all is determined, the all-falsist may respond that this request is self-refuting. It would require her to say that the proposition \textit{WILL: nothing happens} is undetermined, and thus say that \textit{~WILL: nothing happens}. The all-falsist will not do this and need not.

But perhaps Barnes and Cameron simply mean that if nothing is determined to happen, then nothing happens on the all-false view, since nothing comes about (since nothing will be the case). This criticism doesn’t take the reality requirement or the all-falsist interpretation of WILL seriously. The all-falsist believes that propositions always have truth values, but their truth values depend on what happens in the world.\textsuperscript{68} Future contingents eternally have a truth-value, but they change from false to true in accordance with what happens in the world. Barnes and Cameron assume, however, that the all-falsist must say that if a proposition is false at one time, it must always be false. That is, for every proposition, the particular truth value that proposition has, it has eternally. So if \textit{there is a sea battle at t} is false, it will always be false.

\textsuperscript{67} Thanks to Michael Rea for pointing this out.

\textsuperscript{68} A notable exception, perhaps, would be necessary propositions. But a very weak reading of “what happens in the world” would allow necessary propositions to have their truth values depend on what happens in the world, since it always happens that the world is such that \textit{2+2=4}, etc….
The all-falsist rejects this. The fact that a proposition about whether a sea battle will occur is false does not mean that we're suddenly unable to engage that sea battle. Instead, the truth value of an unfixed proposition about sea battles depends on those in the world, and whether they decide to engage in a sea battle. Times and propositions represent reality. But if times are representations of how reality is, and reality constantly changes (due to the movement of objects, et cetera), then it is not settled that nothing will happen.

In fact, the statement “Nothing will happen”, according to the all-falsist semantics for WILL, seems simply false – in order for it to be true that \textit{WILL: nothing happens}, it must be the case that \{futures\} only contains worlds in which everything remains unchanged from how things are now at t. But it seems highly unlikely that this would be the case, especially given that it seems plausible that many things about the future are presently determined to happen.\textsuperscript{69} It appears highly unlikely that the all-falsist would even find herself in the position above, since she believes that determined propositions can be true and it is highly unlikely that the all-falsist will think the world such that nothing at all is determined.

All-falsism is a motivated, logically coherent view that has many benefits. It allows the presentist to affirm the reality requirement and escape fatalism; upholds bivalence, the law of the excluded middle, and the classical truth and falsity schemas; and allows the presentist to escape fatalist objections. This chapter demonstrated how the all-

\textsuperscript{69} Further, if the falsity of these propositions makes it settled that “nothing will happen”, it’s unclear how those with ontic vagueness fare much better. For if it’s indeterminate that \(p\), what finally makes it the case that determinately \(p\) or determinately \(\neg p\), other than something in the world and an application of the reality requirement?
falsist makes sense of the openness of the future, but it has not yet been seen how she can account for the fixity of the past and the asymmetry of time. Her case is thus not complete. It is to this issue we now turn.
2.1 The Grounding Objection

While the all-falsist response may work for future contingents, there are propositions about the past that we have good reason to think are true: *dinosaurs existed 150 million years ago, I existed five minutes ago, Lincoln was the sixteenth president of the United States*, and so on. But according to presentism, past objects and events do not exist.

Suppose that the proposition *a brachiosaur walked on this spot 150 million years ago* is true. Once the presentist grants this, they appear to be in serious trouble – for according to presentism, brachiosaurs do not exist and neither does the time 150 million years ago. Thus, there is nothing for the proposition *a brachiosaur walked on this spot 150 million years ago* to be about – nothing exists which grounds or explains the proposition’s truth. But something is needed to ground the truth of such propositions, since the all-falsist affirms SP*. The presentist cannot supply such grounds. Thus, the objector concludes, presentism is false.
The grounding objection, more formally, is as follows.⁷⁰

1. If presentism is true, then there are no past and future objects.

2. If there are no past or future objects, then there is nothing in the world that could ground the truth of propositions about the past and future.

3. The truth of propositions must be grounded.

4. Therefore, if presentism is true, then there are no true propositions the past and future.

5. There are true propositions about the past and future.

6. Therefore, presentism is false.

There appears to be nothing that can ground the truth of propositions about the past. The all-falsist needs something to ground the truth value of such propositions. It thus appears that the all-falsist response, while providing a way to escape fatalism, does so at the cost of the fixity of the past.

2.2 Motivating the Problem

Lurking behind the above argument is a deep concern regarding presentism. If there are no non-present objects, says the objector, how can one avoid the following principle?:

(TR): Things could be just as they are at present (same things presently in existence, same fundamental properties and relations presently instantiated) and the past have been different.⁷¹

Here the objector assumes that mere truth values of propositions are not fundamental. Given this assumption, it appears that there is no ontological difference

⁷⁰ This line of argument is frequently used against the presentist (most notably in Sider 2001).

⁷¹ This principle is from Crisp, 2007, 92.
(other than perhaps unexplained, brute truths) between our world and a qualitative
duplicate world that popped into existence five minutes ago. This is unacceptable, says
the objector – so presentism should be rejected.

One could sidestep the grounding objection by again rejecting SP*. As was the
case with SP* rejection in the face of fatalism, to do so here is to fail to see the force of
the problem. One could posit brute fundamental truths in order to reject TR and the need
for grounding, but there seems to be a legitimate demand that cannot be answered by
such brute truths. The move is ultimately unsatisfying. Being unsatisfying certainly isn’t
the arbiter of an incorrect metaphysical theory, but it is a sign that we should not begin by
making this move. We need good reason for endorsing primitives in our ontology
-especially in cases like the above, where it seems there is no need for them) and one way
of doing that is to show that non-brute methods cannot do the work. In the absence of an
indispensability argument, outright rejection of SP* is unacceptable.72

2.3 Concretist Responses

There is one easy way out of the above problem: the all-falsist could endorse
growing block theory instead of presentism.73 According to growing block theory, only
past and present objects and events exist. Given the progression of time, times that were
present become past and as presents come into existence “at the edge”, bringing along

72 Indeed, indispensability arguments, or something like them, are offered by the modal realists
(Lewis 1986, 5-69; Plantinga, 1987; van Inwagen, 1986) and the Neo-Platonists on behalf of abstracta (van
Inwagen, 2004).

73 Briggs and Forbes, while not all-falsists, provide an account of the open future in terms of the
growing block.
with them new objects and events to the spacetime block. The temporal extent of reality thus grows over time.

The growing blocker can point to concrete things as the grounds of past and present truths. Since past and present things exist, propositions about the past and present can be true. However, there are some serious costs to endorsing growing block theory. As noted in chapter one, it appears that the growing blocker cannot endorse endurantism. Growing blockers must also answer objections regarding how one can know they are present (see Merricks, 2006).

As it turns out, the all-falsist can give a response to the above objection that can be well-utilized by modal ersatzers. Modal ersatzers are realists about modality (there exist genuine, mind-independent objects that are ways things could be), abstractionists (a way things could be must be an abstract object), and actualists (there are no objects which do not exist). There is only one concrete world accurately represented by a way things could be, though there are countless abstract entities representing ways the concrete world could have been.74

If one finds modal ersatzism appealing, then there isn’t immediate pressure to endorse growing block theory in order to account for truths about the past – abstracta can do robust work grounding truths and one can appeal to robustly abstract notion of the way things have been. While growing block theorists may want to appeal only to concreta for the grounds of the truth values of propositions, I assume many of them want to affirm certain modal truths. If this sort of growing blocker wants modal truths, the

74 Lewis 1986, 136.
main contenders are modal factionalism (according to which modal language is a useful fiction) and Lewisian modal realism (according to which there are $2^\aleph_0$ concrete, spatiotemporally isolated universes).\footnote{Ibid., 86ff.} Given that there are serious difficulties for these accounts,\footnote{See van Inwagen 1986 for difficulties with the latter.} the growing blocker has reason to consider modal abstractionist theories. I thus set growing block theory aside.

Thus far I have assumed that the presentist will want to believe in abstracta – particularly, that they will want to think of times as abstract. There is pressure for the presentist to think this (Mason, 2006), and the majority of presentists have in fact been abstractionists about times (Crisp 2007, 2003, 2002; Chisholm 1971; Davidson 2003, 2004; and Prior & Fine 1977 for a few such commitments and discussion of this point). Given this, most presentists will want to point to something abstract to show TR false and answer the grounding objection.

However, one noted all-falsist has broken rank and insisted that concrete objects must do the work of grounding. Ned Markosian (2012;1995) grounds truths about the past in present concrete objects.\footnote{Markosian’s temporal views have evolved over time. He used to deny bivalence and now subscribes to all-falsism.} The truth of dinosaurs existed, for instance, is grounded in certain presently existing objects, like presently existing skeletons and such other concrete objects that bear witness to the fact dinosaurs once existed. However, once those grounds cease to exist (when all the skeletons are ground to powder and scattered to the wind or eventually with the heat-death of the universe), those truths about the past are
true no longer. The past is (ultimately) open in the same way as the future. Markosian thus bites the bullet – we can lose what grounded certain truths and TR holds in certain cases.

I regard this as too large a price to pay. It seems obvious that past truths like *dinosaurs existed 150 million years ago* do not cease to be true. The existence of accidental necessity (that the past is immutable and cannot be changed) is one of the most deep-seated philosophical intuitions, to the point where the time travel literature obeys this rule.\(^7\) There is thus tremendous pressure for the presentist to make use of abstracta in accounting for truths about the past – the only other options appear to be endorsing brutalism about truth values or conceding to the objector.

2.4 Via Media Attempts

Here some will think that I’ve moved too quickly, as I’ve assumed the only options for grounding the truth values of propositions are the concrete and the abstract. But some insist that these two options are not mutually exhaustive. The presentist could reject the above argument is to deny (1) by endorsing Meinongianism.\(^9\) She would say that while there is nothing that *exists* which grounds propositions about the past, past objects and events *subsist* and that is enough to ground the truth of propositions about the past. However, there are myriad reasons why the presentist should not want to be a

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\(^7\) In cases where the spacetime block itself is changed, hypertime does the work of tracking accidental necessity (see van Inwagen, 2010; Hudson and Wasserman, 2010).

\(^9\) Which premise Meinongians will reject depends on the particulars of how her account treats subsistent objects. Are these “past” or “future”? If so, the Meinongian will reject (1). If existence is required for past and future objects, then she will reject (2).
Meinongian. Here’s one: the same sorts of intuitions that motivate presentism typically motivate modal actualism, the neo-Quinean view that there are no objects that do not exist. Since Meinongianism is a denial of actualism, it is reasonable to think that in adopting Meinongianism the presentist will give up on the very intuitions motivating her presentism.

Another response the presentist can make is to reject (2) by endorsing necessary existents. While those who endorse necessary existents can say that non-concrete objects are abstract, this is not the route Williamson (2002) takes.⁸⁰ According to Williamson, objects never come into or out of existence – every object necessarily exists, just not in the most interesting way. Socrates, for instance, has always and will always exist. But before Socrates was born and after Socrates died, he was not a concrete object. The presentist can then say that while there are no past or future objects that do the work of grounding, it isn’t the case that there is nothing in the world to ground propositions about the past and future. Present objects, such as Socrates, do such things. What accounts for the truth of *Socrates was a Greek* is that Socrates, who exists, had the property of *being Greek* when he walked on the Earth as a concrete object (or, if this not enough, perhaps having the property *being Greek while concrete*).

The acceptance of necessary existents is also modally costly. Those who endorse it must deny two commonly held modal intuitions: that there could have been

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⁸⁰ I ultimately can make no sense of this insistence. Williamson thinks that his being necessarily possibly concrete somehow rules out his being abstract at a time before he became concrete (2002, fn8). I do not see how this is the case, but I list his view as he wishes. One should not take my inclusion of this section to be an endorsement of this sort of “third way”. I take non-concrete objects to be abstract and non-abstract objects to be concrete. LEM applies to abstract and concrete.
more things than there in fact are (known as the “aliens intuition” (Bennett, 2006, 6)) and that objects that exist could have failed to exist. Thankfully, the all-falsist can avoid these costs. All-falsism allows for the rejection of (2) along with a rejection of Meinongianism and necessary existents.

Meinongians and adopters of necessary existents answer objections regarding the grounds of past truths in the same way they answer objections regarding the grounds of future truths. The objections raised against these views in the previous chapter will thus also apply here. Even if Meinongians and those holding to necessary existents could properly answer the grounding objections, they do so at a cost – they cannot affirm the asymmetry thesis, since they lack a non-brute explanation of the asymmetry of the past and future, if they endorse temporal asymmetry at all. We should thus turn to a solution making use of abstracta.

2.5 Ontological Residue

All-falsism can allow for just the right sort of grounding – and in a way that does not require the existence of past objects. The all-falsist is able to deny (2). She can affirm presentism, but think there are things in the world that ground the truth of

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81 The all-falsist denies $\neg \Diamond \forall x Fx \rightarrow \forall x \Diamond \neg Fx$, since she treats WILL as a kind of necessity operator. In so doing, she rejects a permutation of the Barcan Formula, which is essential to Williamson’s case for necessary existents. All-falsism thus undermines much of the motivation for necessary existents. This makes her well-suited to be a friend to the Plantingian actualist, since the Plantingian denies that the Barcan Formula can apply to propositions (Plantinga, 1974, 59).

82 Adherents of necessary existents can answer the grounding objections, because they could endorse either compatibilism or an open future view. The important point is that endorsing necessary existence cannot solve the problems.
propositions about the past – namely, what is present. She can affirm (3) by affirming her supervenience principle, SP*:

\[(SP^\ast)\): For any proposition p and worlds w and w*, if p is true in w and not w*, it is because (a) according to w, something exists which doesn’t exist in w* (or vice versa) or (b) according to w, some objects instantiate a fundamental property or relation that they don’t instantiate in w* (or vice versa).

The all-falsist says that propositions about future contingents are false because there is nothing that exists which could account for their truth. But this doesn’t force the presentist to say that all propositions seemingly about what is not present are false – in particular, it does not commit one to saying that all propositions about the past are false. The truth value of a proposition about the past is fixed by what happened in the past (which was then the present).83

According to all-falsism, some detensed propositions change truth value according to and in order to reflect what happens in the world (as what future in \{futures\} becomes present is continually being decided). Again, detensed propositions are propositions such as \textit{a brachiosaur walks on this spot at 150,002,013 BCE} and Sally believes at t that a brachiosaur walked on this spot at 150,000,2013 BCE, and do not admit of temporal privilege.84 In contrast, a tensed proposition is Sally believes that a brachiosaur walked on this spot 150 million years ago.

83 I speak of “fixing” the truth value of a proposition in this chapter and “settling” the truth value of a proposition in the next. These terms are, to my lights, interchangeable. I use “fixing” and “fixity” here, as it makes salient the ontological fixing that occurs according to OR. “Settling” is used in the next chapter, as it is the term most often used in the open future literature.

84 Zimmerman, 2006, 405.
The truth value of tensed propositions can change, since the truth value depends on what time is present (e.g., 150 million years hence, \textit{a brachiosaur walked on this spot 150 million years ago will be false}). But it is commonly assumed that detensed propositions cannot change their truth values.\textsuperscript{85} I reject this assumption. While detensed propositions always have \textit{a} truth value (and thus bivalence can be upheld), undetermined contingent propositions need not always have the particular truth value that they have now. This is not to say that \textit{no} proposition always has the truth value that it does now - necessary propositions cannot change their truth value, since they have the truth values that they do essentially. \textit{God exists} and \textit{2+2=4} are two examples of propositions that always have the same truth value.

In fact, it seems downright odd to say that all propositions have their particular truth values eternally or essentially. It seems that the only reason to say that some propositions cannot change their truth values is the mistaken thought that relations between abstracta and the world must be unchanging. According to the presentist, this cannot be right, since they grant that abstracta stand in different relations to different objects at different times.

Consider properties. It is reasonable to think that as time passes, concrete objects instantiate different properties and can change what properties they have. The particular relations between properties and the world are constantly changing, if one is a presentist (indeed, if one is a dynamic theorist of time).\textsuperscript{86} Why not think something similar happens

\textsuperscript{85} See Iacona for a discussion regarding this point.

\textsuperscript{86} The static eternalist is able to say that the relation between properties and the world is also unchanging, since it was always the case that the property would relate the way that it did to that object at that time.
with propositions? It appears that there is no real reason to deny that the truth value of some propositions may change, save an unconscious (or conscious) allegiance to static eternalism – but the presentist wants no such allegiance.

Detensed propositions about the past are either true or false, depending on how the world was, propositions about the present are either true or false depending on how the world is, and all future contingents are false. What accounts for the truth of a contingent, singular proposition is that the proposition became true when the thing it was about happened. Future contingent propositions are false because nothing exists that could properly account for their being true (the present state of the world together with the laws of nature cannot do this work, assuming that the laws are undetermined). Detensed propositions about contingents are false unless something in the world accounts for their truth.

The truth value of a proposition merely reflects the way that the world is. Take the proposition Sally stands at t (where t = 1000 years before t-minus). At t-minus, Sally stands at t is false (Sally does not exist). If Sally does stand at t, the proposition Sally stands at t becomes true and afterward the proposition Sally stands at t remains true ever after. When an event occurs, the truth value of propositions that are about that event and objects relevant to that event become fixed. Some propositions change their truth value from false to true, and once they change their truth value to true (if they do so change), they remain true thereafter.87

87 This is similar to the treatment certain open theists give regarding the actual world - what happens continually narrows down the set of the possible worlds that could have claim to being the actual world (See Kodaj; Rhoda, Boyd, and Belt). Whether the open theist (if she is an all-falsist) is committed to such a view is discussed below.
Once what the proposition is about ceases to exist, the proposition’s truth value is forever fixed. If after a proposition’s subject becomes present, the proposition does not change its truth value (suppose Sally does not stand at t), then that proposition is forevermore false. It remains false because when the proposition’s subject passes out of existence, it cannot return to change the truth value of the proposition. Thus, there is an asymmetry in the fixity of propositions – the past is unchanging, while future contingents are mutable.

The asymmetry of OR is advantageous, since it gives an account of the “arrow of time”: how it is that the past is fixed and the future open. The reason why there are true past contingent propositions, but not future ones, isn’t arbitrary – rather, it’s a consequence of how the world is and was. Properties only gain the relevant second order properties if certain concrete things occur. Ontological residue only attaches because of the way the world happens to be. It simply isn’t possible for contingent propositions wholly about the future to be true, since nothing ever existed which could ground their truth.\(^{88}\) If something is presently determined to occur, then the properties already have the relevant second order properties – whatever determined the future outcome also did the work of fixing the relevant properties and the truth value of the proposition.

But here one can object: how does such fixing occur? Right now it appears that the truths of propositions about the past are ungrounded and cannot meet the

\(^{88}\) A note about why the “default” truth value is false – if \(p\) is false, then \(it \: is \: not \: the \: case \: that \: p\) is true. If there’s no negation within the proposition itself, the truth of \(it \: is \: not \: the \: case \: that \: p\) tells us that there is no state of affairs, object, or what have you that is \(p\) (which is just what presentists affirm about future objects).
requirement SP* – there used to be objects which grounded the truth of these propositions, but no longer. So I’m not really objecting to (2) in the grounding argument – I’m objecting to (3). I’ve given above a nice illustration of brute past truths, nothing more. Nothing can ground itself, and so the fixing of truth value cannot properly ground the truth of a proposition at a later time.

I respond: The truths of these propositions need not be ungrounded. The all-falsist is not left without reply – she may adopt Ontological Residue (OR), a view that allows for the continual grounding of the truth of such fixed propositions.

According to OR, properties gain other properties, in accordance with what the world is like. For instance, when a brachiosaur walked on S spot 150 million years ago, the property being S spot gained the property being walked on by a brachiosaur, the property brachiosaur gained the property being instantiated at 150,002,013 BCE by something that walked on S spot, et cetera.

This residue, that attaches to the properties can’t be “washed off”, so to speak. Once the truth value of a proposition is fixed by the event or object that it is about, it cannot be changed. Thus, there is an asymmetry in the fixity of propositions – the past is unchanging, while future contingents are open to change.

Once properties gain such other properties, they cannot lose them (as there is nothing that could occur which would remove said properties). If after a proposition’s subject becomes present, the proposition does not change its truth value (suppose Sally does not stand at t), then that proposition is forevermore false. It remains false because when the proposition’s subject passes out of existence, it cannot return to change the
truth value of the proposition.\textsuperscript{89} It remains false because when the proposition’s subject passes out of existence, it cannot return to change the truth value of the proposition.

What changes and fixes the truth value of propositions are properties gaining second-order properties in the relevant manner (in accordance with what is happening in the world). So it’s not that the truth of \textit{a brachiosaur walks on S spot at 150,002,013 BCE} is ungrounded – it’s grounded in the property \textit{brachiosaur} presently having the property \textit{being instantiated at 150,002,013 BCE by something that walks on S spot}, et cetera. The relationship between such properties as \textit{brachiosaur} and \textit{being instantiated at 150,002,013 BCE by something that walks on S spot} is fundamental, and thus SP\textsuperscript{*} is fulfilled. What accounts for the present truth of \textit{a brachiosaur walks on S spot at 150,002,013 BCE} in w, but not w\textsuperscript{*}, is that properties like \textit{brachiosaur} have the relevant second-order properties in w.

2.6. About Aboutness

But wait – the objector says – the all-falsist has admitted that the proposition \textit{a brachiosaur walks on S spot at 150,002,013 BCE} is about a brachiosaur. The proposition’s being about a brachiosaur walking on S spot at the relevant time is what accounts for the relevant second-order properties. Above, I say things like “Once what the proposition is about ceases to exist, the proposition’s truth value is forever fixed”. But if the proposition is \textit{about} a brachiosaur and the brachiosaur ceased to exist, then

\textsuperscript{89} For discussion of a proposition’s subject, see the below section “About About”. I have a robust view of aboutness according to which propositions are saturated in such a way as to be about particular times (just as propositions, according to Plantinga, must be indexed to worlds).
what the proposition is about ceased to exist! And a proposition cannot be true if what it
is about does not exist.

Aboutness is notoriously an ontologically slippery notion. 90 SP* simply
requires that something exists which grounds the truth of the proposition. The presentist
can meet this requirement by making use of properties and individual essences91 and
treating times like possible worlds (see Crisp (2003), 230-240) – in doing this, the
presentist gives an account akin to the Plantingian actualist. An incredibly strong
notion of aboutness that leads to the insistence that a brachiosaur is needed for the truth
of a brachiosaur walks on S spot at 150,002,013 BCE also requires that either one
endorse Williamson’s (2002) necessary existents (and likely Lewisian modal realism,
see below) or say that propositions about what is possible but not instantiated are false,
since they lack the relevant grounds (though one could try to lessen the blow by giving
a fictionalist account of modal speech).

One who wishes to affirm the truth of modal speech and this robust requirement
must say, for instance, that Pegasus exists. For how else could the objector account for
the truth of propositions such as Pegasus is a winged horse? The proposition appears to
be about Pegasus. If the objector wants to avoid this consequence, they are at pains to
explain why a brachiosaur, but not Pegasus, is needed for the truth of the above

90 See Goodman for a discussion of the difficulty of accounting for what a proposition is about.

91 An individual essence is a property E such that (a) it is possible for something to have E, (b)
anything x that has E has it essentially, and (c) necessarily, for any x and y, if x has E and y has E, then
x=y. Like properties, individual essences exist in every world (Plantinga, 1974, 72). A set of individual
essences is sometimes known as a haecceity.
relevant propositions. And Pegasus here must be concrete – after all, the objector was dissatisfied in explanations using abstracta.

If one denies that properties can be fundamental and have any role to play in fulfilling the demands of SP*, the existence of Pegasus is not enough – we need something more robust than Williamsons’ necessary existents, since the proposition appears to be not just about Pegasus, but Pegasus’ being a winged horse. So if we take an incredibly robust notion of aboutness, Pegasus must exist and Pegasus’ currently be a winged horse are needed in order for the proposition *Pegasus is a winged horse* to be true. This would require either that a winged horse named Pegasus exist in the actual world or Lewisian modal realism (on which there are $2^{\aleph_0}$ concrete possible worlds spatiotemporally disconnected from ours, some of which contain winged horses, (Lewis, 1986)).

I view both options as incredibly high costs. We cannot always readily discern what a proposition is about, since the way we refer to propositions in English does not always readily convey their meaning. *There are no round squares* cannot be about round squares, on pain of contradiction.92

The all-falsist can escape aboutness problems regarding propositions about the past and future in the same manner that Plantinga escapes aboutness problems regarding modal propositions. In the case of *Pegasus is a winged horse*, the haecceity

92 Further, even sentences which seem to refer to propositions may not. One promising way to make sense of liar sentences, e.g., “This sentence is false”, while retaining bivalence is to simply deny that liar sentences refer to propositions. If propositions are simple, rather than constituted, this solution works quite well.
Pegasusness is the being that the truth of the proposition supervenes on. But this isn’t to say that Pegasusness is instantiated.

Objection: The all-falsist who endorses OR says that after the brachiosaur walks on S spot at 150,002,013 BCE, the properties brachiosaur, being S spot, being instantiated at 150,002,013 BCE, and the second-order properties that they gained are the beings that the truth of the proposition supervenes on. But doesn’t the supervenience base or ground for the truth of the proposition problematically switch between objects (e.g., from between the brachiosaur and the properties)? The supervenience base or ground of a proposition should remain the same. Otherwise, it seems the meaning of the proposition has changed. But the meaning of the proposition is not able to so change, since propositions are the meanings of sentences.

Here again the all-falsist makes use of the Plantingian actualist’s response. The Plantingian denies that the supervenience base or ground of the proposition changes – it simply becomes more or less robust. Many propositions are such that they can be about at least two things. In the case of Sally stands at t, if Sally does not exist, the proposition is simply about the haecceity Sallyness. But suppose that Sally comes into existence. Then, the proposition Sally stands at t becomes about both Sallyness and Sally. When Sally ceases to exist, the proposition becomes about Sallyness and other relevant properties (first and second order).

93 Plantinga expressed this view to me in conversation in the spring of 2011 and confirmed that this was what was intended. Given this, the term ‘singular propositions’ is a misnomer, since when what they’re about is actualized, the truth supervenes on a double base: the object that instantiates the haecceity and relevant properties and the properties and their second order properties. This should come as no surprise to the actualist, since the very term ‘actualism’ is unfortunate - it wrongly seems to suggest that the position is committed to the thesis that “everything is actual”. But ‘actual’ and ‘exists’ are not to be conflated.
This position is not radical. Due to existential propositions, many already think that supervenience or grounding bases can become more or less robust. Consider the existential proposition *there are dogs*. The beings ground the truth of the proposition include Sparky, Fido, Max, et cetera. When dogs are born, what *there are dogs* is about becomes more robust. When dogs (unfortunately) die, it becomes less robust.

The strategy the all-falsist (and Plantingian) uses affirms the importance of what happens in the world while letting properties do real work. The property *being S spot* does not gain the property *being walked on by a brachiosaur* unless the property *brachiosaur* is instantiated by something that walks on S spot. If Sallyness has not been instantiated and the world is not such that it is determined that Sallyness will be instantiated by an object that stands at t, *Sally stands at t* is false.

And the presentist cannot use the second-order property strategy to say that future contingent propositions are true, on pain of compatibilism or fatalism. Consider the property *stands at 11:00 pm EST on November 11, 3000 CE in alpha* (where alpha = the actual world). Sallyness must have this property if *Sally stands at 11:00 pm EST on November 11, 3000 CE in alpha* is true.

Either we are in alpha not or we are not. If we are, then standing is not up to Sally, as it is not up to Sally whether we are in alpha. Neither Sally nor her standing exist, and thus cannot help determine which world is actual. So Sally is not free with respect to standing. If it the actual world has not been decided, the proposition *Sally stands at 11:00 pm EST on November 11, 3000 CE in alpha* lacks what is needed to make it true, for there are possible futures in which Sally stands and futures that lack Sally’s standing.
I admit that on objector may continue to insist on an incredibly stringent view of fundamental properties and relations such that the all-falsist who endorses OR cannot meet what the objector thinks SP* requires. If the grounding requirement for the truth of propositions is so strong that the truth value of propositions which were once fixed by the past state of the world are on an ontological par with propositions which are not and were never fixed by the way the world is or was like, then I think there is something wrong with the grounding requirement (thus, I must amend – I am willing to endorse some interpretations of (3), but not all, depending on strength). 94

But here it is important to note that the objector now appears to be moving the goal posts. OR allows the all-falsist to point to something that makes it so the presentist isn’t in danger of temporal recombination (TR) – there are fundamental properties and relations (other than truth or falsity) that make the difference. One can object that the all-falsist is cheating here. But this cheating objection isn’t one particularly aimed at the all-falsist, but rather at anyone who makes use of fundamental abstract properties and relations. 95

94 A useful distinction can be made here between truth making and truth sustaining. Certain concreta are needed in order for certain propositions to be made true, but the continued existence of those concrete objects isn’t necessary in order for the truth to be sustained. And the sustaining of truth is all that is needed for SP*. For those dissatisfied with OR, Rhoda (2009) offers an account in which truths about the past are grounded in God’s memories (and God is infallible). OR and Rhoda’s view are compatible – perhaps what partially accounts for God’s memories are relations between first and second order properties.

95 See Crisp, 2007 for an excellent response to Sider’s 2001 objection that the presentist so cheats. One must say what it is that makes the presentist’s strategy unsuccessful. Sider attempts to do this with his categorical/hypothetical distinction, but Crisp shows this distinction is unsuccessful. It is unclear how to parse how hypothetical properties “point beyond”: necessary properties “point beyond” their instances, if we’re thoroughgoing concretists regarding ground (2007, 95-8). Insistence that the grounds must be concrete either commits one to Lewisian modal realism or makes it so we don’t have certain modal truths we thought we did. (And in fact, Sider starts to go the latter route, as he thinks modality is not fundamental (2014, chapter 12).
If the all-falsist (and in turn, the presentist) adopts OR, they are able to provide a plausible account regarding the truth values of propositions about the past and future, and endorse SP*. If OR is the correct theory, there are thus no truths wholly about the past. And as nothing exists or has existed that grounds the truth of undetermined propositions about the future, all future contingent propositions are false. The past is fixed, as the truth values of propositions about the past are no longer mutable. The future is open, since (if determinism is false), there are some propositions wholly about the future and their truth value may change. 96

Adopting all-falsism isn’t merely a reactionary position in the face of fatalism – rather, the presentist has independent motivation for the position due to considerations about abstract times and possible worlds. OR can be seen as a natural extension of the basic position of all-falsism. Given that presentists have excellent reasons to be abstractionists about times, and commitment to abstract times offers a robust view of abstracta (on pain of arbitrariness), there is no apparent reason why the presentists who endorses abstract times should not be all-falsists.

2.7 Modal Realism in Jeopardy?

Thus far, I have assumed that the all-falsist and modal realist are natural friends. One can object that this is not the case, as all-falsists cannot be modal realists – their view

96 The claim that propositions of which the truth value is determined are still “about the future” is true in one way, but false on another. Certain propositions can be about the future in that they are about a particular time t, the objects, or events therein that will come about, but they are about the present in so far as the world is presently such that what the proposition is about must come to be. Everything that is needed to secure proposition p’s coming about is present, even though what is proximately needed in order to make p come about (e.g. Sally, for Sally stands at t) need not be present.
thus comes at a cost. Daniel Kodaj (2014) is the most recent to argue that views which deny the existence of determinately true future contingents (that is, open future views (OFVs)) are inconsistent with modal realism.

According to Kodaj’s open future intuition: “(i) the future is pregnant with rival possibilities, exactly one of which will be selected, and (ii) as of now, neither of those possibilities are selected” (419). Further, “a necessary condition of genuine openness is that some propositions pass from not being determinately true to being determinately true as time goes by” (436).

So far, so good, according to all-falsism: the position allows for (i) and (ii). But Kodaj thinks that rival future possibilities preclude there being a single, complete way things could be (that is, an actual world). Again, modal realism requires that possible worlds are maximal, in that they must include maximal sets of compossible propositions: for any proposition p, a world will include either it (p) or its complement (~p). Kodaj argues that this maximality is inconsistent with open future views.97

The received view is that possible worlds are complete world histories, as they are complete ways things could be. If the future is unsettled, there is no way to model what future will come to pass, and thus no way to get the complete set of needed propositions. Instead of there being an actual world, it looks like there is a set of worlds which are competing with respect to being actual – and as history marches on, this set of worlds is continually winnowed down. If there is a final moment in the world history, then – and

97“If the future is strongly open, then modal realism is false... All in all, the situation seems to be the following: You either deflate the notion of openness, or you ax modal realism” (Kodaj, 436).
only then – will there be an actual world. Until then, if things are open, we must wait and see what happens.

It is easy to see why one would think the two positions incompatible. Maximality requires a complete way things could be (and in the case of the actual world, a complete way things are). Open future views, on the other hand, require that the sum totality of the way things are doesn’t dictate the way the future will be. The following thesis lurks behind the charge of inconsistency:

UNCHANGING ACTUALITY: If world w is actual, then world w cannot cease to be actual.

All-falsism by itself isn’t itself inconsistent with Unchanging Actuality. The all-falsist could secure this complete way things could be by endorsing determinism. If there were true future contingents, they would be all false. But there simply aren’t any future contingents, as determinism is true. But one of the main motivations for all-falsism is the openness of the future. It will do the all-falsist little good to get modal realism at the cost of future openness.

The challenge for the all-falsist, should she wish to be a modal realist and affirm indeterminism, is to give an account on which possible worlds are maximal, there is one actual world, the truth value of some propositions about the future changes from not determinately true to determinately true, and Unchanging Actuality false.

Modal realism is thankfully available to the all-falsist if she combines all-falsism with a specific view about times and possible worlds – namely, that times reduce to
possible worlds. The sum total of the way things are (and the proper representation therein), if one is a presentist, is exhausted by present objects and events. If times reduce to possible worlds and there is genuine passage, Unchanging Actuality is false.

We have to take seriously de-tensed propositions and what is required in order to have a fully saturated proposition. To be fully saturated, propositions and properties must have “all variables and parameters being filled in” (Sider 2014, 248). Consider two possible futures, f and f*. At f, a sea battle occurs. At f* a sea battle does not occur. Thus:

True: Sea battle at f

False: Sea battle at f*

But will f be the actual future? No – it’s unsettled. The same holds for f*. Consider the detensed proposition there is a sea battle on January 6, 2050 at 2:30 pm EST. Kodaj and other objectors claim this proposition isn’t fully saturated yet, since we must specify which world will actual. But if the future is unsettled with respect to a sea battle, this is precisely what we cannot do. Adherents to Unchanging Actuality think fully a saturated future proposition must include a reference to the actual world: something they assume includes a correct, complete timeline, which demonstrates how things turned out. And since there isn’t such a selected correct timeline, the all-falsist cannot be a modal realist.

The all-falsist can (and should) reject the above characterization. The all-falsist is able to specify the actual world, since she can reduce times to possible worlds. The sum

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98 This strategy is available to more than just the all-falsist. But the all-falsist is the only one who can use this strategy, in tandem with OR, to secure the fixity of the past and the openness of the future.
total of the way things are (and the proper representation therein), if one is a presentist, is exhausted by present objects and events.

2.8 The World-Time Reduction

If futures are abstract, they are like possible worlds – they are ways the world could be (in the future), and according to the presentist, only one time may obtain (though which time obtains changes). If more than one time obtained, then objects or relations would exist that are not present objects or relations – a violation of presentism. What time obtains is constantly changing, however, in accordance with what happens in the world.

The following is, to my lights, the best definition of an abstract time:

“x is a time = df. for some class C of propositions such that C is maximal and consistent, x = [∀y, y ∈ C ⊃ y is true]”

This fits well with Plantinga’s definition of a possible world:

“x is a possible world if, and only if, x is a possible state of affairs & for any possible state of affairs y, x either includes or precludes y”.

The above definition of a time gives us a maximal and consistent class of propositions. Since the class is maximal, for every proposition p, a time will include p or

99 Rini and Cresswell engage deeply with the parallel between times and worlds, but do not pursue the route I do in the following.


101 Plantinga (1974), 44.
its complement (I shall speak in the remainder in terms of sets, rather than classes).\textsuperscript{102} Since the propositions in this set are maximal, the Crispian ersatz definition of a time collapses into the abstract Plantingian view of possible worlds - for according to Plantinga, for any possible world $W$, the book on $W$ is the set $S$ of propositions such that $p$ is a member of $S$ if $W$ entails $p$ (1974, 46). World books that are possibly actual are maximal, consistent sets of propositions. These world books correspond to states of affairs that are possible worlds.\textsuperscript{103} Possible worlds are indeed maximal, but to say that they include the full history of a possible spacetime (wherein a particular one is selected) begs the question against the open futurist.

We have to make sure, since times are possible worlds, that we’re fully saturating the propositions and properties in question and in the right sort of way. Again, our propositions and properties have “all variables and parameters being filled in” (Sider 2014, 248). Detensers say that tensed propositions such as Sally was standing are not fully saturated – for this proposition does not tell us when Sally was standing. The more fully saturated proposition needs to be detensed – Sally stood on January 1, 2012 at 11:59 pm EST.\textsuperscript{104}

\textsuperscript{102} Nothing of consequence hangs on this, and talk of sets is in step with the rest of the literature.

\textsuperscript{103} Plantinga’s additional use of states of affairs is not of consequence here – we can speak of everything in terms of propositions. For states of affairs, according to Plantinga, are sui generis abstracta that represent much like propositions. States of affairs can exist without obtaining (Plantinga, 1974, 44).

\textsuperscript{104} I say “more fully saturated”, since there are likely many more parameters that need to be filled in, many of which I likely can’t know.
The need to fully saturate propositions isn’t foreign to the Plantingian actualist, since she maintains that fully saturated propositions and properties are world-indexed.\textsuperscript{105} Socrates, for instance, has the property of \textit{being-snubnosed-in-alpha} but the property of \textit{not-being-snubnosed-in-beta}. The proposition \textit{Socrates is snubnosed} is not fully saturated – in order to know the truth conditions, the proposition must be world-indexed. \textit{Socrates is snubnosed in alpha} is true and \textit{Socrates is snubnosed in beta} false.

Now consider this in cases where the future is not selected with respect to \textit{p} – some possible futures are such that \textit{p} occurs and some are such that \textit{not-p} occurs. But there WILL still be a fact of the matter regarding whether \textit{p} is true or not. Here it behooves us to look more closely at “at \textit{t}” and the ambiguity therein to see what is required for a complete representation of what the future holds. And for the all-falsist, there always going to be a fact of the matter according to each time specified (the same holds for ersatz worlds). If all-falsism is true and the future is unsettled with respect to some \textit{p}, the actual world says that it is not the case that for each particular future, \textit{that future} will be the actual one later on (that is, if the future is unsettled). But this does not entail that the all-falsist is unable to completely represent reality or what the future holds.

The all-falsist can reasonably disagree regarding what counts as a complete representation of reality. What is a complete way things could be? I find it plausible that a complete way things could is what completely represents the domain of objects, events,

\textsuperscript{105} In fact, Plantinga appeals to temporal considerations in order to bolster his position (1974, 94-5).
and relations there are in the domain of what exists, quantifiers unrestricted. According to the presentist, the only things that exist, quantifiers unrestricted, are present.

The committed presentist thinks that what exists now is the complete representation of reality, since the only things in the domain of the unrestricted quantifier exist now. She need not be worried about the fact that she can and does have models or representations of other times. For this is the position the actualist is in with respect to the aliens intuition, i.e., that there could have been more objects than there actually are. The actualist can model these possibilities, even though she thinks that what is actual completely exhausts reality. While her account contains representations of what occurs at other possible worlds if those worlds were actual, the actual world’s including the world-books of other possible worlds does not commit her to any untoward positions such as Meinongianism.

If the presentist reduces times to worlds, she will say that the actual time (i.e., actual world) contains within it all other time-books (world-books). Given what the presentist thinks is the complete way the world can be, it’s unclear why the presentist would reject the reduction of times to worlds in favor of conception on which (a) there is a single world which is actual and never ceases to be actual or (b) where there is never an actual world, but a set of worlds competing for actuality that is constantly getting smaller as time progresses.\textsuperscript{106}

Here there is resistance on behalf of the champion of Unchanging Actuality:

\textsuperscript{106} One may be worried that the world-time reduction makes it so the presentist is committed to the necessity of her temporal ontology. She is not, for reasons I indicate below. But this hesitancy is odd, since presentism is often defined in terms of necessity (see Rea 2006).
“one might resist... by claiming that different worlds are actual at different times. But this idea makes no sense. If map A says that London is to the north of Paris and map B says that London is to the east of Paris, then at least one of the maps must be wrong no matter where we are: neither A nor B can change from being wrong to being right as we proceed in some direction. By a similar logic, maximal worlds cannot pass into and out of actuality as time goes by” (Kodaj, 427-8).

The all-falsist has an easy reply. Possible worlds are ways things could be and the actual world accurately represents the way things are. In this way, possible worlds are like maps of concrete terrain.107 If the terrain is unchanging, then the currently correct map will always be the correct map. But if the topography morphs, and continues to do so – suppose there are continuous, violent upheavals of the Earth’s crust such that the relative locations of London and Paris continually shift - what map correctly represents the concrete terrain will constantly change.

Differences in perspective will only matter if there is no privileged perspective. But this is exactly what the presentist and actualist both deny. There is a privileged perspective – the world which accurately represents the sum totality of reality and correctly models the concrete world. The presentist says the same – the only things that exist are present things. That is, the unrestricted domain ranges only over the present.108

107 This is meant to be only illustrative. I do not endorse pictorial ersatizism or the problems therein (Lewis, 1986, 165-174), but take myself to be a “magical” ersatzer (174ff).

108 The serious tenser is getting something right, then, in that there is a privileged perspective. But understanding times as worlds helps us understand McTaggart’s intuition that each time must be present, which generates his contradiction for the A-series. His thought is that if a time is present, it must always have the property of being present. For each time says of itself “I am present”. But McTaggart tries to get an external perspective, which then presents the problem of multiple times representing themselves as present. But there is a privileged perspective.

McTaggart’s response to the serious tenser maneuver was to insist that there would need to be an additional timeline to adjudicate the correctness of what time is actually present. But this is demanding a perspective “from the outside” – a perspective that the presentist (and actualist!) explicitly rejects. One cannot “step outside” the present or actual to analyze possible time space and possible world space.
According to the all-falsist modal realist, what world is actual constantly changes, depending on the way the world is (i.e., what map is correct changes, since our concrete landscape changes). The presentist ends up with a complete way things are and could be, but, if the future is open with respect to \( p \), there is no current ruling as to whether \( p \) will occur a certain number of world-changes away. Thus, at alpha (the current actual time), \( p \) is false (as is \( WILL:\neg p \)). For every proposition, either it or its contradictory is marked ‘true’ at a time contained within a time (our time-books, which collapse into world-books). Thus, we have maximality and openness.

Suppose alpha is the actual world-time. At alpha, I am typing. Alpha (accurately) represents what occurred at those times (that is, worlds) that used to be actual. According to beta, I am riding the subway. If beta used to be actual, alpha will include that, since alpha accurately represents the way things are. The actual world-time correctly tracks which world-times used to be actual and in what order they were so. According to the actual world-time, then, there is an ersatz B-series, along which times which were actualized run in a series of earlier than to later than.\(^{109}\) Since beta is earlier than alpha on the ersatz timeline, it is true that I was riding the subway. To say a time is past is to say that it used to accurately represent (it accurately represented earlier), but does so no longer. Each time also (on this picture) represents itself as being able to fail to accurately represent according to some other time.

And the all-falsist can do this without having to use primitive tense operators. The standard primitive tense operators are as follows:

\(^{109}\) Crisp (2007, 2002) provides an ersatz B-series, but does not take the final reductionist step.
**P (past):** it was at some time in the past

**H (has always):** it has always been the case that

**F (future):** it will at some time in the future

**G (is going to be):** it is always going to be the case that

While the all-falsist’s position can be understood in terms of the primitive tense operators, she is not beholden to them. For ease of exposition, assume that a “tick” is the smallest discrete unit of time. Is Sally stood 5 ticks before now true? If so, this is because, five world-changes ago, it is true at the actual world that Sally stands. Is the actual world such that a particular world must come about in the future after a particular number of ticks – that is, \( \text{WILL: } w^*(p) \), where \( w^* \) is, according to alpha 100 ticks later than alpha? If so, then \( w^* \) is the unique world actualized 100 ticks later than alpha and \( p \) obtains (and each world-time actualized after alpha by necessity represents \( w^* \)’s actualization \( x \) number of relevant ticks away: 99 ticks later than gamma, 98 ticks later than delta, et cetera).

The all-falsist can give the following translation of the standard tense operators:

\[
P =_{df} \exists x ( \text{world } w_x < w_\alpha)
\]

In English, “there exists a world earlier than the actual world according to the ersatz B-series of alpha”…

\[
H =_{df} \forall x ( \text{world } w_x < w_\alpha \text{ on the ersatz B-series})
\]

In English, “for all worlds earlier than alpha according to the ersatz B-series of alpha”…

\[
F =_{df} \forall x ( <> \text{world } w_x > w_\alpha \text{ on the ersatz B-series})
\]
“For all worlds possibly instantiated later than alpha according to the ersatz B-series of alpha…”

\[ G =_{df} \forall x ( \langle\rangle \text{world } w_x > w_\alpha \text{ on the ersatz B-series}) \]

“For all worlds possibly instantiated later than alpha according to the ersatz B-series of alpha…”

The interpretations of F and G are, notably, the exact same. This is exactly what the all-falsist wants, since she thinks that the only way to select the future time that will occur is if that future time is necessitated.

The perspective of analysis assumes the actuality of the possible world alpha under consideration, since every possible world represents itself as being actual. Given a commitment to actualism, only one world-time is actual and that world-time includes the world-time books of all other world-times. The all-falsist escapes problems and objections regarding to reference to other times the same way the Plantingian actualist escapes problems regarding reference to other possible worlds. Possible worlds and possible times (and thus possible world-times) are not outside the domain of the quantifier of the actual world or the present. The presentist using this strategy may thus affirm the actualist’s slogan: “there are no things which do not exist”.

The reduction of times to worlds nicely accounts for the relationship between WILL and necessity operators. WILL is, in fact, a full-fledged necessity operator. Instead of indicating nomological or metaphysical necessity, it indicates historical necessity – what must be the case, given the state of the world at an instant and the laws of nature.\(^{110}\)

\(^{110}\) WILL is consistent with S5:

\[ K: (\text{WILL}: (p \rightarrow q)) \rightarrow (\text{WILL}: p \rightarrow \text{WILL}: q) \]
And on the all-falsist picture, historical necessity is equivalent to accidental necessity. If determinism is true, everything is accidentally necessary.\textsuperscript{111}

An upshot is that, if this reduction is successful, certain ways of distinguishing between A and B theories of time do not make sense. A traditional classification is that A theories of time are dynamic because they committed to fundamental properties of being past, being present, and being future and B theories are static because they have no such commitment (Sider, 2011, 258-260). But the all-falsist world-time reduction shows such classifications are mistaken. All-falsism appears to be an A-theory of time – there is a privileged present and genuine passage. But it can count as a B theory according to the above classification, since the all-falsist need not be committed to fundamental tensed properties or relations.

Tensed properties and relations can be derived from what’s fundamental (i.e., by what properties have which second order properties, if we subscribe to OR, and what world-times are earlier or later than on the ersatz B-series, respectively), but there is no need for the all-falsist to commit to their fundamentality.\textsuperscript{112} She has no need for the additional primitives, since the work can be done elsewhere.

\textsuperscript{111} Prior notices this as well, see 1962, 172.

\textsuperscript{112} Presentists who make the modal reduction will want to endorse OR if they want to escape TR and secure the earlier to later than relations on the ersatz B-series. Otherwise, TR objections can resurface regarding which worlds were earlier than the current one.
2.9 Objections to the World-Time Reduction

A few more objections now surface. First: this is an A-theory! For the all-falsist still needs a privileged present and dynamism. The all-falsist is simply hiding her commitment to fundamental tense under the guise of the actual world. For there is a privileging of the actual world above all other possible worlds – there’s something about reality that’s needed in order to say “this is the actual world”. Since I reduce times to worlds, I make use of primitive tense.

I reply: Yes, the all-falsist endorses a privileged perspective. But there is no special “actuality” operator that she hereby commits to that makes a certain possible future the actual one. While I make use of primitive modality, I do not introducing new primitives in addition to primitive modality. Instead, I reduce a common concept (tense) to commonly accepted primitives (necessity and possibility). By the same lights, one might object that Lewis appeals to unanalyzable primitives when he gives his account of properties – for sets are, even by his lights, primitive. The same sort of objection can also apply to extreme physical reductionists – in explaining the mental in terms of the physical, some appeal to primitive physical causation. My contention is that presentist does not need a primitive tense operator to account for the way things were, are, or will be: modal operators, along with earlier and later than relations, will do.

A second objection: it looks like those adopting the modal must say that presentism is necessary! But his is not the case. Those adopting this view can say that there are eternalist possible worlds – worlds in which the complete way things could be is an abstract timeline corresponding to a four-dimensional spacetime. The presentist
simply doesn’t think these can ever correctly map the way things were, are, or will be 
given the actual world.113

The final objection is the most pressing: time cannot reduce to possible words 
because possible worlds are the complete way things could be! And this is complete way 
is fundamentally forward-looking! For this reason, have to include a timeline. After all,

“Abstract worlds are maximal, or comprehensive, or complete in the 
sense that for any proposition P and any world W, the proposition 
that W is actual entails P or it entails ~P… Maximality is required 
in order to make abstract worlds into worlds, as opposed to mere 
world-fragments or partial histories” (Kodaj, 427).

It’s fine to state this intuition, but doesn’t tell us how this forward-looking should 
be modeled. The view described does incorporate a timeline, rather than partial history: 
the ersatz B-series. In fact, one could say that the reductionist method captures the way 
things could be better than competitors, since her method can account for genuinely open 
futures. The reductionist view tells us what times can come next. Why do we need more 
than this re: the complete way things could be?

A response: complete is to be understood in terms of finality (i.e., “at the end of 
all things”). We’re looking for a total story about the world – after all, worlds are books 
of what happens. If there is a last moment in time, then there’s a complete ersatz B-series 
that is the complete way things could be (because that’s how they are).

Here a tu quoque can be given. The objector is limiting the complete way things 
could be. To capture all of the ways things could be, we should have to give modeling 
space to the open future – unless one thinks the open future is metaphysically impossible.

113 Dropping the necessity requirement allows the growing-blocker to adopt the general strategy, 
regarding the actual world.
The response assumes that there is an end of all things – what if it’s instead a neverending story?

Here we have a dispute about completeness akin to the dispute Plantinga and Lewis had regarding modal parsimony – each man’s view is more parsimonious than the other according to a certain metric. Lewis’s view only required concrete objects and set. Thus he regarded his theory more parsimonious. But Lewis was committed to an infinite number of concrete spatiotemporally independent concrete universes, and Plantinga avoided such commitment. His view wins according to differing parsimony considerations. There’s no preferred view of parsimony available to break the tie. We have to turn to other means to settle the ontological dispute; parsimony considerations alone can’t do this. The same holds, I think, for the above dispute about completeness.

The all-falsist, with the help of OR, can thus escape grounding objections regarding future and past truths. She can retain her commitments to SP* and bivalence, reject ontic vagueness, and endorse modal realism. The all-falsist can thus affirm the openness of the future without incurring significant metaphysical cost. However, there are other views of the open future on offer. To these I now turn.
3.1 Open Future Confusion

I have been making the case for a particular view of the open future, all-falsism. At this point, it is natural to wonder about the competing open future views on offer. What reason do we have to endorse all-falsism and all of the possible worlds machinery discussed in the previous chapter if competitors are available?

In order to discuss this fruitfully, we must first be clear on what we mean by “the openness of the future”. Unfortunately, it has become increasingly hard to gain consensus on what, exactly, is required for an Open Future View (OFV). If the future is to be open, the future must be metaphysically unsettled – on this much there is agreement.\(^{114}\) It cannot be the case that this unsettledness is merely epistemic or linguistic. It is not that we merely do not know what the future holds or that our terms cannot precisely capture what will happen – something about the nature of reality itself is unsettled.

But there is widespread disagreement regarding how this unsettledness is to be understood. While there are a few cases seen as paradigmatic instances of unsettledness

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\(^{114}\) See Barnes and Cameron 2009 and 2011, Belnap and Green, MacFarlane 2003, and Perloff and Belnap for explicit endorsement of this point.
and settledness, there is widespread disagreement regarding why these paradigm cases are
to be regarded as such. Until recently, it was thought that one unifying feature of OFVs
was bivalence denial – but all-falsism (along with several competing views discussed
below) show that to be mistaken. And recently, the rejection of determinism and
eternalism, positions that were once considered central to future unsettledness, have come
under fire (see Barnes and Cameron, 2009).

As a result, OFVs are incredibly difficult to classify, to the point where the
relevant literature has largely become a war of intuitions. Authors have come to simply
state at the outset of their work the particular (and disputed) intuitions they assume are
needed in order to have an OFV.\textsuperscript{115} From Belnap and Green (1996) onward, authors have
noted the intuitions of those that have come before and then state that their favored
intuitions better capture what is meant by “the open future”.\textsuperscript{116} As such, they’re not
presenting unifying features of an OF account, and so inevitably some view which
appears to be an OFV is left out of the discussion.

I settle the dispute. After demonstrating that the current, competing intuitions on
offer are inadequate in classifying OFVs, I present the unifying feature. The openness of
the future requires the rejection of a commonly assumed axiom in Prior’s minimal tense
logic, (K): \( p \rightarrow \text{HF}p \) (if \( p \), then it has always been the case that it will be that \( p \)).\textsuperscript{117} In

\textsuperscript{115} See again Barnes and Cameron 2009 and 2011, MacFarlane, and Perloff and Belnap.

\textsuperscript{116} One of the best examples is found in Barnes and Cameron 2009. They note MacFarlane’s
indeterminacy intuition and then present what they take to be “the real indeterminacy intuition” (297).

\textsuperscript{117} Prior appears to have himself ultimately rejected this axiom, since he preferred all-falsism
(under the moniker ‘Pierceanism’). But Prior never explicitly rejected the axiom and thought that
Pierceanism rendered tense logic incomplete (1967a, 131), and explicitly uses the axiom in his topology of
time (46).
order to deny this axiom, OFVs must say that the truth values of detensed propositions such as *it rains in New York on July 4, 3015* are mutable. Those who affirm competing intuitions turn out to simply have competing ways of denying K. And while one can choose amongst certain differing intuitions that have been presented and remain an OF theorist, one cannot affirm K and remain an OF theorist. The denial of K is thus what underlies the intuitions on offer. I then standardize the discussion about what views count as open future views, offering a taxonomy of the current positions in terms of how they deny K.

Settling this dispute is not just of formal consequence. Gaining clarity on OFVs clears the ground for fruitful discussion regarding OFVs. The analysis of OFVs allows disagreement about these intuitions without forcing us to simply declare that other competing intuitions can’t do the work. It’s one thing to disagree about whose intuitions and view are the best on offer; it’s another to dismiss one’s opponents out of hand.

With an analysis in hand, we are free to discuss which OFV is the best. I lay out three further desiderata for OFVs, based on what lies behind the commonly held intuitions. Given these desiderata, I show that all-falsism is to be preferred. Unlike all other views, it is the only view able to affirm all the desiderata. Additionally, it is the only OFV which can allow for the endorsement of all the positions discussed in chapter one. All-falsism thus has advantages that no other OFV has. And the only difficulties faced by all-falsism are ones shared by all OFVs. This chapter thus settles both what it takes to be an OFV and the best OFV on offer.
3.2 Parsing the Intuitions on Offer

The main road-block to consensus on the requirement(s) for an OFV is the thought that there are competing, non-unified, equally good conceptions of future metaphysical openness. In this section, I’ll discuss these various conceptions of metaphysical openness and demonstrate that there is a very general agreement regarding the sort of openness that is desired. One major point of agreement is that if the future is presently unsettled, then there are now multiple ways the future might go.\footnote{This intuition is shared by Barnes and Cameron 2011 and 2009, Belnap and Green, Geach 1973, Hartshorne 1965 and 1964, and MacFarlane 2003.} But how powerful is the “might” in “there are multiple ways the future might go”? Might, after all, is a modal, and modals come in varying degrees of strength.

Suppose that \textit{it rains in New York on July 4, 3015} is metaphysically unsettled. It cannot be the case that all this means is that while it in fact rains in New York on July 4, 3015, it might not have (since there are nearby worlds in which it doesn’t rain then). This “might” cannot simply be read in terms of counterfactual analysis. If it is now open whether a sea battle occurs tomorrow, this cannot be interpreted as merely “there is a possible world in which there is a sea battle tomorrow.”

Mere counterfactual analysis is too weak, as it would allow static eternalism, shrinking block theory, and determinism to count as OFVs.\footnote{Objection: given the account I present in chapter two, aren’t I encouraging a mere counterfactual analysis account? I say that what futures are open is meant to be understood solely in terms of possible worlds. Reply: while it is a counterfactual account, it is not \textit{mere} counterfactual analysis. The all-falsist says that if you are free with respect to \( p \), there are now multiple ways the future might turn out with respect to \( p \). Those offering only counterfactual analysis - e.g., compatibilists - cannot say this.} Recall that static eternalism posits that all objects and events from all times, past, present, and future, exist.
and have equal ontological status. Shrinking block theorists think that present and future objects exist and that reality continually shrinks as present events become past.

Determinism is the thesis that the history of the world and the laws of nature together entail only one possible future.

Static eternalism, shrinking block, and determinism are views on which the future is obviously not open – if any view gives the settledness of the future, these do. Static eternalism and shrinking block theories not only countenance future objects and events; given the nature of reality on these views, the future objects and events are as settled as those currently determined by the present (and static eternalism makes it so future objects, et cetera, are as settled as those in the past). While those who endorse these views can give an analysis according to which humans are free and have the ability to change the course of the future, said analysis turns out to be merely counterfactual. The truth of *Sally stands at 12 pm on October 10, 3000 CE* is due to her actually standing then (and as such can be the result of the exercise of her agent-causal power). If Sally is able to do otherwise, it means that Sally could have rendered this proposition false – there is a possible world that shares our history and laws in which Sally doesn’t stand.

Determinism makes it so there is only one possible future (given the history of the world and the laws of nature), and so rules out the right sort of unsettledness. From

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120 Two quibbles to address: first, doesn’t shrinking block theory count as a view in which reality is unsettled? After all, the nature of reality is changing. The answer is no, since it is perfectly settled that the nature of reality would shrink in the particular way it does. Second, shouldn’t the openness of the future rule out any form of eternalism? Not obviously, as will be discussed in the following.

121 For an example of this, see chapter two in van Inwagen’s *An Essay on Free Will*. While van Inwagen makes no reference to temporal ontology, his method for avoiding fatalism presupposes the existence of future objects.
Prior’s work (1967a) until Barnes and Cameron (2009), it was taken as given that OFVs are indeterminist. A rejection of determinism was seen to be the only way to achieve the right sort of view – one in which there was a garden of branching or forking paths.

Barnes and Cameron reject an indeterminism requirement. But as even Barnes and Cameron agree, the future is open with respect to p if there is a possible future in which p occurs and a possible future in which p does not occur and reality does not presently determine which future is to become actual (2011, 2).

Given this, their rejection of determinism as a paradigm case of settledness is mistaken. Barnes and Cameron mistake determinism for lack of randomness within the laws of nature. They state, “the most we are entitled to say is that the consequent of the conditional is settled if the antecedent is; if there is any unsettledness in the antecedent, this may bleed over into the consequent” (2009, 300). Barnes and Cameron believe in ontic vagueness, and so think that either the history or the laws could be unsettled.

However, the proper understanding of determinism rules out the sort of metaphysical unsettledness that would give more than one possible future – not just any sort of unsettledness will do. There are different commonly used definitions of determinism, which are traditionally seen to be interchangeable (see van Inwagen’s three versions of the Consequence Argument, 1983, 55ff). One is that the history of the world (or: the state of the world at an instant) and the laws of nature necessitate only one possible future. An equivalent reading of the definition of determinism is that taking any two states of the world at an instant will entail all other states of the world at an instant (ibid, 84ff). This gives us only one timeline, with no competitors – for any two instants to entail all others, said instants all have to be settled. Even if one were to read the
determinist thesis as a conditional, as Barnes and Cameron do (i.e., “if the world had been a certain way up until time t and has certain laws L, then it will be a certain way after t” (2009, 300)), it’s an incomplete definition. Given determinism, the antecedent will always be provided.122

The only sort of unsettledness the determinist will allow in the antecedent is the sort that would still render only one possible future – while there may be ontic vagueness, said vagueness would not give future unsettledness. Even if it is unsettled whether Sally exists in 3015, there is only one possible future: one in which the existence of Sally is vague. OFVs must be indeterminist. However, indeterminism by is not by itself sufficient for an OFV. Indeterminism is also consistent with eternalism and shrinking block.

The above demonstrates why it’s unacceptable to analyze the openness of the future as causal openness – the future is simply not constrained by the laws of nature. By itself it is both consistent with static eternalism, shrinking block, and determinism (since the laws by themselves could be open but, when added to the history of the world, entail only one possible future). The exact same can be said for views that attempt to interpret openness in terms of chanciness.

One universally agreed-upon criterion is that thin red line (TRL) views cannot count as open future views. (More accurately, this is agreed-upon by all but TRL

122 Doesn’t this response present a problem for my analyzing OFVs in terms of K denial below? As was noted earlier, all-falsism is consistent with determinism. All–falsism turns out to be conditional thesis (if the future is open, then there are no true future contingents. The all-falsist should not be bothered by this for two reasons. First, many views admit of interesting and non-interesting interpretations (compare: interesting cases of time travel as opposed to traveling into the future one second per second). Second, unlike determinism, if the antecedent of a conditionally read all-falsism is filled in (though it need not be), this secures the openness of the future. All-falsism needs other ontological trappings in order to be an OFV. What it needs is something that allows K denial.

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theorists). According to these views, there are multiple ways the future might go, but there just so happens to be a unique, non-causally fixed future already picked out – a thin red line drawn on the garden of forking paths, so to speak. Given this red line, TRL theorists aren’t giving an OFV – it is perfectly settled (by the thin red line) which way the future will go. When the TRL theorist says that the future is open, what she means is that while the future is going to turn out a certain way, there are other possible worlds sharing the same history and laws as ours which have a different outcome. For this reason, Belnap and Green simply defined OFVs as those which were (a) indeterminist and (b) rejected a thin red line (367).

With MacFarlane (2003), there has been a push to identify the openness required for future unsettledness with indeterminacy (this line is picked up by Barnes and Cameron). The future is presently unsettled if it is now the case that it is indeterminate what will happen. According to MacFarlane (2003), OFVs must fulfill the following:

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123 This is the case regardless of whether the possible alternative futures are abstract or concrete. If they’re concrete, then reality is perfectly settled – there are multiple concrete futures and it’s settled that a moving spotlight will highlight a particular one.

124 There are further fatalist worries lurking in the background. If it is presently the case that Sally will stand at 3015 CE is true and Sally does not exist, then it appears that the truth of the proposition about her standing has nothing to do with Sally or her agent-causal power. TRL theorists are adamant that their view differs from ontologies which contain future objects or events (Merricks 2011 and 2009). So the TRL theorist must explain what makes it the case that the future is settled, given that there are multiple ways it might go. But if it is presently the case that Sally will stand at 3000 CE and Sally does not exist, then it appears that the truth of the proposition about her standing has nothing to do with Sally or her agent-causal power. One historically prominent branch of the TRL family, Ockhamism, if used without future objects or events, falls to fatalism (see Finch and Rea). If any view is opposed to the OFT, surely fatalism is. The other prominent branch of the TRL family, Molinism, may not obviously fall to fatalism, but there are severe objections to the effect that the view cannot allow for free will (Rhoda, Boyd, & Belt). According to the Molinist, there are true counterfactuals of creaturely freedom: facts about what a particular agent A would freely do if placed in circumstances C. But if the agent doesn’t yet exist, then the same grounding problems apply. Either we reject our SP* condition or we must say that what the particular agent would do in circumstances C is not up to her or her agent-causal power.
“The indeterminacy intuition: The assertion [‘there will be a sea battle tomorrow’] is neither true nor false. After all, there are possible future histories witnessing its truth and others witnessing its falsity, with nothing to break the symmetry” (321).

Barnes and Cameron agree with MacFarlane that the OF requires indeterminacy, but disagree on what said indeterminacy amounts to. They offer what they call:

“The real indeterminacy intuition: The proposition expressed by ‘there will be a sea battle tomorrow’ is neither determinately true nor determinately false” (2009, 297).

It is important to note that while indeterminacy views have garnered attention as of late, it’s possible to read those who deny bivalence as also a part of this camp (i.e., if it is indeterminate whether a sea battle occurs tomorrow, there will be a sea battle tomorrow lacks a truth value). Historically, though, bivalence denial was driven not by considerations of metaphysical indeterminacy, but by indeterminism (hence the focus on indeterminism as a requirement for OFVs.)

But mere indeterminacy also isn’t enough to capture the sort of unsettledness required for OFVs – the kind of indeterminacy must be of a very specific sort. The relevant sort of indeterminacy needs to be in principle resolvable, regardless of whether it actually is ever resolved. The indeterminacy with respect to the future is thus different than the indeterminacy of things like the color of my sweater or existence. Suppose it is indeterminate whether my sweater is red. Assuming that my sweater doesn’t undergo color-change in the future (e.g., it’s not dyed and doesn’t fade in the wash), it will always be the case that the color of my sweater is indeterminate.

125 Barnes and Cameron agree on this point, see 201, 4-5.
Indeterminacy by itself doesn’t give future unsettledness. It is settled that the color of my sweater will always be indeterminate. Every possible future is one in which the color of my sweater is indeterminate. While my sweater determinately has a color, the particular color it has is never resolved – in fact, by its very nature, it can’t be.

Contrast this case with future-oriented unsettledness. Suppose the future is unsettled with respect to whether there is a sea battle tomorrow. This is the very sort of thing that is resolvable – it need not always be unsettled. Once tomorrow rolls around, there will be a fact of the matter about whether a sea battle is taking place.\textsuperscript{126}

Indeterminacy clearly can’t be the correct condition for an OFV, since it rules out all-falsism (along with Geachianism, discussed below). The OF theorist thus need not endorse ontic vagueness.

Identifying OFVs as those according to which future contingent propositions lack a truth value or cannot be true fares even worse, since it rules out several views that should ostensibly count as OFVs. The first strategy, bivalence denial, has been historically popular, but is obviously wrong in the face of three prominent OFVs that uphold bivalence and have recently gained traction: Barnes and Cameron’s indeterminacy view, all-falsism, and Geachianism (all discussed in more detail below). Barnes and Cameron think that future contingent propositions such as *Sally will stand at 3000 CE*

\textsuperscript{126} Note that this resolvability criterion holds even if the unsettledness never is resolved. Suppose it is unsettled whether there is a last moment in time – some possible futures have a last moment in time and others do not, and the world is such that either of these could end up accurately representing the way things go. Once the world progresses to a future in which the world continues, there is again the same disagreement among possible futures. While it’s possible for time to end, suppose it simply never does. Then it is unsettled whether time will end, though it never becomes settled that it does end nor become settled that it does. According to this case, the future is in principle resolvable – for the world could become such that time ends (and thus things are settled) or it could go in such a way that it becomes settled that it will never end (as all futures have infinite continuation).
determinately have a truth value, but it is indeterminate whether the proposition is true or false. All-falsists think that all future contingent propositions are determinately false. Geachians think that is currently the case that Sally will stand at 3000 CE is determinately true or determinately false. Suppose it is true. The Geachian thinks this does not entail that Sally stands at 3000 CE, since something could prevent her from doing so. If we say that future contingents are unable to be true, this unfairly excludes both Barnes and Cameron and the Geachian.127

3.3 Modeling OFVs: The Tree

Thankfully, there is more common ground. OFVs end up both (1) using branching models to understand the unsettledness of future contingents and (2) rely on some sort of truth supervenes on being condition in order to motivate their model (which will again be interpreted, for sake of inclusion, as the weak SP*). First, OFVs end up modeling their views and treatment of future contingent propositions in the same general way. A key need of OFVs is to analyze possible futures, since whether or not the future is open with respect to something depends on what possible futures are presently accessible. Possible futures are thus treated like possible worlds, with the worlds that are presently accessible given the history of the world.128

127 However, as I will discuss below, there are real difficulties with the Geachian view, especially regarding whether it counts as an OFV. I’ll argue, in the end, that the way to deny K is to reject that there are true (or at the very least, determinately true) future contingents.

128 The discussion is here indebted to Prior, though the current discussion in the literature regarding branching follows directly from Belnap and Green. One of the reasons a lack of determinism was taken to be a condition of the OF is that the laws of nature were often assumed to be included in the history that limited accessibility. It should also be noted that there is debate regarding whether these futures are
Future contingent propositions, such as *there will be a sea battle tomorrow* are to be treated as containing a hidden operator, ‘will’, that acts as a modal.\(^{129}\) This directly contrasts with TRL views, which read ‘will’ as an indicative. *There will be a sea battle tomorrow* is thus properly read as \textit{WILL: a sea battle occurs tomorrow}. The truth-value of the proposition in question depends on the set of all possible futures, \{futures\}, that could be instantiated given the present state of the world. If all possible futures in \{futures\} are ones in which a sea battle occurs tomorrow, then *there will be a sea battle tomorrow*, i.e., \textit{WILL: a sea battle occurs tomorrow} is true. If all futures in \{futures\} lack a sea battle tomorrow, then *there will be a sea battle tomorrow*, i.e., \textit{WILL: a sea battle occurs tomorrow} is false.

The OF theorist thinks that if it is unsettled whether a sea battle occurs tomorrow, then this fact will be reflected in \{futures\}. If it is now the case that there are multiple ways the future can go with respect to sea battles – we could have one or we could thankfully lack one – then it cannot be the case that there is uniformity in \{futures\}. If the future is open with respect to sea battles tomorrow, it cannot be the case that there is now a unique future picked out as the actual one.\(^{130}\) Some futures will represent their being a sea battle and some futures will represent their not being a sea battle.

\(^{129}\) Indeed, as discussed in chapter two, I think it simply is a modal operator.

\(^{130}\) See Belnap and Green, 378, Barnes and Cameron 2009, 295, MacFarlane 2003, 321, and chapters one and two for detailed examples of this modeling. The unique hold-out with respect to this modeling is the Geachian, though I think she needs to make use of this type of model in order for her to distinguish between those true propositions which can be prevented and those which cannot.
The disagreement between OFVs comes in how to parse this disagreement amongst the possible futures in terms of the future contingent propositions regarding sea battles. What is the truth value of \textit{WILL: a sea battle occurs tomorrow}? “After all”, MacFarlane notes, “there are possible futures witnessing its truth and others witnessing its falsity, and nothing to break the symmetry” (321). Herein lies the great debate between OF theorists, which breaks down broadly into Fregean and Russellian camps. The Fregeans think that falsity is simply the lack of truth (or determinate truth); the Russellians think falsity is simply failure to accurately represent.

But there is further agreement that must be discussed. OF theorists think that the truth value of a future contingent is mutable up until a certain point. After that, the future is settled with respect to that particular proposition.\footnote{See Belnap and Green, 382, MacFarlane’s 2003, 321 determinacy intuition, Barnes and Cameron 2009’s truth intuition, the discussion of Ontological Residue in chapter two, and Todd, 228.} Thus, there is deep agreement that OFVs have to do with the mutability of the truth value of future contingent propositions. The truth value of these propositions is relative to a time, though that need not imply relativism about their truth value (e.g., if there is a privileged context of evaluation, such as if presentism is true).

In addition to this agreement there is an underlying motivation: truth supervenes on being. OFVs are not required to adopt any specific TSB condition. Rather, what drives OFVs is the intuition that what reality is like determines the truth value of propositions. If reality lacks such determination, as in the case of future contingents, then that must be reflected in the truth value of future contingent propositions. (This is why I make the case...
below that the truth value of said propositions requires certain views about future ontology, pace Barnes and Cameron.)

While one could hold an OFV without commitment to a TSB condition, there’s no apparent motivating reason to do so. Instead, one could simply say that there is one actual future presently selected over and above the equally-good appearing competitors. In addition, as has been noted before, one simply denies the force of fatalist puzzles: it’s now being the case that Sally stands at 3000 CE doesn’t mean that Sally has no choice about her standing, since truth does not supervene on being.

3.4 Denying Axiom K

The solution, which accounts for the branching models, TSB motivation, and all of the above views other than TRL, is that OFVs deny minimal tense logic axiom K: if p, then it’s always been the case that it will be that p. (NB: according to this axiom, p is to be read as determinate.) According to the axiom, if it’s true that there will be a sea battle tomorrow, then it has always been the case that there will be a sea battle tomorrow. Denying the axiom accounts for the mutability that OFVs require while accounting for the differences among OFVs.

132 Wrinkle: this is a tensed proposition, and so doesn’t quite work as stated with K – consider 1000 years from now, where there won’t be a sea battle tomorrow. More accurately, the applications of the axiom are to detensed propositions – if there is a sea battle on June 1, 2015 is true, then it has always been the case that there will be a sea battle on June 1, 2015. What about after June 1, 2015 has passed? The axiom still holds, since WILL is used to pick out possible futures – and it’s true according to all of these historically possible futures that there was a sea battle on June 1, 2015. This axiom is also to be read as “determinately p”, which will become important for later discussion.
Further, one can’t conclude from $\Phi$ that it has always been the case that $\Phi$ (i.e., $H\Phi$). That is, the following move is invalid:

$I\Phi$

$I\neg H\Phi$

Surprising, this has been unnoticed until now. Observing this unifying axiom is important since it explains *why* there’s been the laundry-list of competing intuitions regarding what counts as an OFV. The competing views on offer disagree on the mechanism(s) needed to reject the axiom. For the majority of the players, it’s not that their opponent didn’t have views consistent with the OF (aside from TRL, that is). It’s that none of them were presenting *the* requirement – just competing views that adhere to the single, shared requirement.

The denial of $K$ covers all views on offer other than TRL – and we can now fully explain why TRL views are out of the picture. They do not deny $K$. By having a “thin red line” delineating which of the possible futures will be actual, it has always been the case that there will be a sea battle tomorrow. (Note that this is the case even in cases of metaphysical indeterminacy – if the redness of the sweater is indeterminate tomorrow, the actual future that the thin red line picks out is one in which the sweater’s color is indeterminate.)

Importantly, by this principle we see that there can be OFVs that do not require additional commitment to ontic vagueness – at least, not on the grounds of the open future. One can deny $K$ without having to make use of primitive ontic vagueness or metaphysical indeterminacy. So OF theorists can keep classical logic.
The denial also helps account for the desired asymmetry between the past and future. The corresponding past-oriented axiom, if p, then it will always be the case that it was the case that p,\(^{133}\) can be wholeheartedly affirmed by OF theorists. In fact, acceptance of this axiom helps them account for settledness – once a sea battle occurs on June 1, 2015, it will always be the case thereafter that there was a sea battle on June 1, 2015.

Further, different senses of “can” or “able to” don’t tell against a unifying account in terms of K denial, just as they don’t tell against a unifying account of modality. It’s possible for John to be in London in the next 5 minutes (when considering physical possibility), but not possible for him to be in London given that he is now in Cleveland and there’s no teleportation or the like (when considering further facts about the world). All things considered, then, it’s not possible for John to be in London in the next five minutes.

The same holds when merely considering nomological possibility: if determinism is false, it’s physically possible that there be a sea battle tomorrow. Nothing about the laws of nature rules that out. But it turns out that all admirals and relevant officials are under specific curses which make it so that they cannot give declarations for battle. All things considered, then, it’s not possible that there be a sea battle tomorrow. The future is thus not open with respect to sea battles. The evaluation of K is thus to be in terms of what is fixed given the history of the world and the laws of nature. (Thus, it is in terms of what is currently undetermined, lending credence to the evaluation of accidental necessity given in chapter two.)

\(^{133}\) (p \(\rightarrow\) GP: p)

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A final upshot is that K denial demonstrates that Prior’s minimal tense logic isn’t truly minimal. We can deny one of the four basic axioms. However, this need not be surprising or cause us to worry about the fate of tense logic. This rejection is analogous to the Plantingian actualist’s rejection of the Barcan Formula (or more accurately, her denial of non-formalized interpretations of it). Rejecting part of minimal tense logic (Kt) isn’t an insurmountable problem. As Prior notes, “the logician must be like a lawyer… in the sense that he is there to provide the metaphysician and physicist with the tense logic he wants, provided that it be consistent” (1967a, 59).

3.5 A Taxonomy of Open Future Views

Unified under a rejection of K, we can now give a taxonomy of OFVs. Current OFVs differ regarding how axiom K is denied. Since K is an axiom about the truth value of propositions, K denial is treated in those terms:
Bivalence denial and MacFarlane’s relativism answer no to question one.

Traditional bivalence denial (of the Aristotelian sort) maintains that if tomorrow is unsettled with respect to sea battles, then there will be a sea battle tomorrow is false (the same goes for there will not be a sea battle). Traditional bivalence gives this answer by resting heavily on the TSB motivation – there is no fact about whether there will be a sea battle tomorrow, since there is nothing for truths about sea battles or lack therein to supervene on. Thomason also denies bivalence, but uses a supervaluationist approach to do so. Thomason equates truth of the future contingent proposition with super-truth: if there will be a sea battle tomorrow is true, then it must be true in all possible futures (and mutatis mutandis for falsity).
MacFarlane (2003) offers a relativistic framework for evaluating the truth-value of future contingents. The truth-value of a proposition depends on the context in which it is evaluated, rather than the time under consideration. If the future is presently open with respect to sea battles and we’re evaluating the truth-value of \textit{there will be a sea battle tomorrow}, then we must say that said proposition lacks a truth-value. However, come tomorrow after there is a sea battle, we are to evaluate the proposition differently. Given the context of the later time, we are to say that \textit{there will be a sea battle tomorrow} was true.

The contenders in the bivalence-upholding camp are all-falsism, Barnes and Cameron, and Geachianism. According to all-falsism, undetermined future contingent propositions are false. Said propositions cannot have a truth-value, since there is nothing for said truth to properly supervene on. While MacFarlane and other bivalence deniers look at this lack of supervenience base as a reason to think said propositions cannot have a truth-value, the all-falsist disagrees. Falsity, as the all-falsist sees it, is simply a lack of truth.

Barnes and Cameron think that the openness of the future requires primitive metaphysical indeterminacy: if the future is open with respect to p, p determinately has \textit{a} truth value, but is not determinately true or determinately false. For any proposition, then, they can say that it is either true or false (as it has a truth value), but one cannot presently answer the question of what truth value it has, since the truth value is indeterminate. Like Thomason, Barnes and Cameron think that disagreement among possible futures with respect to sea battles means that the future is indeterminate with respect to a sea battle.
They disagree, however, that this requires a rejection of bivalence. Instead of bivalence, they reject the determinacy of the truth value. (In so doing, they are unique amongst OFVs – all other views conflate truth with determinate truth.) *There will be a sea battle tomorrow* determinately has a truth value, since according to every possible future the proposition is either true or false. But we cannot currently select *the* future which comes about, and so the particular truth value of *there will be a sea battle* is indeterminate.

This position is further unique in that it, along with all-falsism, is one of only two positions that does not allow the scope of the WILL operator to be pushed inside, salva veritae. The views uphold bivalence, since it’s true that (p or ~p) and WILL: True (p or ~p). But the truth of the former two schemas does not entail the truth of True: (WILL: p or WILL:~p).

It’s been thought that, if one accepts bivalence, one must accept all three schemas on pain of contradiction. This is why many who want to endorse the OFT attempt to cut the problem off at the pass by denying bivalence (T (p or ~p)). But once we look at the modal-like machinery for making sense of WILL, it becomes apparent that the truth of the first two doesn’t entail the third. This is precisely what the supervaluationist and the all-falsist take advantage of.

The Geachian, on the other hand, thinks that some future contingents are true now and some are false – which is which depends on the way the world is. Suppose it is now presently the case that WILL: *a sea battle occurs tomorrow* is true. This does not mean that once tomorrow rolls around a sea battle is happening. It could be prevented. The proposition can switch between being true and being false up until the world becomes
fixed with respect to sea battles tomorrow. The Geachian denies the move from WILL: p to WILL: WILL: p and from the truth of p to the truth of WILL:p. Both all-falsists and Geachians can say, once the world becomes relevantly fixed at t3, “there is a sea battle and it’s not the case that at t1 WILL: a sea battle occurs at t3”. But the Geachian can also say “there is a sea battle even though it was the case at t1 that ~WILL: a sea battle occurs at t3”, as the things that were to have secured a non-sea battle future were prevented.

3.6 Declaring a Superior View: All-falsism

Along with the denial of axiom K, there are several shared desiderata shared among OF theorists:

1. Truth Supervenes on Being (TSB: which is herein interpreted as SP*)

First and foremost is some sort of truth supervenes on being or grounding condition, since this is what accounts for the motivation behind adopting OFVs. Losing a condition like this would be, at best, a major blow.

2. Bivalence (if possible).

It is better to keep bivalence and classical logic than to reject it. At the very least, it would be better to not have to commit to such a view because of the OFT.

3. Avoid commitment to additional metaphysical primitives.
It is better to avoid additional metaphysical commitment to metaphysical
indeterminacy, if at all possible. At the very least, it would be better if one wasn’t forced
to adopt it solely on behalf of the OF. Notably, even those who endorse primitive
metaphysical indeterminacy regarding the OF agree:

“But, of course, we are at an ideological disadvantage to those who
both (i) offer an account of openness that does not invoke primitive
indeterminacy, and (ii) appeal to the familiar linguistic and
epistemic accounts of indeterminacy that arises without the open
future” (Barnes and Cameron, 2011, p. 6).

It may well be that we are committed to ontic vagueness for reasons other than the
OF, but it is prima facie beneficial to an OF theory to not be committed to such
vagueness.

Given these three desiderata, there is one OFV to be clearly preferred over all the
others – all-falsism. All-falsism is the only view which both denies axiom K and upholds
all three desiderata. Bivalence denial and MacFarlane’s relativism are ruled out due to
failing (2) (And MacFarlane’s view additionally commits him to making an
absolute/relative truth distinction, which other OFVs are not forced to do). Barnes and
Cameron fail according to (3).

Geachianism fails for slightly more complicated reasons. Geachianism either
doesn’t endorse a TSB condition (and thus fails (1) and loses the spirit behind OFVs) or it
ends up not being an OFV. How can future contingents about what will happen be true if
they’re mutable and about something that doesn’t exist? The determinate truth of
propositions such as WILL: a sea battle occurs tell us that a sea battle is going to come
about. How can this sea battle thus now be prevented? Answers that other OFVs give
don’t apply here. Consider the all-falsist position. The all-falsist says that the propositions
in question are all false due to a commitment to TSB and Russellian-esque treatment of propositions – *WILL: a sea battle occurs* can’t be true, since reality lacks the sort of thing needed to make it true. But if the world contains all that is needed in order to make *WILL: a sea battle occurs true*, how could it be rendered false again? What grounds the truth value of the proposition?

The natural answer is that these are truths about probabilities and what is likely to happen, but the Geachian explicitly rejects this claim (Todd, 226). They want to say that the plane *was going* to crash, until the pilot’s actions prevented it. But this appears to simply be akin to saying that *if* the pilot hadn’t acted, the plane would have crashed (a modal claim). But the modal claim notably says nothing about what will happen. The Geachian appears to be confusing claims about modality and probability with claims about what will happen. The Geachian is thus under pains to either say that propositions cannot change in truth-value (and thus K isn’t rejected and it is not an OFV) or give up (1), the TSB desideratum (which is a huge cost, since it undermines the very motivation behind it and other OFVs). Either way, Geachianism is not to be preferred.

3.7 Indeterminism versus Indeterminacy

Using the denial of axiom K as the arbiter of OFVs is particularly useful in resisting a commitment to metaphysical indeterminacy while adopting an OFV. OF theorists are not committed to ontic vagueness in virtue of future openness, since one can endorse K without it. A deep wedge needs to be driven between unsettledness and indeterminacy, since we can have cases of one without the other in either direction: there
can be unsettledness without indeterminacy (all falsism) and can have indeterminacy without unsettledness (e.g., it is settled that it is indeterminate whether Sally exists at t).

OF theorists should endorse indeterminism, but indeterminism does not entail indeterminacy (this misunderstanding has been, in my opinion, what has led to the historic backing of bivalence denial). The indeterminism that a libertarian is committed to is a very different sort of beast than the indeterminacy that arises due to cases of vagueness and that the supervaluationist capitalizes on. In the former, things are simply not determined: an agent’s action is not determined by the state of the world at an instant and the laws of nature. But for every proposition in question, there is a fact of the matter about what is the case. In the latter sort of cases, cases that drive ontological vagueness, ‘indeterminate’ is used to mean ‘no fact of the matter’: if there is metaphysical indeterminacy, there is no fact of the matter whether Bill is bald or where the Australian Outback’s boundaries lie.

3.8 Answering Objections

OFVs share something else in common in addition to K denial. Each must deal with the following difficulties:

1. The problem of retroactive ascriptions and attitudes (present evaluations of claims that were unsettled in the past): “A natural basis for doubt about the doctrine [OF] is that it appears unable to make sense of one who asserts that, bets that, or wonders whether there will be a sea battle even when it is clear that there might not be” (Belnap and Green, 367).  

134 Additionally, “the trouble with this view is that it makes no sense of someone who purports to assert that the coin will come up heads even though it might not” (Belnap and Green, 378).
2. Difficulties with second order knowledge claims (this is due to the epistemic openness that comes as a result of metaphysical openness).

3. Issues regarding when propositions get or change their truth values.

The last problem is simply a specific instance of the general problem of when events begin and end. This and the other problems are not insurmountable – I present a solution available to all OFVs in the next chapter. But it is odd that these are difficulties, especially (A), that are seen to apply only to all-falsism, and not the other OFVs. Barnes and Cameron take one of the advantages of their view to be that it solves the ascription and knowledge problems of (A) (2011, 20-24). In fact, as I’ll argue below, this poses a grounding problem for Barnes and Cameron’s view: either it is not superior to all-falsism in answering the problem of retroactive ascription or it’s not an OFV. (MacFarlane gives similar reasons for his context-sensitive evaluations, and so similar problems apply, mutatis mutandis.)

According to Barnes and Cameron,

“We also think it’s highly intuitive that once the future has unfolded we can look back and say that our past predictions were true or false, depending on whether what we predicted is now happening; but if openness excludes truth or falsity we cannot say this – we would be forced to say that yesterday’s prediction that it would rain today is not true even though it is now raining” (2011, 20).

Again, they think that “The proposition expressed by ‘there will be a sea battle tomorrow’ is neither determinately true nor determinately false” (2009, 297) if the future is open with respect to a sea battle. If the future is open with respect to p, p determinately has a truth value, but is not determinately true or determinately false. For any proposition, then, they can say that it is either true or false (as it has a truth value), but
one cannot answer the question of what truth value it has, since the truth value is indeterminate.

But what truth value a proposition has, on a system that upholds bivalence, is a legitimate question. In the case of the indeterminacy of the color of a sweater, it looks like the answer is, “Well, there’s not a single determinate answer all things considered, since there isn’t a privileged definition of red. But the sweater is red on definition A, not-red on definition B, etc.” The same applies to possible futures. Will \( p \) be the case? Yes, according to future A, no according to future B, etc. But there is a significant difference between the two cases. In the case of the sweater, it is determinately red or not red, though it is not determinate which (supposing there are competing, equally good definitions of ‘red’). In the case of possible futures, the futures are times – and there is time under consideration here which many think is privileged – the present. So the appropriate question to ask is, “According to the present time, is \( p \) going to come about?” A perfectly acceptable answer here is no – there are competing possible futures, some which are \( p \) futures and some which are \( \neg p \) futures. The Barnes & Cameron strategy is this: “Yes or no. It depends on which future is under consideration.”

The natural question to ask after this is, “Which future should we be considering?” Unlike the sweater case, according to which a certain answer is appropriate once a particular definition has been given and all definitions are equally acceptable, the questioner here has hit on something important. It is the case that one of the possible futures under consideration will come about. That is, \( \text{WILL: one of the possible futures in the set \{futures\} comes about} \) is true. (And this is because, among other things, Barnes & Cameron agree that \( \text{WILL: } (p \lor \neg p) \) is true.) But if it is the case that it is not
determinate whether p will occur, then it is impossible to pick out a proper possible future 
in order to have our answer for activities like betting and the like.

But we must keep in mind that, for the OF theorist, the truth-value of future 
contingents is temporally perspectival. We must be considering the view from here – 
there is nowhere farther into the future that we can reach and that must be taken into 
account when making retroactive ascriptions and acting on them. Here’s some evidence 
for this: bookies don’t seem to operate according to indeterminate truth values. Suppose I 
bet at t1 that the Giants will win the Superbowl at t5 and you bet that they don’t. 
Regardless of the outcome, at the time of payout, both of us come to the bookie for 
money. If the Giants lose, I shouldn’t be getting money. But according to Barnes and 
Cameron’s view, what I bet at t1 was true – just not determinately true. The bookie’s 
payouts should depend on determinate truth – but if that’s the case, no one gets any 
money, since at the time of the bet, we weren’t asserting determinate truths.

One could simply say, “In betting, I’m selecting futures according to which p 
occurs and securing consequences for myself regardless of what comes about. And in 
cases of knowledge, I’m simply picking out those futures according to which p is true. 
But the all-falsist can say exactly the same thing here. She thinks propositions like 
\( \text{WILL: } p \) are false, since there is disagreement amongst the possible futures regarding p. 
But each possible future represents itself as being true: for each contending possible 
future, it is the case that p is true or not-p is true. So the all-falsist can say “In betting, I 
was selecting possible future \( F^* \), according to which p occurs. And it was false that 
\( \text{WILL: } F^* \) occurs and it was false that \( \text{WILL: } \neg F^* \) doesn’t occur.” So Barnes and Cameron 
either (a) don’t have an advantage over and above the all-falsist regarding retroactive
ascription or (b) they need to say there was something about the present that made it
determinately true. And (b) is simply to reject that the proposition in question was
unsettled, and is thus to reject openness with respect to it.\textsuperscript{135}

Not only has the dispute regarding the requirements of OFVs been settled, but we
have discovered a particular view that is highly preferable. All-falsism is the best account
of the openness of the future, barring any further objections or considerations outside the
OF debate. All-falsism denies axiom K and affirms all three desiderata without facing
any unique objections or difficulties. The epistemological and pragmatic objections to all-
falsism are common to all OFVs

\textsuperscript{135} One could endorse a growing block view, so that as reality grows, the proposition not only
becomes determinately true, but determinately true according to each time in entire block. However, this
response does not give an advantage to any particular OFV regarding the problem of ascriptions made by
someone on the edge of the block. Their assertions will still be infelicitous. Thanks to Zee Perry for
discussion of this point.
CHAPTER 4:
THE OPEN FUTURE, FOREKNOWLEDGE, AND BETTING

According to all-falsism, the future is metaphysically unsettled. If libertarianism is true, the future is then up to us in an important way – it is in our power to bring about the future. But all-falsism encounters challenges dealing with knowledge, prediction, and betting. Specifically, the charge is that the view is wildly implausible, since it cannot account for knowledge we seem to have about undetermined future contingents. This would then make it impossible to perform certain future-oriented actions, such as prediction and betting. While the all-falsist faces these objections, they’re not unique to the view. All OFVs face objections of this sort, including one that has thus far been given a free pass in the literature – bivalence denial.

I argue first that one can’t be selective – the same sorts of problems apply equally to all OFVs. All-falsism is no worse off. Thankfully, these problems are by no means insurmountable. The objections can be answered. OF theorists can account for assertions people commonly make. Additionally, I show that all-falsism provides a useful explanation of our behavior in lottery cases allows us to account for contextualist intuitions while retaining traditional epistemology. OFVs can thus diffuse practical objections and give advantageous results. OF theorists can account for intuitions that others have had difficulty explaining – the positions aren’t left making only defensive
moves. OFVs are not to be discounted on practical grounds. And since all-falsism is the superior OFV, all-falsism is highly preferable.

4.1 The Moorean-Style Objection

Since all-falsism denies that there are true undetermined future contingents, a Moorean-style objection can be raised: “But there obviously are true future contingents, and I can correctly assert that they will come about. These are propositions that I believe, assert, and know! For instance, the sun will rise tomorrow, the world will exist five minutes from now, et cetera. And this knowledge is central to practical and rational future-oriented actions. My knowing that the world will exist five minutes from now makes it rational for me to plan on my going to the store in an hour.”

This problem is one that all OFVs must face, though it historically has been an unnoticed problem for those who deny bivalence. The objector wants to say that what they say about the sun rising tomorrow is true now. The problem may seem minimal if we simply consider the rising of the sun, but most cases appear to be those in which there is not uniform agreement amongst possible futures regarding whether something occurs. OFVs appear to quickly result in widespread skepticism (at best).

All-falsists clearly must answer this objection, since it seems they say that undetermined future contingent propositions are false. But the all-falsist thinks that undetermined future contingents need not remain false, so the falsity of these propositions presents no problems additional to the mere lack of truth. The reason given for thinking all-falsism is in a worse position is mistaken. Those who think that falsity is somehow worse than lack of truth appear to take the falsity of “Sally will stand” to mean
“Sally can’t stand”. But this doesn’t hold if one takes falsity to simply be lack of truth (as the all-falsist does).\textsuperscript{136}

What drives the objection is a lack of truth, since knowledge is factive. Bivalence deniers must say that it is now the case that neither \textit{I will exist five minutes from now} nor \textit{I will not exist five minutes from now} are true.\textsuperscript{137} And while MacFarlane uses double-time evaluations to say that, once five minutes has passed, it is now true that it was the case that I exist five minutes from now, that is of no help to the person reasoning about what is unsettled – that is, the person five minutes ago wondering if they would still exist.

Barnes and Cameron say that undetermined future contingents have a truth value, albeit one that remains unknown until time unfolds and the determinacy-resolving event comes about. But even though p determinately has a truth value, this is of no aid in our reasoning regarding whether p will come about. While the supervaluationism strategy may work with respect to whether this sweater is determinately red or not red,\textsuperscript{138} it is precisely our ability to select certain futures that is at issue. The question is not whether p has a truth value in every possible future (no one in the debate wants to deny this), but what truth value p has now, taking into account all possible futures.

The objector wants to say that what they say about the sun rising tomorrow is determinately true now, and in doing so they must be able to currently refer to a set of

\textsuperscript{136} It’s important to note that we typically don’t have this reaction with other modal. We don’t take the falsity of \textit{Amy necessarily trips} or even \textit{Amy trips} to entail \textit{Amy can’t trip}.

\textsuperscript{137} The versions of bivalence denial that don’t use supervaluationist strategies have a further problem, since they cannot even say that \textit{It’s not the case that I will exist five minutes from now} has a truth-value.

\textsuperscript{138} Answer: yes, if according to every precisification of ‘red’, it is red or it is not red.
possible futures (where sun rising happens) and say that will be the case. Indeterminate truth can’t do the work, since the proposition under consideration is also indeterminately false. The objector wants determinate truth, since they want to select a certain undetermined possible state of affairs and say that that will come about. WILL propositions turn out to be determinate propositions, since they require us to select a certain possibility and say that reality is settled with respect to that coming about (which it is clearly not if it is indeterminate which truth value the proposition has).139

Those adopting Barnes and Cameron’s view could attempt to respond that we have indeterminate knowledge in these cases (2011, 25). But this doesn’t help in answering the worries regarding practical action, as it looks like any potential knowledge (“I know the sun will rise tomorrow”) would be easily defeated by noting that the contrary (“I know it’s not the case that the sun will rise tomorrow”) is also indeterminately true.140

One might think that the Geachian can escape this problem, since they posit true future contingents. The Geachian is able to say that *I will exist five minutes from now, the sun will rise tomorrow*, and the like are now true. But Geachians have a defeater for their belief that *the sun will rise tomorrow*: even if it’s now true that *the sun will rise*

139 This also applies to MacFarlane’s relativizing strategy. We cannot make use of double-time semantics if there’s not a second settled, later time to appeal to. While we may be able to use double-time semantics to answer the problem of retroactive ascription using this strategy, it cannot solve problems regarding prediction at times earlier than when retroactive ascription takes place (e.g., a soothsayer predicts my death in two years. Either she is now correct or she is not). We cannot always divorce the context of assessment from the context of utterance. Note also that if MacFarlane’s strategy for accounting for retroactive ascription is successful, his general strategy for accounting for things like winning a bet will be available to all OF theorists but Markosian, who does not retain accidental necessity.

140 This may actually end up being the contradictory – Barnes and Cameron don’t explain the relationship between WILL:¬p, ¬WILL:p, and determinacy.
tomorrow, that in no way guarantees that the sun does in fact rise tomorrow. It might ultimately turn out that the sun does not rise tomorrow (suppose all the atoms of the sun suddenly migrate to the other end of the Milky Way)! If one is a Geachian, knowing that it will be the case that \( p \) seems to do one no good with respect to how to act, plan for the future, et cetera – the very things for which the Moorean objector required true future contingents. Knowing that \( \text{Will}: p \) is true does not allow us to refer to the correct particular future that comes about.

Thus, all OFVs face the Moorean objection and the problems that follow. For ease of explication (and since this dissertation is building a systematic case for the view), I will discuss the answers below in terms of all-falsism. These answers will apply to other OFVs, save where noted.

4.2 Answering the Moorean Objection

According to the all-falsist, all undetermined future contingent propositions are false. This does not mean that all propositions that seem to make reference to the future are false – indeed, we’ve seen that it is not the case now that Sally will stand at \( t \) is true. It is not the case that Sally will stand at \( t \) turns out to be a proposition about the present (given the way the present is, it is not the case that in all possible futures, Sally stands).

Likewise, all propositions about what now necessarily occurs turn out to be about the present (for they are about how the world is and how the world must continue to be, given the way the world is). Some propositions that we thought were about future contingents turned out to be propositions about the present. If, according to the present, some event (e.g. the sun’s rising) must happen, then the proposition about that event and
its necessitation (in this case the sun will rise tomorrow) is true, but also about the present and settled.

One might think it highly unlikely that the world is determined with respect to things like the sun’s rising (due to, say, quantum mechanics). Even if this is the case, the OF theorist is not lost – they can say that when we seem to be asserting the truth of future undetermined contingents, we’re not saying blatantly false things. Instead of asserting future contingents, all-falsists can say we’re actually asserting statements about the present (e.g., given the state of the world, it is incredibly probable that the sun will rise tomorrow – as these are statements about the possible futures). These propositions, since they are about the present, can be true.

While the proposition the sun will rise tomorrow is strictly speaking false, that’s not the proposition we’re asserting when we utter the words “The sun will rise tomorrow”. In fact, this is something that even those who think that there are true future contingents will want to affirm.\(^{141}\) For the sun technically doesn’t rise at all. When we say “The sun rises”, we’re not saying something blatantly false. Instead, we’re getting at the true proposition in the neighborhood – in this case, one consistent with Copernican theory. It’s important to note that you needn’t know the exact true proposition that you’re referring to when you say things like “The sun will rise tomorrow” – if knowing the exact propositions for everything we talk about was a requirement for utterance (or justified utterance), we wouldn’t be allowed to say much at all.

\(^{141}\) See van Inwagen 1980, 103 ff for use of this strategy, which I adopt wholesale here.
We can account for the looseness of our speech regarding the future. When we’re speaking about the future, we often restrict the scope of the possible futures under consideration.

All-falsists (and all OF theorists aside from Geach) treat ‘will’ as a necessity operator. The truth value of ‘will’ propositions is determined by the set of possible futures. What proposition is expressed by an utterance depends on the set of possible futures under consideration. This may be the entire set or it may be a subset – which depends on conversational context.

Instead of only asserting the unrestricted \textit{WILL} operator and being forced to always consider all possible futures, we can narrow the scope to futures which are highly probable, futures on which it is rational to plan, et cetera (which depends on context). And it is true that according to all \textit{WILL}probable futures, the sun rises tomorrow. The scope restriction of the \textit{WILL} operator is like the restrictions of possibility.\textsuperscript{142} We often speak of events that are physically possible, rather than broadly logically possible.

One need not be aware that they are speaking about objective probabilities (if they are in certain contexts). We are not always aware of some of the particulars of propositions we express. And a similar sort of strategy can be used even if one rejects the notion of objective probability – we could instead say that the utterance “The sun will rise tomorrow” expresses expectation that the sun rises at t, where such expressing may be attitudinal.

\textsuperscript{142} Indeed, if you subscribe to the argument given in chapter two, it just \textit{is} narrowing the scope of accidental necessity even further.
However, you might think this pragmatic strategy doesn’t work if you’re explicitly trying to refer to and use the very proposition that I’m saying that you aren’t. “No!”, you cry, “I really mean the sun will rise tomorrow!” To this I have two responses: First, if you really are referencing an undetermined future contingent proposition (WILL: the sun rises tomorrow), then what you are saying is false. But the proposition you’re referring to may be true – but in that case, it’s just not a future contingent one. So to the objector I raise a challenge. Give me a proposition that you say is a true future contingent. I’ll either say about it, “No, that’s about the present!” or “That is too false!”.

And I think that most people do not typically refer to a future contingent proposition in ordinary conversation. Most people are not constantly saying false things about the future.

The imprecision of speech surrounding implicit restriction of the domain of quantifiers isn’t unusual. Consider my responding to a query by saying “Everyone came to my party” or saying “There’s no beer” to someone looking in my fridge. There’s a reason why we roll our eyes at a person responding to these statements by asking how the population of Bangladesh fit into my apartment or panicking at the prospect of a worldwide beer shortage. However, there are easy ways to change the conversational restriction of the domain – if the previous conversation was about the population of Bangladesh, I’m unlikely to immediately restrict the domain of “everyone” and say “Everyone came to my party”.

Unlike the objector, I don’t think we have this specific, luminous grip on the propositions we’re asserting in these cases, unlike in the case of knowing that we exist or that there’s an external world (so our position is akin to certain modal discussion and, if
van Inwagen is right, what material objects there are). There are, in fact, competing
intuitions that tell against this (see the discussion of lottery cases below) or that show our
intuitions about the future are inconsistent. There is linguistic and behavioral evidence in
favor of the all-falsist position.

I do not deny the force of certain Moorean-style objections. I think it obvious that
I exist, for example, and thus Peter Unger (1979) is wrong. There is important interplay
between central intuitions we have and our metaphysical theories that should not be
minimized. We can be wrong about some things, but massive error theories should be
avoided. I think it a tremendous cost to say that we’re wrong about almost everything.
We must be able to live with our metaphysics.

But we can fail to understand technicalities while nonetheless remaining generally
correct about what is central to our theorizing. Here I take metaphysical positions to be
akin to certain positions in physics. Consider a marble dropped in a tube that extends
downward in a spiral. The marble will progress down the spiral and exit at a hole parallel
to the ground. Which way will the marble move, after exiting the tube?

Most people give the wrong answer – they say that the marble will curve, to keep
moving in the direction of the spiral. The correct answer is that the marble will move in a
straight line. This case exposes the weaknesses of folk physics intuitions. We have a
general understanding about force and velocity (we know the marble will not suddenly
levitate), but can be wrong about the direction of spin. Similarly, it doesn’t automatically
tell against a theory if some of our intuitions are wrong, though we don’t want to be in a
position where most of them are.
Part of the metaphysician’s job is to sort out which is which. I think all-falsism a viable – indeed preferable – view. It can deal with objections of this sort and account for our intuitions. This, coupled with the difficulty of reading exact propositional context off English utterances, indicates that this is not a case of clear Moorean-style objection. Instead, in cases in which our common, everyday assertions genuinely violate folk intuition (though I doubt this is the case here), it is much more akin to our folk views about physics. Objections can thus be dealt with in a manner similar to van Inwagen’s strategy in accounting for apparent talk tables and chairs (and indeed, what non-metaphysicians believe and refer to in these matters). Most importantly, in those cases in which there is lack of fit, I think it by way of a clash with other held intuitions.

It is important to also note that Moorean-style objections are not generated solely by open future accounts. The amount of skepticism that could be generated depends on how much openness there is. As such, balk at all-falsism are objecting not to the view itself, but the conjunction of the view with the amount of openness to which they subscribe. Those who think it is currently determined that the sun rises tomorrow, that I exist five minutes from now, and that all the atoms in the room do not suddenly migrate to the Northwest corner are likely to be unconcerned here.

4.3 Making Sense of the Lottery and Bank-Style Cases

Treating everyday WILL claims as restrictions of the modal ranging over all possible futures has an advantage – it allows the all-falsist can make sense of our behavior in lottery and bank-style cases without resorting to contextualism or subject-sensitive invariantism. According to lottery-style cases, most people object when
someone asserts, “I know I will lose the lottery”. This seems odd, since the odds of some particular person’s winning the lottery are vanishingly small (assuming a large enough lottery). This is particularly troublesome because this behavior violates the following principle:

\[
\text{CLOSURE: If I know that } p, \text{ and I know that } p \text{ entails } q, \text{ then I am in a position to know } q.\]

For we will often make claims of knowledge regarding things that are not only less likely to happen than simply winning the lottery or may indeed entail it (e.g., there are cases in which \textit{WILL: I will not go to Africa next spring} entail \textit{WILL: I do not win the lottery}, but people are often willing to assert the former and not the latter).

Contextualists and subject-sensitive invariantists say that closure fails. According to contextualists, the truth of utterances of ‘S knows that p’ vary by context (see Cohen). Subject-sensitive invariantists say whereby the truth of utterances of ‘S knows that p’ vary according to the subject (see Pritchard).

The contextualist and subject-sensitive invariantist maintain that the reason we balk at such assertions is that the stakes and context have relevantly changed, so that the chance of our winning, though small, is made salient. The all-falsist can make this same sort of response, but without having to say that ascriptions of knowledge change according to context. The general conditions for knowledge are constant. And the all-falsist can account for lottery-style intuitions. What changes by context and stakes is not whether or not knowledge ascriptions are true or false. Rather, what changes is the

\[143\] Hawthorne makes heavy use of this principle.
proposition we assert: the restriction of the WILL operator can range from unrestricted to quite narrow, depending on context.

It is true that I cannot know that \textit{WILL}: I lose the lottery, but I can know \textit{it is highly likely that I lose the lottery}, and the latter appears to be what we most often assert in casual conversation (the reasons for which may have to do with probability, rational action with respect to the future, et cetera.). This is the reason I’m not out buying a ticket – given the odds and my desires, it’s better for me to keep my dollar. This respects the variation among possible futures and probability in a way contextualism does not. When a conversational partner points to the proposition with the unrestricted WILL operator (which speakers cannot know), speakers most often back off and say something to the effect of “Yes, but it’s highly unlikely…”. This indicates that we are aware of the unrestricted use of WILL.

The reason lottery-style cases occur, the all-falsist says, is due to the salience of certain possible futures. It is true that I cannot know \textit{WILL}: I lose the lottery, and this is why I am hesitant in certain contexts to say that I know I will lose (as the possible future in which I win is made salient by the very nature of the case). The all-falsist approach thus obeys the Chance-Knowledge Principle:

“if at \(t\), \(S\) knows that there is a non-zero objective chance that \(p\) at \(t\) (where \(p\) supervenes on all the intrinsic facts about the future relative to \(t\)), then, at \(t\), \(S\) does not know that \textit{not-}p” (Lewis 1999: p. 228).

The reason that we are hesitant to say things like “I will lose the lottery” is that either (a) we are referring to the widest scope \textit{WILL} proposition, which we see to be false or (b) even if we mean something else (“It is highly likely that I'll lose”, “I am not planning my life around the possibility that I win”, etc.), the case makes salient all
possible futures. If the lottery isn’t rigged, then there is set of possible futures, no matter how small, in which I win. Lottery cases make the restriction of possible futures difficult.

But I can know it is highly likely that I lose the lottery, and this (or relatedly, possible futures on which it is rational to act) appears to be what is most often asserted in casual conversations in which one says “I know I will lose the lottery”.

When a conversational partner pushes back in an attempt to widen the scope of the modal and points to the unrestricted WILL proposition, speakers most often back off and say something to the effect of “Yes, I just meant it’s highly unlikely that I win.” or “Yes, but I shouldn’t plan on winning”, or “I’m not going to buy a ticket”. This indicates that we are aware of the wide-scope use of WILL, which considers all possible futures, though it is not always used. The all-falsist is thus not only able to answer the Moorean objection – she can account for our behavior in lottery cases without having to say that assertions that WILL: I lose the lottery are true or that ‘knows’ varies by context or the subject’s interests. She can thus affirm traditional epistemological analyses of knowledge while accounting for the intuitions of the contextualist and subject-sensitive invariantist.

The same sorts of considerations are visible in bank cases. Consider the following. Meg has a check to deposit. As she drives by the bank Friday afternoon, she notes a long line and does not want to wait. As there’s not a holiday coming up and she is familiar with the branch’s hours, she notes to her passenger, “I know bank will be open tomorrow morning.” Does she know the bank will be open tomorrow morning?

\[\text{144 For cases like the following, see Hawthorne; Pritchard.}\]
**Situation One:** Meg has no pressing financial obligations. It will do her no harm if the bank turns out to be closed Saturday morning.

**Situation Two:** Meg’s account is running low and she takes care of her rent through automatic bill payment. An automatic withdrawal from her account occurs regardless of whether any branches near her are open. If the withdrawal occurs before she can deposit her check, there will not be enough funds in the account and she will be evicted.

Traditional invariantist epistemologists (who hold that the truth value of ascriptions of ‘S knows that p’ do not vary by context – thus, knowledge ascriptions are invariant) say that the answer is the same in Situations One and Two. Either she knows the bank will be open or she doesn’t. But this does not track many people’s intuitions about the cases nor especially how we think Meg ought to act. The demands of rationality appear to differ between the situations. In Situation One, Meg appears to know the bank will be open and she need not wait in line. In Situation Two, we think Meg should wait in the line to cash the check and ensure her money is in the account. Her future flourishing depends on it!

For these reasons and similar cases regarding the variations in conversational context, contextualism has become popular. In low stakes contexts, such as Situation One, they say the utterance of “Meg knows the bank will be open” is true. In high stakes contexts like Situation Two, they say exact same utterance is false. The high stakes make it so that certainty (or something like it) is needed in order for the utterance to be true in
that context. Our intuitions about the cases change because the stakes have changed – and
the demands of practical action along with them.145

The contextualist and subject-sensitive invariantist are sensitive to the looseness
of our speech. The problem with the contextualist and subject-sensitive invariantist
responses is that they focus their attention on the wrong data utterances of ‘S knows that
p’. Instead, our focus should be on ‘will’. People’s reaction to these cases is, by their
admission, due to self-interest. The consequences that occur in the possible future(s) in
which the bank isn’t open the next day are made salient, which makes them reticent to
assert certain propositions. 146 The all-falsist position thus offers and advantage: we can
keep closure, respect intuitions of contextualist and pragmatic encroachment theorists
regarding the importance of conversational context, and retain traditional epistemology,
since the analysis of knowledge obeys closure.

4.4 A Grounding Problem?

However, the analysis of the above cases may not seem quite right, since there are
cases in which matters are settled true in which people demonstrate the same sort of
behavior. Consider people’s unwillingness to assert that they know they lost the lottery in

145 The subject-sensitive invariantist has the same general reaction to bank-style cases (i.e., high
and low stakes make the difference for whether utterances of ‘S knows that p’ are true), but it varies
according to the subject, rather than context.

146 In the high stakes context, it might very well be that the future is settled with respect to the
bank’s being open. But once low bank accounts and bills is made salient, the proper {futures} under
consideration in an assertion of “The bank will be open tomorrow” are those futures on which it is rational
to plan – and that set of {futures} might well include futures that are now accidentally impossible. This is
acceptable, since WILL is a modal (and we allow considerations to shift from, say, physical possibility to
metaphysical possibility).
cases where the winning ticket has already been drawn but the speaker does not yet know the result. Doesn’t this demonstrate the all-falsist’s analysis to be incorrect?147

No. We can account for being in the same epistemological position, though the metaphysical underpinning is different. In a case where the winner of the lottery hasn’t been decided, our epistemological uncertainty is grounded in the metaphysical openness. In the case where things are metaphysically settled (there is a lottery winner) and we have epistemological uncertainty, we treat assertion situations as if matters are still unsettled. For our practical purposes things are unsettled, since we don’t know the outcome. But reasonable practical action differs from typical lottery cases if there is settledness. If the lottery has been decided and I know that, I should go check on who has won before making an assertion. The metaphysics isn’t inert – it has an effect on our attitudes and actions.

A point of interest here: suppose you reject the metaphysical underpinnings of the project. Even so, the solution I offer regarding possible futures is of interest, but applies only to the epistemic WILL. Suppose you think that the only openness there is with respect to the future is epistemic. One still encounters epistemological problems regarding whether there will be a sea battle tomorrow or the like – we simply don’t know. What should the person who has both contextualist intuitions and wants to keep traditional epistemology (in that ‘S knows that p’ isn’t simply a linguistic thesis) to do? Adopt my account: I deny pragmatic encroachment, but affirm the intuitions behind it.

147 Thanks to Nevin Cleminhaga for this objection.
4.5 Betting and Prediction

Even though the all-falsist can offer a favorable analysis of lottery and bank-style cases, more is needed to account for our future-oriented actions, since betting (and prediction in general) seems to require true contingent propositions. We cannot simply narrow the scope of WILL to probable futures, since we can bet on things we think are highly improbable. This doesn’t seem to make sense of the general behavior of betting. Betting (and prediction in general) seems to require true contingent propositions.

Consider the following:

**The case of the bookie:** Phil decides to supplement his graduate student income with a little extra cash – he decides to take bets on whether or not Notre Dame will win an upcoming football game. I bet that they will. I say “Notre Dame will win at t” and Phil takes my bet. As it turns out, Notre Dame wins at t! But when I come to Phil for my windfall, he denies me payment. “‘Notre Dame will win at t’ wasn’t true when you made the bet, and that’s what you bet – they could have won or they could have lost, and so the proposition you uttered either lacked a truth value or was false. Sorry; there’s no way you could have won that bet.”\(^{148}\)

The nasty consequence seems to be that if I want to make bets, I have to reject either presentism, SP*, or libertarianism. I thus have to reject all open future views save one (the only one still standing is Geachianism).

Something has gone wrong – but what? The all-falsist should deny that betting requires true future contingents, because then she could only bet on things that are

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\(^{148}\) A hiccup: this is not quite right. Phil and I could argue over whether it was determined at the moment of my utterance that *ND wins at t*. But it would be an odd consequence of OF views is we can only bet on things that we take to be determined (and thus make bets on what cannot be verified in many situations) – and unclear when the bookie should pay out, if ever.
determined and could still deny payment over dispute regarding whether it was determined.

An initial response is to say “But it *came* true!” It need not be true at the moment of utterance, but the moment of payout. However, this response is not promising for two reasons. First, we must analyze the truth-value of the utterance made at the time of the utterance, and that will not change as time progresses (given accidental necessity).

Second, it makes sense to say, “I *knew* it!” Though even with this sort of answer, there is a problem: even given eternalism or determinism, not all such ascriptions of “I knew it!” seem felicitous. Consider that utterance in response to a coin landing heads – given that it’s the probability of it doing so is .5 (if the coin is fair), the justification just doesn’t seem high enough for knowledge. And since often our odds are lower than .5 for things we claim retroactive knowledge about, the problem of retroactive ascription is a more general problem.

Here is a second, more promising approach: acts of betting and predicting are putting a stake in a certain sort of future outcome (this approach begins in Belnap and Green). Betting is attitudinal, and we are doing something else when we bet – putting stock in a certain sort of future. According to Belnap and Green,

> “Assertion therefore involves a quantification over histories not in the sense that an assertion of A is an assertion that A is historically possible or settled true. Rather assertion involves a quantification over histories in the sense that it is an act that has implications for the speaker no matter how things eventuate” (383).
But there is a problem with this second approach, concerning how we make sense of predictions.\textsuperscript{149} The objector asserts, “When I predict an Obama victory, I asserted something that \textit{will} happen in the future, but I don’t think it’s determined to occur. In fact, I didn’t even mean to say that his victory was highly likely. I predict an Obama victory against the odds!” Additionally, there seems to be some sort of reliability that I demonstrate if my predictions consistently come to pass – it seems that I am good at knowing what the future holds or I have a particular kind of skill.

I respond: What are your reasons for the Obama victory? It could be that holding those (or other considerations) fixed, the odds were in your favor. What are the odds? What considerations are salient? In many contexts, it’s not that you think the victory all things considered unlikely. Or unlikely based on a certain limited set of factors (which are salient to you). And if you do, while you deserve credit of some sort for putting stock in what comes about, I say it’s as inappropriate to say that you \textit{were} right as it’s inappropriate to say it in the coin-flip case.

We must also be careful to not confuse unrestricted \textsc{will} propositions with assertions of versus faith or hope (e.g., “She will come…”). There is much to tease out here regarding future-oriented attitudes, which cannot be done here. For the purposes of showing \textsc{all-falsism} to be plausible, the wide range of assertions that can be made regarding the future (and the demonstration that the exact nature of assertions we make is often unclear) is sufficient. Exactly what proposition is expressed by an utterance is often opaque.

\textsuperscript{149} Thanks to Mike Rea for discussion of these issues.
4.6 Praise and Blame

“But wait!”, you might say, “If your account is correct, then someone could make a proper contextual assertion, e.g., ‘It will rain tomorrow’, based on the high likelihood of rain and what they say is true: it is the case that \emph{WILL}probably: \emph{it} rains. But then suppose that it does not rain the day after that assertion. Your above explanation doesn’t fit into our ordinary practices – in those cases we say that the person was wrong and hold them accountable (suppose that they are a meteorologist or captain of a ship).”

What kind of praise or blame do you accrue for such behavior or “getting things right”? This is not clear. For example, consider how we absolve people (“There’s no way you could have known” or “No one could have seen \emph{that} coming”) and how we console people if they happen to be particularly unlucky (“No one could have predicted that!”). We do not assign them a certain sort of blame that would normally accrue in putting stock in something’s coming about.

Our ordinary practices of blaming those in certain precarious positions or positions of authority fits quite well with my account. It is what drives us say that people who are in charge of important things should plan for the worst and why betting is such a fraught affair – for in those cases, one can be held responsible for the loss even if the odds were tremendously in their favor.

Recall also that correct future-oriented ascriptions need not be only about the odds. They can also be about what is determined, how it is rational to act, and more. One way of analyzing the praise and blame that accrues in these cases is that “I predict that \emph{p}” expresses something about how it is rational to act: it is rational to purchase at some cost a promise to pay a higher
sum should p come about; et cetera. When your predictions come true, what is demonstrated is not reliability at discovering truths about the future (there are none) but rather reliability in figuring out how it is rational to act.

This treatment, rather than assigning credit for skill in somehow selecting the actual future, accounts for our behavior when we count someone as having made a lucky guess. Suppose I decide, against all sound advice, to go swimming in a tank full of hungry great white sharks. I assert, “The sharks will not eat me!” As it turns out, I somehow escape the swim unscathed. In this case, we are not inclined to think that I had insight or reliability regarding discovering a truth about the future. Rather, I have demonstrated I am a very poor (but lucky) judge of the rationality of actions.150

We tend to be much more likely to assert something in the neighborhood of unrestricted WILL claims (or perhaps WILL claims themselves) in cases where either the probability or the future-oriented nature of the case isn't as salient, even though it will entail a lottery-type proposition (e.g., WILL: I will not go to Africa next spring might entail WILL: I do not win the lottery).151 The all-falsist need not deny that knowledge is closed under entailment here; all she need affirm is that norms of assertion aren’t closed under entailment.152

150 Consider also the case of a compulsive gambler, who plays no matter what - even if the odds are in her favor this time, she knows that she is not a reliable judge of odds. She shouldn’t be gambling even if the odds of her winning are, in a particular case, quite high. What’s under consideration is not whether she is likely to be right in a particular case, but whether her actions are rational.

151 See Hawthorne for a discussion of these sorts of issues.

152 Perhaps problems regarding future contingents is one of the reasons that it is so difficult to locate a norm (or norms) of assertion.
I admit that I am not able to give a uniform account of what proposition is uttered, since I think that highly context-dependent. In some cases, I think am asserting the proposition using the unrestricted WILL claim – for instance, I think I know and can assert that “My mother will not punch me in the face in exchange for a million dollars”. That is, I know \textit{WILL: ~My mother punches me in the face for a million dollars}.

In these cases, I think the matter settled and take myself to have excellent justification for this sort of belief. In other cases, I think WILL claims are restricted to what's highly probable (limiting to salient futures), in others our intentions about the future and rational action, et cetera.

I think it's notable that the cases in which we tend to stick to our guns are cases in which it seems likely that it is determined that \textit{WILL:p}, (such as the case with my mother above). I have good reason to think she's not free with respect to that sort of action (though there are physically possible futures in which that happens, given the history and the laws of the actual world – particularly her self-determined character - I think it impossible).

Suppose the unrestricted WILL proposition is true. Given the nature of the all-falsist account, doesn’t the all-falsist automatically have a defeater for her belief in the true unrestricted WILL proposition?

I do not regard this as a special problem for the all-falsist account. The question of "How do you know?" is a second-order knowledge question. And second-order knowledge questions are notoriously difficult to answer. Suppose it is the case that \textit{WILL: I lose the lottery} is true (suppose God has decreed that I will lose). Due to the salience of the probabilities in ordinary lottery cases, this serves as a defeater for even justifiably
believing \textit{WILL: I lose the lottery}, sans further evidence (e.g., divine revelation). But in cases of our knowledge of other people, I think we quite often have defeater-defeaters. The same, I think, is true when dealing with propositions such as \textit{WILL: not all the atoms migrate to the corner} - given what I take to be the nature of God, who desires an orderly world for us.

This is not to say one cannot be wrong – but if one is a fallibilist about knowledge, they won’t be particularly bothered by the fact that they can make a WILL claim, think they’re right, and turn out to be wrong in some cases. The nature of WILL doesn’t cause additional problems for justified belief and knowledge. The noted second-order problems also show up in ordinary cases (e.g. “I know I parked my car”).

4.7 Final Considerations

As was noted earlier, I think it of the utmost importance that we be able to “live with” our metaphysical theory. I thus close by considering a few worries and objections to the effect that the all-falsist view is impossible to live with.

One noted concern with the all-falsist account is that it cannot make sense of wholly future oriented beliefs and desires - that is, desires which require that there be true future contingents.\footnote{Thanks to Jason Turner for this concern.} Suppose I desire that my friends will always freely do good things. This appears to be, on the all-falsist account, to be a desire that \textit{WILL: My friends always freely do good things} be true. Fulfillment of this desire is impossible if libertarianism is true, but I have it quite strongly.
I’m not convinced that this desire cannot be understood in all-falsist friendly terms (after all, the nature of desires are often nebulous and opaque, even to the one holding them). But suppose that the desire actually is that WILL: My friends always freely do good things be true. This proposition either (a) requires compatibilism for its truth or (b) is incoherent. This should not worry us, at the end of the day. We often have incoherent desires, particularly regarding matters metaphysics (e.g., an origins essentialist can wish they had been born to different parents or in a different era).

A more pressing concern, however, is that endorsement of all-falsism precludes encouraging or exhorting others about the future or quelling future-oriented anxieties. If we recognize that the future is unsettled with respect to some $p$, then the unrestricted WILL propositions should be more readily salient to us. This, in turn, seems to preclude our asserting propositions which restrict the scope of the modal, since it’s difficult to move from contexts in which unrestricted domains are salient to contexts in which we can appropriately restrict domains (this treatment of domains mirrors Lewis’s 1979 treatment of high versus low stakes contexts). Suppose someone is anxious about the prospect of $p$’s possibly occurring. If I’m a committed all-falsist, it seems I can’t appropriately assure them that $p$ will not come about. How can we appropriately communicate our confidence (or lack of) regarding what the future holds?

First, one can assert WILL:$p$ in some contexts in which one thinks $p$ is settled (since I think the all-falsist can block or sidestep second-order knowledge objections. She can answer the question, “How do you know?” using the same strategies everyone else can). You might, therefore, think that things are settled with respect to some $p$ (e.g., “You can do it!”) and thus that can be the very thing one is encouraging someone about.
The defender of the open future is under no obligation to think that nothing about the future is settled – in fact, they may think that the future is much more settled than we might like (e.g., if we’re a lot less free than we think). No infelicities here.

But what about exclaiming confidence in those cases where you think something isn’t settled? (And knowing that one knows isn’t a special problem for the OF theorist). First, it’s unlikely that in these cases one is in these cases asserting the unrestricted WILL proposition. If one does so, then they are violating a norm of assertion – declaring something that they don’t have the right sort of evidence for. But note this is the case regardless of whether one holds an OFV.

Note as well that the same sort of context adjustment that happens in lottery cases often happens in cases of encouragement or exhortation:

“You will finish the race!”

“But what if I’m eaten by a shark?”

“Okay, but that’s not going to happen.”

“Yes, it could.”

“That’s so unlikely! Get to the starting line!”

,,and so forth.

But what about cases in which we’re encouraging someone regarding something for which we believe the probabilities are low? Suppose I’m speaking to a friend at the starting line of a race. She’s competing against excellent runners and is concerned about her chances of winning. In these sorts of contexts, it’s inappropriate (at best) to tell her she WILL win. But what I can (and do!) discuss is what is in her power to bring about: “You can do it”. I speak thus of the possible futures in which she wins. This case is a
mirror-image of lottery cases, in which even thing with low probability can be made relevantly salient. In this case, it is used for good (rather than threatening closure)!

Sometimes the best way to respond to utterances such as “What if Bad Consequence B occurs?” is to say, “What if it doesn’t?”

One final, objection is that the all-falsist analysis precludes motivation to act. If one knows $WILL: p$ is false, what’s the use of trying to accomplish something? If $WILL: I finish this dissertation$ is false, how can I have any credence in my finishing it?

To have no credence regarding whether I’ll finish the paper is to again misunderstand the nature of the modal. $\sim WILL: I finish this dissertation$ doesn’t necessarily entail $WILL: \sim I finish this dissertation$. Given that there are possible futures in which I do finish, I know I have the power to bring them about. If anything, this heightens my sense of agency and motivation – if matters are still unsettled with respect to dissertation finishing, by continuing to type I am now actively doing what I can to bring about the desired subset of possible futures! Saying that it’s not accidentally necessary that I finish does not mean that I cannot or do not, at some later time, end up finishing. All-falsism does not preclude practical action and is not wildly implausible. Thus, given its tremendous metaphysical benefits, it is a highly advantageous position.


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