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Open Theism, Omniscience, and the Nature of the Future

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OPEN THEISM, OMNISCIENCE,
AND THE NATURE OF THE FUTURE

Alan R. Rhoda, Gregory A. Boyd, and Thomas G. Belt

If the future is settled in the sense that it is exhaustively and truly describable in terms of what either *will* or *will not* obtain, then divine omniscience (the thesis that God knows all and only truths) entails exhaustively definite foreknowledge. Conversely, if the future is open in the sense that a complete, true description of it must include reference to what *might and might not* obtain, then divine omniscience entails open theism and the denial of exhaustively definite foreknowledge. The nature of the future is, therefore, a key issue in the open theism debate. In this paper, we develop two arguments in support of a central claim of the open future view and critically respond to several arguments in favor of the settled future view.

A key issue in the ongoing debate between defenders of exhaustively definite foreknowledge and open theists is a dispute about the nature of the future. Since the former hold that God knows the future as exhaustively settled, i.e., that he knows and always has known precisely what is to happen at any future moment, they are naturally committed to the view that the future *is* exhaustively settled and therefore cannot be changed. According to this *settled future view* (SFV), the future can be completely and truly described in terms of what either *will* or *will not* happen. Open theists, on the other hand, hold that God knows the future partly as settled and partly as a field of open possibilities. This implies that the future *is* partly open and can therefore change as matters which are open become settled. On this *open future view* (OFV), the future cannot be completely and truly described in terms of what either *will* or *will not* happen, but must also include reference to what *might and might not* happen.[1]

In the first two sections of this paper, we outline the SFV and OFV, respectively. After clarifying the positions and summarizing the major arguments for each, we consider the consequences for the foreknowledge debate if each is true. We show that if the SFV is correct, then the open theist has to deny God's omniscience as that term is usually understood. If the OFV is correct, however, then open theism is the only way to *avoid* compromising God's omniscience. A key issue in the foreknowledge debate is, therefore, which view of the future is correct. The OFV follows from two theses, both controversial: (1) the *contingency thesis*, which says that there are future contingents; and (2) the *incompatibility thesis*, which says that future contingency is incompatible with a settled future. Setting the contingency thesis aside, we argue that the incompatibility thesis is

correct on both semantic (section three) and metaphysical (section four) grounds. In section five, we consider the objection that the incompatibility thesis leads to either a denial of bivalence or fatalism and show that this represents a false dilemma for the OFV theorist. Finally, in section six, we apply the conclusions of sections three, four, and five to the SFV/ OFV debate and show that attempts to demonstrate the SFV *a priori* beg the question.

I. The Settled Future View

There are three senses in which the future may be said to be 'settled' that we need to distinguish.[2] First, defenders of exhaustively definite foreknowledge affirm (and open theists deny) that the future is *epistemically* settled for God. They hold that God knows and always has known precisely what is to happen at any and every future moment. The entire course of history from creation to kingdom come is and always has been settled from God's epistemic perspective.

But to know that p implies that it is true that p, hence, if the future is epistemically settled for God, then it must also be *semantically* settled. For any possible state of affairs S and any future time t, it must be and always have been true either that S *will* obtain at t or that S *will not* obtain at t. In other words, the set of truths about the future is fixed and unchangeable.[3] This is the fundamental and defining thesis of what we are calling the settled future view (SFV).

All SFV proponents (theists or not) agree that the future is semantically settled. And all those who are theists and who affirm the classical doctrine of divine omniscience, i.e., that God knows all and only truths, agree that the future is epistemically settled for God. SFV proponents disagree, however, over whether the future is *causally* settled, that is, over whether there are in fact any future contingents. Theological determinists like Jonathan Edwards (hereafter 'Edwardsians') say no, while theological indeterminists such as Molinists and Ockhamists (hereafter collectively 'Ockhamists') say yes. For Edwards, the future is semantically settled if and only if it is causally settled. It is true that something *will* happen if and only if it causally *must* happen.[4] Ockhamists, however, say that semantic settledness has nothing to do with causal settledness. The truth that something *will* happen, they say, is not grounded in causal necessity but rather in how things do in fact turn out.[5] In sum, then, Edwardsians see the future as both semantically and causally settled; Ockhamists see it as semantically settled but causally open.

If we take a 'history' to be a complete sequence of events stretching all the way back and all the way forward, then the SFV holds that out of all logically possible histories having the same past and present as ours, there is exactly one, call it Omega, of which it is now true that it *will* obtain. The 'future' is that part of Omega subsequent to the present. If, as Ockhamists believe, there are multiple causally possible futures stemming off from the present, then it is true that these alternate futures *might* obtain,[6] but equally true that they *will not*. We can depict this as follows:

The Future
(what *will* happen)

Omega

Past   Present

Other causally possible futures
(*might* happen but *will not*)
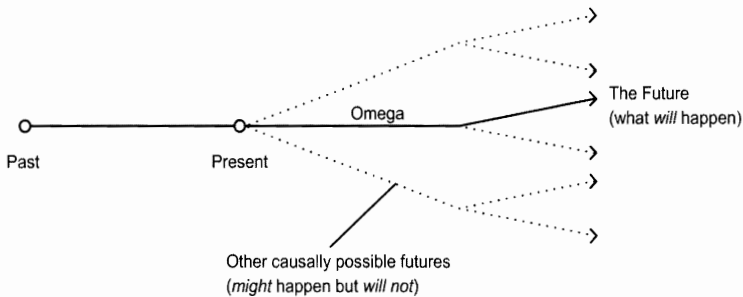
The Case for a Settled Future. Several strategies exist for arguing that the future is semantically settled. First, if universal determinism is true, then there is exactly one causally possible chain of events extending from the present onward. This entails a causally settled future, which in turn entails a semantically settled future. Second, if a static (B-theory) view of time is correct then the future is (tenselessly) already there. Consequently, what is true of the future cannot change, which means that the future is semantically settled. Third, if the future is epistemically settled for God,[7] then it must be semantically settled, since knowledge implies truth.

While such strategies motivate many SFV proponents, there is a fourth strategy that has the broadest appeal. This strategy, which has been vigorously pursued by William Lane Craig, is to argue *a priori* that the future must be semantically settled by appealing to commonsense temporal logic and semantics. Three arguments of this type deserve mention.

> *The Contradiction Argument.* Either something *will* happen or it *will not*; there are, it would seem, no other options. Accordingly, *will* and *will not* are contradictories, for they are mutually exclusive and jointly exhaustive.[8] That being so, it must be the case that one or the other is now true regarding any possible future state of affairs. Thus, for any moment $t0$, any possible state of affairs S, and any time $t1$ subsequent to $t0$, either "S will obtain at $t1$" uttered at $t0$ or "S will not obtain at $t1$" uttered at $t0$ is true. The SFV is, therefore, necessarily true.

> *The Truth Conditions Argument.* "It will rain tomorrow" uttered on Monday cannot have a different truth value than "It rained yesterday" uttered on Wednesday, for they have exactly the same truth conditions, namely, rain on Tuesday.[9] Nor can "It will not rain tomorrow" uttered on Monday have a different truth value than "It did not rain yesterday" uttered on Wednesday, for they also have exactly the same truth conditions, namely, no rain on Tuesday. Now, since either "It rained yesterday" or "It did not rain yesterday" uttered on Wednesday is true, it must be the case that either "It will rain tomorrow" or "It will not rain tomorrow" uttered on Monday is true. The same result follows for any possible state of affairs S and any future time t. For at t, either S will have obtained or S will not have obtained. So it must *now* be true for any S and any future t either that S *will* obtain at t or that S *will not* obtain at t.

The Temporal Invariance Argument. According to Craig, the truth value of a tenseless statement is temporally invariant. If a tenseless statement is *ever* true, then it is *always* true.[10] Now, for any possible state of affairs S and any time *t* there are tenseless statements of the form "S obtains at *t*" and "S does not obtain at *t*." When *t* arrives, either S will have obtained or S will not have obtained. If S does obtain at *t*, then "S obtains at *t*" is true at *t*. And if S does not obtain at *t*, then "S does not obtain at *t*" is true at *t*. Whichever is true at *t* must, by temporal invariance, also have been true at all times prior to *t*. So at all times prior to *t* either "S obtains at *t*" or "S does not obtain at *t*" is true. If the first, then the *tensed* statement "S will obtain at *t*" is also true at all times prior to *t*. If the second, then the *tensed* statement "S will not obtain at *t*" is also true at all times prior to *t*. It follows that either "S will obtain at *t*" or "S will not obtain at *t*" is true at all times prior to *t* for all S and for all *t*.

The SFV and Open Theism.
We will critically examine these arguments in section six and show that each is question-begging against the OFV. For now, the reader should observe that the SFV has significant ramifications for the foreknowledge debate vis-à-vis divine omniscience.

1. God knows all and only true propositions. (def. of omniscience)

2. For any state of affairs S and any future time *t*, either "S will obtain at *t*" or "S will not obtain at *t*" is now true. (SFV)

3. Therefore, for any state of affairs S and any future time *t*, God knows either that "S will obtain at *t*" or that "S will not obtain at *t*." (1, 2)

4. If for all states of affairs S and all future times *t* God knows either that "S will obtain at *t*" or that "S will not obtain at *t*" then the future is epistemically settled for God.

5. Therefore, the future is epistemically settled for God. (3, 4)

This argument is clearly valid, and its conclusion is a denial of open theism. Premise (4) seems self-evident, so to avoid the conclusion, the open theist either has to give up (1) and compromise divine omniscience by, for example, saying that God knows all that *can* be known while allowing that there are some truths that cannot be known,[11] or she has to reject (2), that is, reject the SFV and embrace the OFV.

As Craig points out, rejecting (1) requires a principled reason for distinguishing between truths that are and are not possible to know, and it is not clear what reason there could be for maintaining that distinction for an omniscient being.[12] Perhaps because of that most open future proponents from Aristotle to Arthur Prior have instead rejected (2) and have held that the future cannot be exhaustively and truly described in terms of what either *will* or *will not* obtain.[13]

II. The Open Future View

On the one hand, OFV proponents agree with Ockhamists (over against Edwardsians) that there are future contingents, i.e., that the future is caus-

ally open. For obvious reasons, we'll call this the *contingency thesis*. On
the other hand, they agree with Edwardsians (over against Ockhamists)
that semantic settledness presupposes causal settledness. In other words,
it is strictly true that something *will* happen if and only if it is causally
determined *that* it happen. We'll call this the *incompatibility thesis* because
it implies that semantic settledness is incompatible with causal openness.
Together, these theses entail the OFV. If the future is causally open (contin-
gency thesis) and causal openness entails semantic openness (incompat-
ibility thesis), then the future must be semantically open. Consequently,
the future cannot be exhaustively and truly described in terms of what
either *will* or *will not* obtain. If an event occurs in *all* causally possible fu-
tures, then it is causally determined and thus *will* happen; if in *none*, then
it is causally impossible and thus *will not* happen. But if it occurs in only
some causally possible futures and not in others, then as a future con-
tingent it neither *will* nor *will not* happen, but rather *might and might not*
happen. Thus, according to the OFV, the 'future' is a branching tree of
causally possible futures and there is no total history like Omega of which
it is now true that the future portion of it *will* obtain. This may be depicted
as follows:

Possible Futures (i.e., futures that
might and might not come to pass)
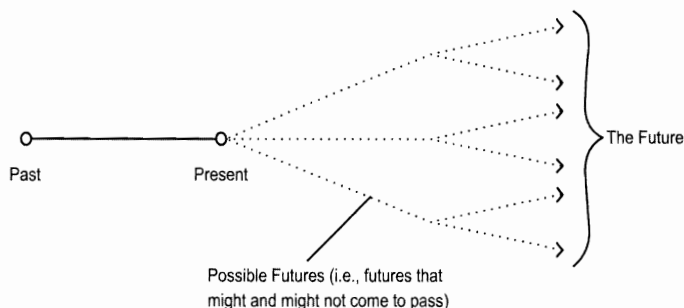
Importantly, if the OFV is correct, then the future can and does *change*.
When time's advance brings us to a node on the tree of causally possible
futures, a decision point is reached at which only one of the branches stem-
ming from that node can be taken. When the decision is made, the other
branches are "pruned off," as it were, and fall out of the realm of causal
possibility. Thus, the geometry of the future changes through branch at-
trition. A true *might and might not* proposition becomes false and a false
will or *will not* proposition becomes true whenever causal possibilities are
foreclosed such that what was causally contingent at one point in time
becomes either causally necessary or causally impossible at a later point.

The Case for an Open Future
Several lines of argument may be offered in support of the OFV. First, if it
can be shown from Scripture that God *knows* the future as partly open,[14]
then it would follow that it is partly open, for epistemic openness entails
semantic openness. Second, quantum indeterminacy suggests that the fu-
ture is, in some respects, causally open. Given the incompatibility thesis,
it must be semantically open as well. Third, libertarian free agency holds

that which choice a libertarian free agent makes is causally open until the choice is made. Thus, if libertarian freedom is a reality and the incompatibility thesis is correct, then the future is semantically open. Fourth, it can be argued that a correspondence view of truth combined with a dynamic (A-theory) view of time and future contingency requires a semantically open future.[15]

The first of these strategies lies outside the scope of this paper. The second and third, however, clearly invoke the contingency thesis—whether under the rubric of quantum indeterminacy or libertarian free agency does not matter—in conjunction with the incompatibility thesis. The fourth strategy, which we pursue in section four, exploits the idea that truth supervenes on being. If the future is not yet real, as the A-theory of time holds, then truths about the future cannot be grounded in the future (*pace* Ockhamism) but must instead be grounded in the present and/or past. What emerges, we'll see, is a metaphysical argument for the incompatibility thesis.

The OFV and Open Theism

Setting the SFV/OFV debate aside for the moment, if the OFV is correct, that is, if there are future contingents and if that fact is incompatible with a semantically settled future, then it has significant ramifications for the foreknowledge debate.

1. God knows all and only true propositions. (def. of omniscience)

2. There are future contingents. (contingency thesis)

3. If it is now contingent whether state of affairs S obtains at future time *t*, then neither "S *will* obtain at *t*" nor "S *will not* obtain at *t*" are now true and both "S *might* obtain at *t*" and "S *might not* obtain at *t*" are now true. (incompatibility thesis)

4. Therefore, for some S and some *t*, neither "S *will* obtain at *t*" nor "S *will not* obtain at *t*" is now true and both "S *might* obtain at *t*" and "S *might not* obtain at *t*" are now true. (2, 3)

5. Therefore, for some S and some *t*, God does not know either that S *will* obtain at *t* or that S *will not* obtain at *t* and God does know that S *might and might not* obtain at *t*. (1, 4)

6. If for some S and some *t* God does not know either that S *will* obtain at *t* or that S *will not* obtain at *t* but God does know that S *might and might not* obtain at *t*, then the future is epistemically open for God.

7. Therefore, the future is epistemically open for God. (5, 6)

This argument is clearly valid, and its conclusion an affirmation of open theism. Instead of requiring a compromise of omniscience, therefore, we see that open theism actually *follows from* the conjunction of divine omniscience and the OFV. Moreover, if the OFV is correct, then claims of exhaustively definite foreknowledge impute to God beliefs that are not true. Specifically, they impute to God beliefs that future contingent states of affairs either *will* or *will not* obtain when it is not now true either that they *will* or *will not* obtain, thereby implying that God has false beliefs. This compromises omniscience, which entails that God believes all and *only*

truths. Thus, if the OFV is correct, then open theism is the only way to *avoid* compromising divine omniscience.

The foreknowledge debate turns, therefore, on the nature of the future, specifically, on whether it is semantically settled or semantically open. In other words, the debate turns not on the *fact* of divine omniscience but on its *content*. Whether the future is exhaustively describable in terms of what *will* or *will not* obtain (i.e., the SFV is true) or whether a complete description of it must also include reference to what *might and might not* obtain (i.e., the OFV is true), an omniscient God must know it as such.

As to whether the future is semantically settled or open, that turns on the contingency and incompatibility theses. If the contingency thesis is false then there are no future contingents, and the future is both causally and semantically settled, as Edwardsians believe. If the contingency thesis is true and the incompatibility thesis is false, then the future is semantically settled but causally open, as Ockhamists believe. And if both theses are true, then the future is both causally and semantically open, as most open theists believe.[16]

As for the contingency thesis, we will simply register here our conviction that it is correct. Whether quantum indeterminacy is real or merely epistemic, we believe that libertarian free agency is at least sometimes exercised.[17] Accordingly, we will focus in what follows on the incompatibility thesis. We think there is a good case to be made in its favor.

III. A Semantic Argument for the Incompatibility Thesis

The incompatibility thesis (IT) is the claim that future contingency is incompatible with a semantically settled future. In other words, the claim is that causal openness/settledness and semantic openness/settledness go hand-in-hand; the future is semantically settled if and only if it is causally settled, and conversely, the future is semantically open if and only if it is causally open. The claim is controversial, to be sure. Edwardsians and most open theists endorse it, whereas Ockhamists are united in rejecting it.

The dispute over IT is a semantic one, involving two competing theories of the proper meaning of the future-tense propositional operator *will*. To understand this dispute we must observe that there is no such thing as *the* meaning of 'will' in colloquial speech. Like many other words, 'will' can carry a significantly different semantic force in different contexts. For example, it sometimes carries an erotetic force, that is, expresses a desire that some state of affairs obtain, as when a person asks imploringly, "Will you marry me?" Additionally, 'will' sometimes carries illocutionary force, functioning as a performative, as when one promises "I will pay you back." We mention these dimensions of meaning to set them aside. Our concern is only with 'will' in its *predictive* usage, that of making claims about the future. Predictions need not carry any erotetic or illocutionary force. Thus, one might predict, "There will be a sea battle tomorrow," even though one has no desire that it happen (or even desires that it *not* happen) nor intends by that prediction to influence or bring about its occurrence.

The predictive usage of 'will' is expressive of a belief on the speaker's part about the future; it is to claim that something is *now* true about the future, for example, that a sea battle will happen tomorrow. Thus, in its

predictive usage 'will' has what we might call future temporal force; it points us forward in time from the moment of the utterance. In addition, the predictive usage of 'will' can also carry a causal force of one degree or another. At one end of the spectrum it can express a *deterministic* relation as in "If you let go of that rock, it will fall." Here it expresses the speaker's belief that there is no real possibility that things might turn out otherwise. The probability that the rock falls given its being dropped (and barring a miracle) is understood to be one. 'Will,' in this case, means *definitely will*. But 'will' can also express a range of indeterministic relations that are compatible with things turning out otherwise, i.e., where the probability of something's occurring is understood to be less than one but greater than zero. For example, if a mother warns her child, "Don't go out without your jacket or you will catch a cold," we do not take her to be saying that the outcome is causally inevitable, like the falling of a rock that is dropped, but only that it has a relatively high likelihood of coming to pass, i.e., that the outcome is more or less *probable*.

As we can see, colloquial speech is quite flexible in its usage of 'will.' Even after abstracting from erotetic and illocutionary dimensions of meaning and restricting our attention to the predictive usage of 'will,' the term still admits of varying degrees of causal force. It is with respect to this causal dimension that the debate over IT is chiefly concerned. While colloquial speech is comfortable with a flexible usage of 'will,' relying on context to make clear what kind of force the term is intended to bear on a given occasion, for *philosophical* purposes we need something more precise—a regimented usage that fixes the causal dimension—so that we can develop a rigorous tense logic. There are two main options at this point, corresponding to opposite ends of the causal spectrum. The first, which Arthur Prior calls the 'Ockhamist' option, takes *will* to have no causal force at all. To predict that something *will* happen, in this sense, is just to say that it *does* happen in the future, nothing more.[18] The second, which Prior dubs the 'Peircean' option, takes the causal force of *will* to be maximal. To predict that something *will* happen, in this sense, is to say that it causally *must* happen.[19] The debate over IT is a debate over these competing semantic proposals. If the Peircean proposal be adopted, then *will* is incompatible with *might not*, semantic settledness entails causal settledness, and IT is true. If the Ockhamist proposal be adopted, then *will* is compatible with *might not* and IT is false.

Semantic disputes cannot be resolved by mere stipulation. How then can we resolve it? One possibility is by *reductio*: We could try to show that either the Ockhamist or the Peircean proposal has unacceptable consequences. The trick is doing so without begging the question. For example, it will not do for Ockhamists to fault Peirceans for not being able to say coherently of a future contingent that it *will* happen.[20] For the Peircean, that is like faulting someone for not being able to say coherently that 2+2=5, hardly a liability. Nor will it do for Peirceans to charge Ockhamists with incoherence for saying that it can be true that something *will* happen even though it *might not*. On the Ockhamist position that is not incoherent at all. Such charges on either side fail to productively advance the discussion.

Another way to resolve the dispute, and the approach we will pursue, is to show that either the Ockhamist or the Peircean position fits more

naturally with our colloquial predictive usage of 'will.' If one side fits sig-
nificantly more naturally, then *ceteris paribus* it has a stronger claim to be
the *proper* philosophical regimentation of colloquial usage. As we shall
see, both sides have semantic arguments of this sort that are *prima facie*
quite strong.

Semantic Preliminaries

Let us begin with some definitions. First, by a 'statement' we mean a de-
clarative sentence, a linguistic entity used to assert that something is the
case. Second, by a 'proposition' we mean an assertoric unit of meaning.
Every statement *expresses* a proposition. The proposition expressed is the
meaning of the statement. Third, by a 'state of affairs' we mean a putatively
instantiable situation. In asserting something to be the case, a proposition
posits a state of affairs. Maintaining a clear distinction between statements
and propositions can be tricky because we have no explicit way to express
propositions except by means of statements.[21] When we wish to refer to a
statement *qua* statement, we will put quotes around it. When we wish to
refer to a proposition *qua* proposition, we will put a statement expressing
that proposition in angle brackets. Finally, we will express a state of affairs
by a possessive noun modifying a gerundive phrase. Thus, the statement
"Whiskers the cat is on the mat" expresses the proposition <Whiskers the
cat is on the mat>, which posits the state of affairs *Whiskers the cat's being
on the mat*.

Now, while both propositions and statements are things of which *truth*
can intelligibly be predicated, propositions are the *primary* truth-bearers.
A true statement is true in virtue of expressing a true proposition, but a
true proposition is not true in virtue of the truth of anything else. Rather,
it is true in virtue of the correspondence between the state of affairs that
it posits and some state of affairs that is actual or obtains. In other words,
a proposition is true if and only if what it posits as being the case corre-
sponds to what is the case.

Unfortunately, it is often hard to identify which proposition is ex-
pressed by a given statement because, as is well-known, tokens of differ-
ent statement types can express the same proposition, and tokens of the
same statement type can express different propositions. The lack of a one-
to-one correlation between statement types and propositions implies that
to ascertain what a statement token means we have to interpret it by pay-
ing attention to wording, grammar, and context. This can be a difficult and
uncertain affair because the properties of the statement token typically
underdetermine what it is that the speaker intends to communicate. When
confronted with an unclear token like "Sammy Sosa was safe at home,"
we use the available clues and try to paraphrase it into another statement
type that more perspicuously expresses the proposition intended by the
token. We might, for example, look at the context to determine whether
the speaker meant safe *at home plate* or safe *at his dwelling*. If we conclude
the former, then we take the meaning to be the same as if the speaker had
tokened "Sammy Sosa was safe at home plate."

Let us call the statement type that would most perspicuously express
the proposition intended by a speaker were it to be tokened by that speak-
er its *proper* expression. This notion is useful because the more properly

a proposition is expressed, the more clear it is what the proposition does and does not posit, which in turn makes more clear what state of affairs needs to obtain for the proposition to be true. Of course, the proper way to express a given proposition depends on the audience, for what is clear to one linguistic community might be confusing or unintelligible to another. We will set that complication aside by focusing on the community of competent English speakers. What we want to know is how the meaning of a typical predictive statement should be most properly expressed.

Let us first consider tensed statements in general. What bearing, if any, does the tense of a statement token have on the truth conditions of the proposition it expresses? By way of an answer, we should begin by observing that the tense of a statement communicates information.[22] Specifically, it tells us how a speaker regards the temporal position of the event spoken of in relation to his own putative temporal position at the time the statement is uttered. Thus, if we let u represent the putative time of the utterance, that is, the time at which the speaker takes himself to be speaking, then use of the future tense tells us that the speaker is looking forward, regarding some state of affairs *as yet to come*, subsequent to u. Use of the past tense tells us that the speaker is looking backward, regarding some state of affairs *as having already come about*, prior to u. And use of the present tense tells us that the speaker regards some state of affairs as present, contemporaneous with u. We speak here of the *putative* time of the utterance, as opposed to the *actual* time, because the two may diverge—the speaker may be mistaken about, or even have no idea, what time it is—and it is the former, not the latter, that is relevant to the meaning of a tensed statement token. For example, if a person thinks it is Friday when it is actually Sunday and he utters a present-tense statement, it would be wrong to interpret that as a claim about what is happening on Sunday. He either means to say that it is happening on Friday or he means something generic, e.g., that it is happening concurrent with the time of the utterance *whatever that may happen to be*. To simplify the discussion, we are going to restrict ourselves to tensed statements spoken by persons who are accurately cognizant of the time of the utterance, such that the putative time of the utterance, u, coincides with the actual time of the utterance. Under such conditions, if a speaker says at u that "Caesar *crossed* the Rubicon," we know that he regards Caesar's crossing of the Rubicon as having happened prior to u. The truth of the statement therefore depends on the relation of u to the time of Caesar's crossing. Historians tell us this event occurred in 49 B.C., so if u refers to 48 B.C., then the statement is true because it correctly says that Caesar's crossing took place before 48 B.C. If, however, u refers to 50 B.C. then the statement is false because it wrongly says that Caesar's crossing took place earlier than it actually did.

Turning now to future-tense statements, what does it mean to say at u that state of affairs S *will* obtain at t, where t is subsequent to u?[23] The tense tells us that we are looking forward from the speaker's temporal vantage point, u, to a time t that is in the future relative to u. The proposition expressed by "S will obtain at t" uttered at u is therefore <It is[24] at u the case that S *will* obtain at t>. Setting aside questions of causal force for the moment, this proposition posits *(S's going to be obtaining at t)'s obtaining at u*, which we can restate more succinctly as (S at t) at $u < t$, where '<' indicates

the temporal priority of u to t. Consequently, the truth condition deriving from the future temporal force of "S will obtain at t" uttered at u is that it be the case at u that S is going to obtain at t. If such is not the case then the claim is false.

Thus far, Peirceans and Ockhamists (at least those who are A-theorists) are generally agreed. If the Peirceans are right, however, that the proper philosophical regimentation of 'will' has determinative causal force *in addition to* future temporal force, then the truth conditions of "S will obtain at t" uttered at u also include its being causally necessary at u that S obtain at t. We must now consider whether the Peirceans are right in this claim. For *philosophical* purposes, should *will* be taken to have determinative causal force or no causal force?

The Case for the Peircean Position
We have seen that predictive uses of 'will' can carry varying degrees of causal force. What degree of causal force we take a future-tense statement to carry depends on what we think the speaker could have reasonably asserted at the time he made the claim. The claim that a dropped rock 'will' fall is plausibly construed as carrying determinative causal force because we know of natural laws that govern such things. But the claim that going outside without a jacket on 'will' lead to a cold is more plausibly construed as carrying only probabilistic causal force because we do not think there is a strict lawlike connection between the two. Given what we know, to interpret the latter claim as having determinative causal force would attribute to the speaker a stronger claim than seems rationally assertible, so the principle of charity enjoins us to construe it in a weaker sense, as is allowed by the semantic flexibility of 'will' in colloquial usage.

The principle of charity says that a person's claims ought to be interpreted, if the semantic flexibility of his words and the context allow, in a manner that preserves the rational assertibility of those claims. After all, what we can seriously claim about the world is constrained by what we believe about the world at the time we make the claim. If a person seems to us to make a claim that we have good reason to believe he was not in a good position to make at the time he made it, then we do not take his claim at face value, unless of course there is no more charitable way to take it. Similarly, for the person making a claim, it must seem to him at the time that the truth of the claim is at least probable, else he would have more reason to reject the claim than to assert it. When a person claims something that does not seem true to him at the time, he may be lying or joking, but he is not making a genuine claim, one that reflects what he really believes.

Applied to predictions, the principle of charity and the attendant principle of rational assertibility suggest that *every* genuine prediction carries some causal force. Indeed, they suggest that it must seem to the predictor that the outcome is *at least probable* in relation to the state of the world at the time he makes the prediction.[25] Otherwise, the claim would not be rationally assertible for him, for he would have more grounds for denying the prediction than for affirming it. If he really believed that the outcome was *improbable*, how could he plausibly *mean* in all seriousness that the outcome *will* happen? And if he has no idea whether the outcome is

probable or not, he is still not in a proper epistemic position to claim that it *will* happen. So if he nevertheless *utters the words* "it will happen," we should not take those words at face value. They do not express a genuine prediction. Conversely, when it is clear that someone really *means* to claim that something *will* happen, then we should construe that claim as having causal force, i.e., it will happen because the present state of the world makes that outcome at least probable.

For example, suppose someone playing roulette says before the wheel is spun, "The ball will land on 20." Since we know the odds are 1 in 36, we would not construe that statement as claiming inevitability or even likelihood for the outcome. After all, if the person knows the odds, then he would know that it is more likely than not that the ball will not land on 20. So to claim that the ball *will* land on 20, or even that it *will probably* land on 20, would not be rationally assertible for him. If he nonetheless insists that the ball *will* land on 20, this would suggest that he knows, or thinks he knows, something we do not that grounds his confidence—perhaps he believes the game is rigged, or perhaps he has committed the gambler's fallacy and falsely believes that the ball is "due" to land on 20. In any case, absent indications that he really *believes* that the ball is likely to land on 20, we should not construe his claim this way. Instead, we should apply the principle of charity and try to find a plausible construal in the context that does not have him claiming something he is not in a position to know or justifiably believe. In this case, it is doubtful whether we should even construe his claim *as a prediction* about the ball. Depending on the context, a more plausible construal may be to take it either as an autobiographical claim about the speaker (e.g., "*I'm guessing* that the ball lands on 20" or "*I hope* the ball lands on 20") or as a performative utterance (e.g., "I'm betting on 20").

So it looks like genuinely predictive instances of 'will' carry not only a future temporal force but also a causal force of a degree sufficient to imply that the predicted outcome is at least *probable*. Hence, to genuinely assert at u that "S will obtain at t" is to posit its being the case at u that S's obtaining at t is at least probable. But since we're looking for a regimented philosophical usage of *will* that fixes the causal dimension, we have to settle on a particular probability. According to the argument so far, it has to be greater than 0.5, but how much greater? The Peircean proposal, which takes *will* to have determinative causal force (probability = 1.0), seems to be the most natural philosophical regimentation of the term's colloquial usage. After all, it makes more sense to fix the causal force of the unqualified prediction that something *will* happen at a probability of 1.0 and to use qualifying words like "probably" when lesser causal force is intended, than it does to fix the causal force of *will* at, say, 0.8, which would then require qualification in both directions.

It appears, then, that a fairly strong semantic argument exists for the Peircean position. Genuinely predictive uses of 'will'—as opposed to merely apparently predictive uses, such as saying "The ball will land on 20" when one is simply making a random guess—carry causal force *as a general rule*. If this is correct, then the Peircean proposal is the more natural and thus more proper philosophical regimentation of colloquial usage than the Ockhamist proposal because it recognizes this ubiquitous

causal dimension of meaning. By abstracting from the causal dimension, the Ockhamist leaves us an artificially thin interpretation of *will* that is not reflected in colloquial usage. Many Ockhamists, however, will be quick to protest at this point that their non-causal construal of *will* does find a home in colloquial usage. Let us look at their argument.

The Case for the Ockhamist Position

Alfred Freddoso has forcefully argued that the Ockhamist semantics for *will* makes better sense of our common practice of retroactively predicating truth of successful predictions about future contingents.[26] Let us suppose, says Freddoso, that there is a perfectly indeterministic coin, such that at the moment when it is tossed the world is neither tending in the direction of the coin's landing heads nor in the direction of its landing tails. Let us further suppose that a person who knows that the coin is perfectly indeterministic makes a prediction of it saying, "The coin will land heads." The claim, Freddoso insists, is not that the coin *will probably* land heads but that it unqualifiedly *will* land heads. Now, if the coin does indeed land heads, then in retrospect we would ordinarily say that the person spoke truly when she predicted, "The coin will land heads." Colloquial usage, then, holds that a prediction that something *will* happen is true at the time it is made just in case things turn out as predicted, even though things *might not* have. Freddoso contends that this result would not be undermined if the person were, under challenge, to hedge her prediction and say that the coin's landing heads was only more or less probable. Such hedging, he says, is *merely epistemic*, a reflection of the person's wavering confidence, not a retraction of the original claim that the coin *will* land heads.[27]

While this argument starts at the same place as our roulette example above, with an apparently genuine prediction about a future contingent, it arrives at the opposite conclusion, namely, that 'will' in its predictive usage need not have *any* causal force. The difference in result is achieved by shifting focus from the term 'will' to the term 'true.' And, indeed, it must be conceded that in ordinary language people do often retroactively apply the term 'true' to statements saying that something 'will' happen simply because it in fact has happened. Freddoso derives from this the core Ockhamist semantic principle that *is* implies *was(will)*—if S *is* the case at time *t* then the proposition <S *will* obtain at *t*> *was* true at all times prior to *t*.

How good is this argument? Several points deserve mention. First, Freddoso attempts to derive the *is* implies *was(will)* (IIWW) principle solely from observations of colloquial usage. But this is not generally a strong way to argue. The flexibility of colloquial usage nearly always leaves the meaning of statements underdetermined, allowing for more than one plausible interpretation of colloquial linguistic behavior. Accordingly, it does not *follow* solely from the fact that people often retrospectively apply the term 'true' to *statements* of the form "S will obtain" when it is clear that S has obtained that the *proposition* <S will obtain> was in fact *true* when the statement was uttered. But maybe Freddoso is right that the Ockhamist's noncausal construal of *will* makes the best sense of our linguistic behavior regarding successful predictions. Can Peirceans give a plausible counter-interpretation?

Indeed, they can. In the first place, Peirceans will urge that the statement about the coin's landing heads is not obviously expressive of the speaker's *beliefs* about how the coin will land. Hence, the statement is not obviously a genuine prediction at all. In saying "The coin will land heads," the speaker is likely just making an arbitrary choice between heads and tails and has no real conviction either way. Viewed in that way, the *meaning* of the statement is more like "I choose heads," an autobiographical claim about the speaker, than is it like "I believe the coin will land heads." On the other hand, if the speaker does believe and mean to claim that the coin *will* land heads, this raises the question of rational assertibility: *Why* does the speaker believe this? The most plausible answer, says the Peircean, is that the speaker, for whatever reason, thinks the coin's landing heads is somewhat *more probable* than its landing tails. But the minute we bring the probability of the outcome into the mix, we no longer have the noncausal usage of 'will' that Ockhamists are looking for.

At this point Ockhamists should, we think, concede that Peirceans can plausibly account for colloquial usage of the term 'will,' but they may nevertheless claim that Peirceans cannot plausibly account for retroactive predications of 'truth' to successful predictions of contingencies. But here again the general technical imprecision of colloquial speech gives the Peircean a way out. Recall that for Peirceans a genuine prediction carries *both* future temporal *and* causal force. With respect to future temporal force, the truth condition of <S will obtain at t> uttered at u is just its being the case at u that S is going to obtain at t (i.e., (S at t) at $u < t$). With respect to causal force, the truth condition is its being causally necessary at u that S obtain at t (i.e., Prob[(S at t) at $u < t$] = 1.0). In light of this, the Peircean can account for colloquial retroactive predications of 'truth' to successful predictions of contingencies by saying that we are speaking loosely, but not inappropriately, because we recognize that *part* of the truth condition of <S will obtain at t> has been fulfilled, namely, (S at t).

So Freddoso's example is inconclusive, admitting as it does a plausible interpretation along Peircean lines. In addition, the IIWW principle that lies at the heart of Ockhamist semantics is far from obviously correct. From the fact that something does happen, how does it *follow* that it was previously the case that it would happen? Given that S does obtain at t, how can we derive the conclusion that <S will obtain at t> was true prior to t? Those accustomed to thinking along Ockhamist lines may find this is obvious, but how so? The IIWW is clearly not an analytic truth. Indeed, to the Peircean, it is an obvious *non sequitur*. Surely, says the Peircean, all that *follows* from the fact that S obtains at t is that it was previously *possible* that S obtain at t, not that it was the case that S *will* obtain at t. At any rate, the Ockhamist cannot simply assert that his semantics is intuitively correct without begging the question against the Peircean.

Conclusion

In sum, then, there seems to be a fairly strong semantic argument based on the requirement for rational assertibility implicit in the principle of charity for the claim that 'will,' when used colloquially in a genuinely predictive sense, has causal and not merely future temporal force. Ockhamist arguments to the contrary are inconclusive at best. Accordingly, the Peircean

construal of *will* as implying causal necessity has at least as strong a claim to be the natural or proper philosophical regimentation of colloquial usage as does the Ockhamist's noncausal construal of *will*. Finally, the plausibility of the Peircean position secures the plausibility of the incompatibility thesis, for the one entails the other.

IV. A Metaphysical Argument for the Incompatibility Thesis

In the previous section, we presented a semantic defense of the incompatibility thesis (IT). In this section, we offer a metaphysical defense by arguing that IT follows from the conjunction of the correspondence theory of truth with an A-theory of time. While neither claim is uncontroversial, both have high intuitive plausibility and cannot be lightly dismissed. At any rate, we will simply assume that both claims are correct. Our argument is directed at those in the Ockhamist camp who reject IT *and* want to affirm both the A-theory and correspondence.

Truth and the Ontology of Time
The correspondence theory says that a proposition is true if and only if the state of affairs it posits obtains, so for every true proposition there is a corresponding state of affairs that obtains and vice-versa. Semantics (i.e., which propositions are true) and ontology (i.e., which states of affairs obtain) must therefore stay in sync; if reality changes in some respect, then what is true must also change to maintain correspondence. This means that how we assign truth values should both depend on and constrain our ontological commitments. In particular, how we assign truth values to tensed statements should reflect our ontology of time.

According to *eternalism* or *four-dimensionalism*, past, present, and future things are equally real.[28] What we call the 'present' is just that temporal slice of reality that is directly accessible to us at a given moment. Past states of affairs like Napoleon's losing the battle of Waterloo are no longer directly accessible to us but continue to obtain on some past date. Presumptive future states of affairs like humans' landing on Mars are not yet directly accessible to us but already obtain on some future date. So past and future states of affairs obtain even though they do not obtain now. Consequently, non-present states of affairs are available to ground the present truth of true propositions. Thus, the eternalist need not suppose that the states of affairs posited by presently true propositions obtain now. In particular, propositions about the past or the future can be true in virtue of the *past* or *future* obtaining of a *tenseless* state of affairs. For example, the eternalist can say that "Caesar crossed the Rubicon" is now true because in some earlier temporal slice of reality Caesar's crossing of the Rubicon *is* the case. Similarly, she can say that it is now true that "Humans will land on Mars" just in case in some later temporal slice humans' landing on Mars *is* the case.

According to *presentism*, however, all of reality exists now, in the present; the past is no more, the future is not yet.[29] In other words, for every state of affairs S, S either obtains now or it does not obtain at all. On this view, there are no non-present states of affairs available to ground the present truth of true propositions. How then can propositions about the past or the future be true? According to the presentist, they are true in

virtue of the *present* obtaining of a *tensed* state of affairs. Thus, "Caesar crossed the Rubicon" is now true because Caesar's *having crossed* the Rubicon now obtains. Similarly, "Humans will land on Mars" is now true just in case our *going to land* on Mars now obtains.

A third view known as the *growing universe theory*[30] splits the difference between eternalism and presentism. With eternalism, it holds that past and present things really exist. With presentism, it holds that future things do not. Inasmuch as we are concerned only with the nature of the future, we can safely ignore this view.

Now, if eternalism is correct, then the OFV is false. For if the future is (tenselessly) already there, then what is true of the future cannot change and the future is semantically settled. The OFV theorist must therefore be an A-theorist and agree with presentism at least with respect to the future. Let us assume then, for the sake of argument, that presentism is correct. What bearing would this have on the semantics of statements about the future?

An Argument for the Incompatibility Thesis

According to the correspondence theory, a proposition is true if and only if the state of affairs it posits obtains. According to presentism, no non-present states of affairs obtain; if a state of affairs does not obtain now then it does not obtain at all. Consequently, a proposition is true if and only if the state of affairs it posits obtains now, in the present. Moreover, since a proposition's being true is itself a state of affairs, this implies that a proposition is true if and only if it is true now. Given that there are now some true propositions about the future, these must therefore be true in virtue of the present obtaining of some future-tense state of affairs. Thus, <A sea battle will occur tomorrow> is true now if and only if a sea battle's *going to occur* tomorrow now obtains.

But what is it for a future-tense state of affairs to obtain? What could that possibly amount to in concrete terms? Given presentism and correspondence, if a proposition about the future is now true, then it is true in virtue of what is now the case. Accordingly, what is now the case must somehow *bear upon* what will be the case. But how is this possible? How can present reality bear upon a future that does not yet exist?

The obvious answer, we submit, is that the present bears upon the future in the manner of a cause upon its effect. For example, it is now true that the Sun will rise tomorrow. Why? Because the world in its current state is governed by nomic regularities that, barring a miracle, guarantee the Sun's rising tomorrow. It would appear, then, that the future-tense state of affairs *the Sun's going to rise tomorrow* consists in the present state of reality tending inexorably in that direction. The future is in that respect already *present in its causes*.[31]

Indeed, as presentism and correspondence require, the present truth of <S will obtain> depends entirely on *S's going to obtain* now being the case. Thus, if present conditions were not *sufficient* for its now being the case that S is going to obtain, then they would not be sufficient for the present truth of <S will obtain>. But if present conditions are sufficient for its now being the case that S is going to obtain, then S's future obtaining is a *necessary* consequence of present conditions. The future-tense proposition <S

will obtain> is now true, therefore, if and only if present conditions are in fact *sufficient*, that is, fully determinative, of the future obtaining of S. This, of course, entails the incompatibility thesis, the Peircean semantic thesis that the future is semantically settled if and only if it is causally settled.

Objections Considered
Some Ockhamists may object to our claim that correspondence combined with presentism entails that a proposition is now true if and only if the state of affairs it posits now obtains. Craig appears to make this charge when he writes that it is an error "to hold that in order for a proposition to possess a truth value, the reality corresponding to the proposition or the causal conditions sufficient for the coming to be of the corresponding reality must actually exist at the time of the truth of the proposition."[32] In support, he cites Charles Bayliss:

> For the truth of propositions to the effect that certain events did oc-
> cur in the past it is necessary only that the occurrence of these events
> was at the time specified a fact, and, similarly, for the truth of propo-
> sitions to the effect that certain events will occur at a given time in
> the future it is necessary only that the occurrence of these events at
> that time will be a fact.[33]

The idea here seems to be that, for example, <Caesar crossed the Rubicon> is now true just in case *at some point in the past* Caesar crosses the Rubicon and that <A sea battle will occur tomorrow> is now true just in case *tomorrow* a sea battle occurs. Consequently, nothing need *now* be the case to make either proposition true.

According to this idea, some things are true about the future that are not *grounded* in present facts but in future facts. This position is consistent with eternalism, which admits non-present facts to serve as grounds. And it is consistent with a denial of correspondence, that is, a rejection of the idea that true propositions need to be grounded in reality. But it is not consistent with both correspondence and a dynamic view of the future that there be true propositions about the future that are not true in virtue of what now obtains. <A sea battle will occur tomorrow> posits a sea battle's going to occur tomorrow. By correspondence, the proposition is true if and only if that state of affairs obtains. By presentism, the only time when that state of affairs can obtain, if it obtains, is *now*. Accordingly, <A sea battle will occur tomorrow> is true if and only if a sea battle's going to occur tomorrow now obtains. So, given presentism and correspondence, it is false that nothing need *now* be the case in order for propositions about the future to be true.

It would appear, then, that Craig and his allies are inconsistent, but perhaps we have misconstrued Craig's position. In a more recent work he says the following:

> A future-tense statement is true iff there exists some tensed actual
> world at *t* in which the present-tense version of the statement is true,
> where *t* has not elapsed by the present moment. . . . Those are the
> *truth-conditions* of . . . future-tense statements; but they are not what

make the statements true. Ultimately what *makes* the statements true is that reality . . . will be as the statements describe; when the time comes, for example, a sea battle is going on, and therefore the statement made the day before, "There will be a sea battle tomorrow," was true. There are tensed facts corresponding to what tensed statements assert, but . . . future-tense facts exist *because* of the present-tense facts which . . . will exist.[34]

Here Craig affirms as a presentist that true propositions about the future are grounded in presently obtaining future-tense states of affairs or 'facts.' These future-tense facts, he says, are what *make* those propositions true. As an Ockhamist, however, Craig stipulates that these future-tense facts obtain only *because* their present-tense versions obtain in the future, thereby satisfying the *truth-conditions* of propositions about the future. In this manner, Craig appears to reconcile presentism and correspondence with Ockhamism. He affirms presentism by holding that there are no non-present *truthmakers* for propositions about the future, and he affirms Ockhamism without denying correspondence by holding that those truthmakers are retroactively established by the future fulfillment of those propositions' *truth-conditions*.

While this is certainly a clever position, as a response to our metaphysical argument for the incompatibility thesis it fails. The most obvious problem is that it begs the question by taking Ockhamism for granted. That tomorrow's obtaining of a sea battle suffices to make it true now that a sea battle *will* occur tomorrow is just the *is* implies *was(will)* thesis that, as we saw in section three, only seems obvious to those already in the grip of Ockhamism. In addition, Craig's assertion that presently obtaining "future-tense facts exist *because* of the present-tense facts which . . . will exist" gets things exactly backwards. On a presentist ontology, presently obtaining future-tense facts cannot be grounded in future present-tense facts because *there are no future facts*. Rather, what is now the case must somehow bear upon what will be the case if any propositions about the future are to be true. The direction of support has to go forward from present facts to future facts, not vice-versa. Thus, it is the presently obtaining future-tense state of affairs *a sea battle's going to take place tomorrow* that makes it true tomorrow that there is a sea battle.

Finally, while Craig's Ockhamist position countenances future-tense states of affairs, he offers no ontological characterization of what it is for those states of affairs to obtain. How, one wonders, is reality *different* because some future-tense state of affairs obtains from what it would have been had that state of affairs not obtained? It will not suffice to say that reality is different because some proposition about the future is true that would otherwise have been false, for that is no more enlightening than saying that the difference made by opium's putting people to sleep is just that it makes true the claim that opium has dormitive power. We have given an ontological account of future-tense states of affairs in terms of the causal efficacy of the present in bringing about the future as its effect. Maybe there is a better account, but unless and until Craig and his allies supply one, they leave themselves wide open to Ted Sider's charge of ontological "cheating", that is, of being "unwilling to accept an

ontology robust enough to bear the weight of the truths [they feel] free to invoke."[35]

Conclusion
In light of our arguments in this section and the last, it seems to us that the incompatibility thesis is quite defensible on both semantic and metaphysical grounds. There is, however, a major objection that needs to be considered, namely, that it leads either to fatalism or to a denial of bivalence. We will now argue that this is a false dilemma.

V. Bivalence and the Logic of an Open Future

It may be argued that the following three theses constitute an inconsistent set:

> CT Contingency thesis: There are future contingents. The future is not causally settled.

> IT Incompatibility thesis: The future is semantically settled iff it is causally settled.

> PB Principle of bivalence: All propositions are either true or if not true then false.

The inconsistency is supposed to emerge once one notices that PB, together with the assumption that <S will obtain at *t*> and <S will not obtain at *t*> are contradictories, suffices to establish that the future is semantically settled. Given PB and that assumption (let us call it the *contradiction assumption*, CA), one of those propositions must be true and the other false for every S and every future *t*. In short, the future must be semantically settled. The only way to avoid this result, while conceding CA, is to deny one of those three theses. Thus, given CA, PB and IT entail that the future is not only semantically settled but also causally settled. This is a denial of CT and, arguably, amounts to fatalism. Again, CT and IT entail that the future is not semantically settled. Given CA, this requires denying PB. Yet again, given CA, CT and PB entail that the future is semantically settled but causally open. This is a denial of IT and, with it, the OFV. So it seems that the proponent of IT seems to be faced with a dilemma: Either embrace fatalism or give up bivalence. Historically, most OFV advocates have opted to give up bivalence.[36] It appears, however, that this is a high price to pay.[37]

The dilemma is a false one, however, if CA is false, that is, if *will* and *will not* are not contradictories. In what follows, we look at three reasons that have been offered for thinking that they are contradictories and show that they are either inconclusive or beg the question against the OFV. Furthermore, given IT, it can be demonstrated that *will* and *will not* are not contradictories, but contraries. Hence, the OFV advocate not only need not give up bivalence, but should not. She can consistently affirm CT, IT, *and* PB.

Are Will *and* Will Not *Contradictories?*
More often than not, a 'yes' answer to this question is simply assumed. A few arguments, however, may be offered in its defense. Stephen Cahn, for example, notes that *was* and *was not* are contradictories, as are *is* and *is not*. So is not it "totally arbitrary," he asks, to suppose that *will* and *will not* are not contradictories?[38]

The answer to Cahn is that *was* and *was not* and *is* and *is not* are contradictory pairs because the past and the present are both fully determinate; things were and are definitely one way or the other. Indeed, barring backwards causation, the past and the present are causally, semantically, and (for God) epistemically settled. But the future is not fully determinate, or so many would argue. Indeterminists of all stripes hold that it is not causally settled, and OFV proponents claim that it is not semantically settled either. If S is a future contingent then S *might* obtain and S *might not* obtain (where *might* denotes causal possibility, not epistemic uncertainty). So why cannot both *will* and *will not* be false just in case both *might* and *might not* are true? This suggestion is not arbitrary. It is motivated by a presumed real difference between the past and present, on the one hand, and the future, on the other.

Another reason that might be proposed for thinking that *will* and *will not* are contradictories invokes the principle that if something *is* the case then it *was* the case that it *will* be the case. We have called this the *is* implies *was (will)* thesis (IIWW). The thesis can be used to transfer semantic settledness from a future present to the present future. For example, regarding the possibility of a sea battle's happening tomorrow, we might observe that *when tomorrow comes* it will be the case either that a sea battle *is* taking place or that it *is not*. Given IIWW, this implies that it is true now either that a sea battle *will* happen tomorrow or that it *will not*.

As we have already seen, however, invoking IIWW is question-begging against the OFV because it assumes without justification the falsity of the incompatibility thesis. Indeed, from the perspective of Peircean semantics, IIWW is a gross *non sequitur*. As the Peircean sees it, all that *follows* from the fact that a sea battle does take place tomorrow is that it was antecedently *possible* that a sea battle occur tomorrow, not that it is today the case that it *will* occur tomorrow. To avert the *non sequitur* charge the IIWW proponent must hold that there is some genuinely predictive usage of 'will' that has absolutely *no* causal force, such that "S will obtain at $t1$" uttered at $t0$ means *nothing more than* "S obtains at $t1$" uttered at $t1$. Only thus would S's obtaining at $t1$ be *sufficient* to entail the antecedent truth of "S will obtain at $t1$." But, as we argued in section three, it is doubtful whether there is any genuinely predictive yet non-causal usage of 'will' that satisfies the conditions for rational assertibility. Furthermore, even if there is some assertible, predictive, and non-causal usage of 'will,' the IIWW proponent needs to show that this usage is not simply idiosyncratic but that it is, in fact, the proper *philosophical* construal of the term. As we have seen, this too may be contested. In sum, there seems to be no compelling reason to accept the IIWW thesis and good reason to reject it, so this argument for the contradictoriness of *will* and *will not* fails.

Third and finally, it might be thought that the contradictoriness of *will* and *will not* follows from the contradictoriness of their *tenseless* counterparts. Thus,

1.   For every state of affairs S and every time t, there is a pair of *tenseless* propositions, <S does obtain at t> and <S does not obtain at t>.

2.   <S does obtain at t> and <S does not obtain at t> are contradictories.

3.   All propositions are either true or, if not true, then false. (PB)

4. Therefore, either <S does obtain at *t*> or <S does not obtain at *t*> is true. (1,2,3)

5. If <S does obtain at *t*> is true and *t* is in the future, then <S will obtain at *t*> is true and <S will not obtain at *t*> is false.

6. If <S does not obtain at *t*> is true and *t* is in the future, then <S will not obtain at *t*> is true and <S will obtain at *t*> is false.

7. Therefore, either <S will obtain at *t*> or <S will not obtain at *t*> is true and the other is false. (4,5,6)

8. Therefore, <S will obtain at *t*> and <S will not obtain at *t*> are contradictories. (7)

This argument seems to leave the OFV theorist little choice but to deny bivalence (where S is a future contingent) for either the tensed pair <S will obtain at *t*> and <S will not obtain at *t*> or the tenseless pair <S does obtain at *t*> and <S does not obtain at *t*>. The OFV theorist does, however, have other options.

Our response is to deny premise (2). Given the incompatibility thesis, it can be plausibly argued that <S does obtain at *t*> and <S does not obtain at *t*> are not contradictories for all S and all *t*. To see this we need to get clear on what it is for a proposition to be tenseless.

The reader should recall from section three that the tense of a statement communicates information. In particular, it tells us how the speaker locates an event in relation to the time the statement was uttered. Use of the past tense tells us that the speaker regards an event as *having happened*, prior to the time of the utterance. Use of the present tense tells us that the speaker regards an event as *happening*, concurrent with the time of the utterance. And use of the future tense tells us that the speaker anticipates an event as *yet to come*, subsequent to the time of the utterance. In contrast, then, a *tenseless* statement is one that gives us *no information* about how the event spoken of is temporally related to the time of the statement's utterance.[39] If all we are told is that "S obtains (tenselessly) at *t*," we cannot conclude anything about whether the speaker regards S as having obtained, as presently obtaining, or as yet to obtain.

Consider the statement "S obtains at *t*" uttered at *u* and suppose that this statement expresses a tenseless proposition. Because it is tenseless, we cannot assume anything about the relation between *t* and *u*. Now, we ask, is this statement *true*? It seems impossible to say. *For all we know*, it could be about the past (*t* is prior to *u*), in which case it is true if and only if "S obtained at *t*" is true. Or it could be about the present (*t* is concurrent with *u*), in which case it is true if and only if "S is obtaining at *t*" is true. Or it could be about the future (*t* is subsequent to *u*), in which case it is true if and only if "S will obtain at *t*" is true. Or it could be the disjunctive claim that "S has obtained, is obtaining, or will obtain at *t*". In any case, the truth of the tenseless statement requires the truth of at least one of those *tensed* disjuncts,[40] but since we do not have enough information to say which, if any, of the tensed disjuncts is true, we seem to be in a quandary with respect to the tenseless statement—unless, of course, at least one of those tensed disjuncts has to be true for any time of utterance *u*.

For some S this is indeed the case. If S is a logically or metaphysically necessary state of affairs—for example, two-plus-two's equaling four—then S cannot fail to obtain, which means that S obtains at all times. Two-plus-two *always* equals four. So it is true at all times that two-plus-two has equaled four at all previous times, equals four at all concurrent times, and will equal four at all subsequent times. But if the incompatibility thesis is correct and S's obtaining at *t* is causally contingent, then *none* of those tensed disjuncts is true at all times prior to *t*. For example, if it is now (in 2005) causally contingent whether the Red Sox win the World Series in 2010, then it is not now true either that the Red Sox *have won* in 2010 or that they *are winning* in 2010 or that they *will win* in 2010. Given that a necessary condition for the present truth of "The Red Sox win (tenselessly) in 2010" is the present truth of one of those tensed disjuncts, it follows that the tenseless statement is not now true. The same holds *mutatis mutandis* for "The Red Sox do not win (tenselessly) in 2010." Accordingly, for any time *u* prior to *t* at which S's obtaining at *t* is causally contingent, neither <S does obtain at *t*> nor <S does not obtain at *t*> are true at *u*.

One way to accommodate this result is to deny bivalence and say that tenseless propositions about future contingents are *neither true nor false*. But it makes more sense, we think, to say that both are *false*. After all, a sufficient condition for the falsity of a disjunction is the falsity of each of its disjuncts. If the truth of a tenseless proposition of the form <S obtains at *t*> entails the truth of a disjunctively tensed proposition of the form <Either S obtained at *t*, S is obtaining at *t*, or S will obtain at *t*> then, when it comes to future contingents, all of the tensed disjuncts are false (if the incompatibility thesis is correct). Therefore, the whole disjunction is false. Therefore, by *modus tollens*, the tenseless proposition is also false. And if it is possible for both <S does obtain at *t*> and <S does not obtain at *t*> to be false, then they are not contradictories, in which case premise (2) of the above argument is false.[41]

In summary, neither parallels with the past and present, nor the IIWW thesis, nor appeals to the (alleged) contradictoriness of the tenseless propositions <S does obtain at *t*> and <S does not obtain at *t*> suffice to show that *will* and *will not* are contradictories. Indeed, we know of no arguments for the claim that *will* and *will not* are contradictories that start from premises that the OFV advocate need accept. Consequently, it is not at all clear why the OFV proponent cannot simply deny that *will* and *will not* are contradictories. And if this can be plausibly denied, then it is no longer clear what motivation remains for denying bivalence with respect to future contingents.

Indeed, the OFV proponent *should* deny that *will* and *will not* are contradictories. After all, if the incompatibility thesis is correct, then future contingency is incompatible with a semantically settled future. Thus, *will* and *might not* are incompatible, as are *will not* and *might*. But this leaves two possibilities: (a) they are contradictories, or (b) they are contraries. Suppose *will* and *might not* are merely contraries. In that case it is possible that both be false. But <S *might not* obtain> just means that S does *not* occur in all causally possible futures. The only way this could be false would be for S to occur in *all* causally possible futures, in which case <S *will* obtain> is obviously true. So *will* and *might not* cannot be contraries. They must,

therefore, be contradictories. The same holds *mutatis mutandis* for *will not* and *might*. Now, if S is a future contingent, then it is possible both for S to obtain and for S not to obtain, in which case both <S *might* obtain> and <S *might not* obtain are true>. But if *might* is the contradictory of *will not* and *might not* is the contradictory of *will*, then both <S *will* obtain> and <S *will not* obtain> must be false when S is contingent. Since it is possible for *will* and *will not* to be conjointly false, they must be contraries, not contradictories. Hence, if the incompatibility thesis is correct, then it is possible to affirm the OFV without denying bivalence.

VI. Reassessing the Case for a Settled Future

Having defended the incompatibility thesis and clarified the logic of an open future, we are now in position to respond to the three pro-SFV arguments canvassed earlier. We will show that each begs the question against the OFV and is therefore polemically inconclusive.

First, we have the Contradiction Argument, which starts from the assumption that *will* and *will not* are contradictories and concludes that either "S *will* obtain at *t*" or "S *will not* obtain at *t*" must be true for all states of affairs S and all future times *t*. If correct, the SFV would follow. But as we showed in section five, if the incompatibility thesis is correct, then *will* and *will not* are not contradictories, but contraries. The contradictory of *will* is not *will not* but *might not*. And the contradictory of *will not* is not *will*, but *might*. By assuming the falsity of the incompatibility thesis, this argument begs the question against the OFV.

Second, we have the Truth Conditions Argument, which asks how it can be, for example, that "It will rain tomorrow" uttered on Monday has a different truth value than "It rained yesterday" uttered on Wednesday, when they have exactly the same truth conditions, i.e., rain on Tuesday. If "It rained yesterday" uttered on Wednesday is true, then, so the argument goes, "It will rain tomorrow" uttered on Monday must also be true. But the claim that "It will rain tomorrow" uttered on Monday has the same truth conditions as "It rained yesterday" uttered on Wednesday begs the question by assuming the *is* implies *was(will)* thesis (IIWW). Specifically, it assumes that rain occurring on Tuesday is sufficient for it to *have been* the case on Monday that it *will* rain on Tuesday. Since the OFV proponent does not accept IIWW, to invoke it as part of an argument against the OFV begs the question.

Third and finally, we have the Temporal Invariance Argument. This argument assumes that the truth value of *tenseless* statements is temporally invariant. Given this, it argues that for any possible future state of affairs S and future time *t* there are tenseless statements of the form "S does obtain at *t*" and "S does not obtain at *t*." Whichever one is true when *t* arrives, must, by temporal invariance, have always been true. Consequently, the corresponding *tensed* statement must also have always been true.

By way of response we argued in section five that the truth of a tenseless statement of the "S obtains at *t*" form entails the truth of a disjunctively tensed statement. Specifically, we argued that the truth at *u* of "S does obtain at *t*" entails the truth at *u* of "Either S did obtain at *t*, S is obtaining at *t*, or S will obtain at *t*." That being so, if *t* is future and S's obtaining at

t is contingent, then, given the incompatibility thesis, *all* of those tensed disjuncts are false at *u*. Hence, both "S does obtain at *t*″" and "S does not obtain at *t*″" are false at *u*. If, however, circumstances change by *u*′ such that S's obtaining at *t* is *then* causally necessary, then "S will obtain at *t*″" is true at *u*,' which means that "S does obtain at *t*″" is true at *u*.' Thus, it is possible for a tenseless statement to be false at one time and true at a subsequent time. The truth value of tenseless statements about future contingents is, therefore, not temporally invariant.

VII. Conclusion

We have argued that the debate between open theists and proponents of exhaustively foreknowledge hinges upon the nature of the future. If the future is semantically settled, as exhaustively definite foreknowledge implies, then the open theist has to compromise omniscience. If the future is semantically open, as open theism implies, then it is the proponent of exhaustively definite foreknowledge who must compromise omniscience.

The debate over the nature of the future, in turn, hinges upon two theses: (a) the contingency thesis, which says that there are future contingents, i.e., that the future is causally open; and (b) the incompatibility thesis, which says the future is causally open if and only if it is semantically open. In other words, future contingency is incompatible with a semantically settled future. If both theses are correct, then the OFV follows; otherwise, the SFV is correct.

With respect to the incompatibility thesis, we have seen that there are plausible semantic and metaphysical arguments in its favor. And we have seen how, with the aid of the thesis, the OFV can be reconciled with bivalence.

Finally, we have seen that a number of attempts to show *a priori* that the SFV is true fail. In one way or another, all either beg the question against the OFV or invoke an assumption that, given the incompatibility thesis, may be plausibly denied. While we cannot claim to have rebutted every possible attempt to demonstrate the SFV *a priori*, we doubt that any such attempts will prove successful. For if the incompatibility thesis is in fact correct, as we have argued, then the truth or falsity of the OFV stands or falls on the contingency thesis. And if it is even *possible* that there be future contingents, then the OFV cannot be ruled out *a priori*.[42]

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NOTES

1. We italicize *will/will not* and *might/might not* when we wish to refer to them as tense operators, and we put single quotes around them when we wish to refer to them as linguistic terms. As we will see, the SFV/OFV debate hinges on the semantics of the operators *will* and *might*, specifically, on whether they carry causal force or not. On the causal construal, which is endorsed by all OFV and some SFV proponents, *might* denotes causal possibility and *will* denotes causal necessity relative to the present state of the world. Thus, it is true at *t*0 that state of affairs S *might* obtain at *t*1 just in case

it is not causally necessitated at *t*0 that S *not* obtain at *t*1. And it is true at *t*0 that S *will* obtain at *t*1 just in case it is causally necessitated at *t*0 that S obtain at *t*1. On this construal, *might and might not* applies to states that are causally contingent, i.e., neither causally necessitated nor causally impossible.

2.   We thank an anonymous reviewer for pressing us to make these distinctions.

3.   William Lane Craig takes this as axiomatic. He writes in *Time and Eternity* (Wheaton: Crossway, 2001), p. 262, that "the future, by definition, is just as unalterable as the past. . . . To *change* the future would be to bring it about that an event which will occur will not occur, which is self-contradictory." What is meant here, of course, is that it is the future *relative to some fixed point in time* that cannot change. Viewed relative to a changing present the future does change in the sense that what was future eventually becomes present and then past.

4.   Cf. Jonathan Edwards, *On the Freedom of the Will*, Part II, section 12: "If the foreknowledge be absolute, this proves the event known to be necessary, or proves that it is impossible but that the event should be . . . because, as was said before, it is absurd to say, that a proposition is known to be certainly and infallibly true, which yet may possibly prove not true." Available online at *http://www.ccel.org/ccel/edwards/will.toc.html*.

5.   For example, see Alvin Plantinga, "On Ockham's Way Out," *Faith and Philosophy* 3 (1986): pp. 235–69; and Craig, *The Only Wise God* (Grand Rapids: Baker, 1987), pp. 73–74.

6.   As explained in note 1, *might* is to be understood as denoting causal possibility, not epistemic uncertainty.

7.   Craig argues for this in *The Only Wise God*, chaps. 1 and 2.

8.   Craig, "Process Theology's Denial of Divine Foreknowledge," *Process Studies* 16:3 (Fall 1987): p. 198; "Divine Foreknowledge and Future Contingency," in *Process Theology*, ed. Ronald H. Nash (Grand Rapids: Baker, 1987), p. 96. See also Steven M. Cahn, *Fate, Logic, and Time* (Atascadero: Ridgeview, 1967), pp. 63, 65.

9.   Craig, *Divine Foreknowledge and Human Freedom* (Leiden: E. J. Brill, 1991), pp. 58–59.

10.   Craig, *Divine Foreknowledge and Human Freedom*, pp. 59–60.

11.   This approach has been pursued by some open theists, most notably William Hasker. See his *God, Time, and Knowledge* (Ithaca: Cornell Univ. Press, 1989), p. 187, and "The Foreknowledge Conundrum," *International Journal for the Philosophy of Religion* 50 (2001): p. 111.

12.   William Lane Craig, "What Does God Know?" in *God Under Fire: Modern Scholarship Reinvents God*, ed. Douglas F. Huffman and Eric L. Johnson. (Grand Rapids: Zondervan, 2002), pp. 147–48.

13.   For Aristotle, see *De Interpretatione*, p. ix. For Prior, see "The Formalities of Omniscience" in *Papers on Time and Tense* (Oxford: Oxford Univ. Press, 2003), pp. 39–58; and "Time and Determinism" in *Past, Present and Future* (Oxford: Clarendon Press, 1967), pp. 113–36.

14.   For one attempt to make this case, see Gregory A. Boyd, *God of the Possible* (Grand Rapids: Baker, 2000).

15.   We argue this point in section four. See also Michael Rea, "Presentism and the Openness of God" (paper read at the 2003 Eastern regional meeting of the Society of Christian Philosophers).

16.   Hasker is a prominent exception. He seems to think that the future is both causally open and semantically settled (see note 11 above) but nevertheless epistemically open for God. To keep this position consistent he has to restrictively define omniscience as knowing all that *can* be known.

17. One of us has previously defended libertarian free agency at some length. Cf. Gregory A. Boyd, *Satan and the Problem of Evil* (Downers Grove: InterVarsity, 2001), chap. 2.

18. Since the Ockhamist position in the foreknowledge controversy presupposes the Ockhamist position on the semantics of *will*, we trust that it will not prove confusing if, in the context of a paper on the foreknowledge controversy, we use the same label (viz., 'Ockhamism') for both positions.

19. Prior develops the Ockhamist/Peircean distinction in *Past, Present, and Future* (Oxford: Clarendon Press, 1967), pp. 113–36.

20. Craig has repeatedly made this charge, misquoting Prior in the process by attributing to him the admission that on the Peircean system contingently true predictions are "perversely" inexpressible (*The Only Wise God*, p. 63; *Divine Foreknowledge and Human Freedom*, p. 21). But what Prior actually says is, "To the Ockhamist, Peircean tense-logic is incomplete; it is simply a fragment of his own system—a fragment in which contingently true predictions are, perversely, inexpressible" (*Past, Present, and Future*, p. 130, emphasis added). Clearly, Prior is not claiming that this consequence of the Peircean system is "perverse," as Craig's citations imply. He is simply pointing out how the Peircean system looks *from the Ockhamist's perspective*.

21. A proposition may be *implicitly* expressed without using a statement. For example, the question "When did you stop beating your wife?" assumes that you have a wife and that at one point you beat her. Asking the question implicitly affirms those assumptions.

22. Recognition of this fact has led to the demise of the "old" B–theory of language, which held that tensed statements could be translated into tenseless statements without loss of meaning. For a thorough critique see William Lane Craig, *The Tensed Theory of Time: A Critical Appraisal*, Synthese Library, vol. 293 (Dordrecht: Kluwer Academic, 2000), chap. 2.

23. We continue to assume that the speaker is accurately cognizant of the time of the utterance.

24. This verb is *tensed*. The claim is not merely that S will obtain subsequent to the date *u*, but that S will obtain subsequent to the present moment, which happens to be *u*.

25. The argument does not assume that a predictor must be consciously or explicitly aware that his prediction carries causal force, or that the predictor have a conscious and explicit grasp of notions like causality and probability. The causal dimension of meaning may be subconscious and implicit, expressive of subliminal beliefs about causal dependence that the speaker does not realize he has.

26. See, for example, the references to Craig in note 20 above. Nuel Belnap, Michael Perloff, and Ming Xu make a similar charge in *Facing the Future* (Oxford: Oxford Univ. Press, 2001), p. 159.

27. Alfred J. Fredosso, "Introduction" to Luis de Molina, *On Divine Foreknowledge: Part IV of the Concordia*, trans. Alfred J. Fredosso (Ithaca: Cornell Univ. Press, 1988), pp. 71–72.

28. For an overview of eternalism, see Michael Rea, "Four-Dimensionalism" in *The Oxford Handbook of Metaphysics*, ed. Michael J. Loux and Dean W. Zimmerman (Oxford: Oxford Univ. Press, 2003), pp. 246–80. For an extended discussion, see Theodore Sider, *Four Dimensionalism: An Ontology of Persistence and Time* (Oxford: Oxford Univ. Press, 2001).

29. Recent defenses of presentism include Ned Markosian, "A Defense of Presentism," in *Oxford Studies in Metaphysics*, vol. 1, ed. Dean W. Zimmerman (Oxford: Clarendon, 2004), pp. 47–82; and Thomas M. Crisp, "Presentism" in Loux and Zimmerman (eds.), *The Oxford Handbook of Metaphysics*, pp. 211–45.

30. This view is defended by Michael Tooley in *Time, Tense, and Causation* (Oxford: Clarendon, 1997).

31. Similarly, the presentist can account for presently obtaining past-tense states of affairs in terms of some kind of present trace or residue of past states of affairs. Just as future-tense states of affairs obtain insofar as the future is present in its causes, past-tense states of affairs obtain insofar as the past is present *in its effects*. Presentists can, of course, disagree about what those present traces consist in. For one proposal, see John Bigelow, "Presentism and Properties," *Philosophical Perspectives* 10 (1996): pp. 35–52. For a very different proposal, see Alan R. Rhoda, "Presentism, Truthmakers, and God" (forthcoming).

32. Craig, *Divine Foreknowledge*, p. 57.

33. Charles Bayliss, "Are Some Propositions Neither True Nor False?" *Philosophy of Science* 3 (1936): pp. 156–66.

34. Craig, *The Tensed Theory of Time*, pp. 213–14, emphasis added. See also note 140 on p. 214.

35. Theodore Sider, *Four Dimensionalism*, p. 41.

36. Aristotle famously makes this move in *De Interpretatione* 9. More recent advocates of this response include Łukasiewicz, the eminent Polish logician; Steven M. Cahn, *Fate, Logic, and Time* (Atascadero: Ridgeview, 1967); and J. R. Lucas, *The Future: An Essay on God, Temporality, and Truth* (Oxford: Basil Blackwell, 1989).

37. See Craig, *Divine Foreknowledge*, pp. 42–63. A good summary of the controversies surrounding multi-valued logics can be found in Susan Haack, *Deviant Logic, Fuzzy Logic: Beyond the Formalism*, 2nd ed. (Chicago: Univ. of Chicago Press, 1996).

38. Steven M. Cahn, *Fate, Logic, and Time*, pp. 63, 65.

39. Some statements that are *grammatically* tenseless nevertheless express *tensed propositions* because the context in which the statement occurs tells us whether the claim is about the past, present, or future even though the form of the verb does not supply that information. For example, a timeline of Roman history may have the event caption "49 B.C.—Caesar crosses the Rubicon." Superficially, this looks like a tenseless statement, but as this is a timeline of Roman *history*, we understand that it is telling us information *about the past*. Accordingly, we construe it as the past-tense statement "Caesar *crossed* the Rubicon in 49 B.C."

40. Craig contests the disjunctive analysis of tenseless statements in *The Tensed Theory of Time*, pp. 3–6. Space limitations prevent us from addressing his arguments in detail. Suffice to say, even if he is right that certain classes of tenseless statements cannot be given a disjunctive analysis (of which we remain unconvinced, for it seems to us that Craig's examples of irreducibly tenseless statements can all be analyzed by some combination of tensed disjuncts and/or conjuncts along with modal operators), he does not show that *no* classes of tenseless statements admit a disjunctive analysis. In particular, he does not address tenseless statements of the "S obtains at *t*" sort that are here at issue. Moreover, our argument only requires that tenseless statements of the "S obtains at *t*" sort *entail* a disjunctively tensed statement, which Craig seems willing to concede (p. 5).

41. It might be asked what the contradictory of <S does obtain at *t*> is if not <S does not obtain at *t*>. Fair question. Let S be a logically contingent state of affairs, let T be the state of affairs *S's obtaining at* t and let P(T), N(T), and F(T) be past-, present-, and future-tensed propositions <S obtained at *t*>, <S is obtaining at *t*>, and <S will obtain at *t*>, respectively. Finally, let ~T be the state of affairs, S's *not* obtaining at *t*. Then, on the disjunctively tensed analysis we propose, the tenseless proposition <S does obtain at *t*> is equivalent to <P(T) ∨ N(T) ∨ F(T)>. The logical negation of this (after application of De Morgan's

rule) is <~P(T) ∧ ~N(T) ∧ ~F(T)>. In other words, it is not the case that <S does obtain at *t*> iff S's obtaining at *t* neither was, is, nor will be the case. Likewise, the tenseless proposition <S does obtain at *t*> is equivalent to <P(~T) ∨ N(~T) ∨ F(~T)>. Its logical negation is <~P(~T) ∧ ~N(~T) ∧ ~F(~T)>. In other words, it is not the case that <S does not obtain at *t*> iff S's *not* obtaining at *t* neither was, is, nor will be the case. Now, given the incompatibility thesis, ~F(T) is equivalent to <F(~T) ∨ M(T)> and ~F(~T) is equivalent to <F(T) ∨ M(T)>, where M(T) stands for <S *might and might not* obtain at *t*>. Thus, the contradictory of <S does obtain at *t*> is <~P(T) ∧ ~N(T) ∧ [F(~T) ∨ M(T)]>, and the contradictory of <S does not obtain at *t*> is <~P(~T) ∧ ~N(~T) ∧ [F(T) ∨ M(T)]>. Accordingly, both <S does obtain at *t*> and <S does not obtain at *t*> are false, and both of their contradictories true, just in case M(T) is true.