

The Open Future Square of Opposition: a Defense

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Abstract This essay explores the validity of Gregory Boyd’s open theistic account of the nature of the future. In particular, it is an investigation into whether Boyd’s logical square of opposition for future contingents provides a model of reality for free will theists that can preserve both bivalence and a classical conception of omniscience. In what follows, I argue that it can.

Keywords Open theism · Molinism · Gregory Boyd · William Lane Craig · Open future

Introduction

This essay explores the validity of a certain open theistic account of the nature of the future. In particular, it is an investigation into whether the relation between future contingent statements asserting what “will,” “will not,” and what “might and might not” occur, as conceived by open theist Gregory Boyd, provides a model of reality for free will theists that can preserve both bivalence and a classical conception of omniscience. In what follows, I argue that it can. Specifically, I will be defending what I shall call “the open future square of opposition”—i.e., a logical-semantic model of the openness of the future given Boyd’s perspective—from one of open theism’s more vocal rivals, the Molinist philosopher William Lane Craig. I begin by illustrating the open future square of opposition, noting how it is structured and what the significance of the logical relationships between the terms “will,” “will not,” and “might and might not” that make up the square is supposed to be. I then go on to offer three justifications for these logical relationships in the face of Craig’s more recent criticisms.

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The Open Future Square of Opposition

One of the most distinctive features of Boyd's approach to future contingent propositions in recent years has been his understanding of the logical relationship that obtains between statements asserting what "will" ("will not") and what "might" ("might not") occur. The foundation of Boyd's schema is the supposition that propositions such as "x will occur" and "x will not occur" are not actually contradictories but *contraries*. "For the logical contradictory of 'x will occur' is not 'x will not occur,'" Boyd writes, "but rather 'not [x will occur],' which is equivalent to 'x might not occur.' So too, the contradictory of 'x will not occur' is not 'x will occur' but rather 'not [x will not occur],' which is equivalent to 'x might occur.'"¹ Represented on an Aristotelian square of opposition, these relations are laid out on Fig. 1.

On this logical schema—and the rules governing the square on which it is modeled—we have the potential for three, not just two, logically distinct categories of future-oriented statements: "will," "will not," and "might and might not."² Importantly, when describing a future contingent event in terms of what "might and might not" occur, Fig. 1 is meant to model more than just the epistemic state of a finite, limited knower. Rather, it is the open futurist's conviction that these are ontological possibilities, possibilities that, when expressed conjointly, correspond to the "open" aspect of the future's actual metaphysical structure. As Boyd comments,

According to this [openness] model, if an agent possesses the free will to choose between alternate possibilities, then what is real, prior to the agent's choice, are the alternate possibilities...In contrast to the classical view that assumed the future could be exhaustively described by propositions asserting what *will* or *will not* come to pass, the open view holds that, insofar as agents face ontological possibilities, the future must be described by propositions asserting what *might* and *might not* come to pass. (Boyd 2011, pp. 194–195)

In what follows, I will defend the validity of the open future square of opposition on both logical and semantical grounds against some recent critiques put forward by Craig.

Countering Craig

Craig has two general complaints concerning the openness depiction of reality. His first objection is directed at Boyd's notion that, unlike the God of open theism, the God of classical theism knows the future exhaustively in terms of "will/will not" propositions.

¹ Boyd (2011, p. 197); cf. Rhoda et al. (2006) and Boyd (2010). For an early expositor of the sort of logical relations being considered here, see Charles Hartshorne's (1965) and his (1983, p. 45).

² Let "F" stand for the future tense operator "It will be the case that." Let "M" be a propositional operator for "It might and might not be the case that." And, finally, let "S" be some state of affairs. Boyd (using different symbolization) then illustrates, explicitly, what is implied by the logical rules of the square. Namely, that by standing in a contrary relation to one another, all three primitive categories—F(S), F(¬S), and M(S)—exhaust the field of potential future states. Thus, one must be true and the other two false $\{ (S) [F(S) \ F(¬S) \ M(S)] \}$. From this, Boyd (2010, p. 53) derives the following three theorems: (i) $F(S) \equiv \neg F(¬S)$ and $\neg M(S)$; (ii) $F(¬S) \equiv \neg F(S)$ and $\neg M(S)$; (iii) $M(S) \equiv \neg F(S)$ and $\neg F(¬S)$.

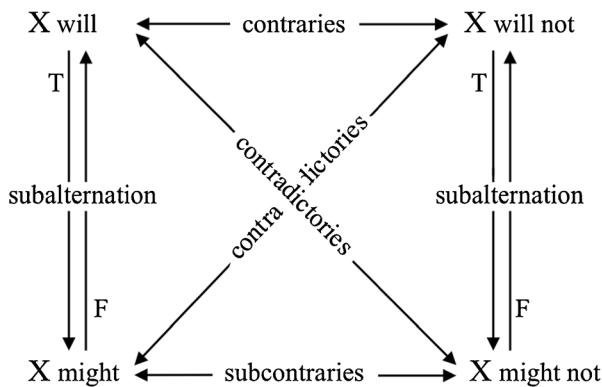


Fig. 1 The openness of the future

According to Craig, such a characterization “creates a false opposition” between openness and classical theisms since:

Classical theists typically embraced a tensed theory of time and causal indeterminism, so...they agreed that agents face ontological possibilities and that there are true propositions about what they might or might not do in a causal sense. But they also affirmed that future-tense statements about what will or will not happen are bivalent, that is to say, either true or false; for example, ‘Tomorrow Claudius will go to the senate.’ There is no contradiction whatever in making true, future-tense statements about the occurrence of causally indeterminate events...we may agree with Boyd that God knows the future as partly comprised of ontological possibilities and, hence, knows the truth-values of ‘might’ as well as ‘will’ propositions. (Craig 2011, pp. 227–228)

To unpack this, let us start with Craig’s contention that, like the openness God, the God of classical theism—of which Molinism³ is a part—does indeed know “might” as well as “will” propositions. As we will see in a moment, this is true when understood in a certain way. But, Boyd has a specific difference between open and classical theisms in mind here. The difference is ultimately over the nature and extent of *determinateness* in reality, particularly as that notion applies to the future. In order to see this, note that, on the Molinist picture (allowing circles to represent possible worlds), the logical “moments” at which the various stages of God’s knowledge occur fall in the order that is represented on Fig. 2.

³ Named after the sixteenth-century Spanish Jesuit theologian, Luis de Molina (1535–1600). Molina’s theory was that, in addition to God’s natural knowledge of everything that *could* be, and his free knowledge of all contingent truths that *will* be, God possesses “middle knowledge”—i.e., hypothetical knowledge of what, if he were to actualize a particular world, *would* be. On this picture, such knowledge is thought to be pre-volitional since, like God’s natural knowledge, it occurs logically prior to his decision to create. But unlike his natural knowledge, which includes within its scope all *necessary* truths, the content of God’s middle knowledge is *contingent*. Indeed, it was the great theological innovation of Molina to locate facts about what creatures would freely do in any circumstance—so-called *counterfactuals of creaturely freedom*—among the set of contingent truths that combine to comprise God’s middle knowledge. Though he has no control over what counterfactual conditionals are true, the idea was that, by conceiving of God’s hypothetical knowledge of creaturely free decisions as being explanatorily *prior* to his creative decree, God would be in a position to plan and thereby meticulously govern a world that is, nevertheless, populated by libertarian free agents. For an illustration of the basic idea sketched above, see the figure below.

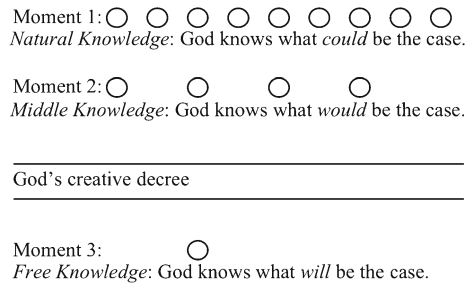


Fig. 2 Illustration of the basic idea

In order for God to exercise the kind of providential control over what will and will not come to pass that Molinists think he does, it is crucial that God's creative decree be based on his *positive* knowledge of what creatures would freely do in any circumstance they might be placed. That is, for any type of world that God might create, he would at least need to know all of the true counterfactuals of creaturely freedom that make up that world. But according to Molinism, this alone is not quite enough to get the job done. After all, just knowing which counterfactuals are true in a given world is not enough to guarantee that God have positive knowledge of what his creatures *would* do. For, as Thomas Flint (1998, p. 48) points out, it is possible that certain world types only contain negations of counterfactuals. Hence in order to ensure that God knows what the Molinist thinks he must know for his providential governance, Flint (Ibid.) proposes that divine middle knowledge pertains to *creaturely world-types*, i.e., possible worlds in which for any possible agent *S* and circumstance *C* that God might choose to instantiate, God knows that were *S* in *C*, *S* would either freely do act *A* or *S* would freely do not-*A*. Moreover, God has similar counterfactual knowledge concerning all other classes of events.

Thus, whereas the Molinist has always held that:

(1) for any *x*, if it is the case that *x*, then it has always been the case that it would be the case that *x*,

and therefore

(2) for any *x*, if it is the case that *x*, God has always known that it would be the case that *x*,

open future views deny one or both of the above.

This helps us to see the first of two important in-house distinctions between open theists. The first distinction has to do with omniscience. For instance, although all open theists deny (2), some will still accept (1).⁴ These open theists, however, have a difficult time rebutting a common accusation against the open view, namely that the God of open theism is not truly omniscient.⁵ Traditionally, to think of God as omniscient is to

⁴ For example, Richard Swinburne (1993, p. 180) and William Hasker (1989, p. 187).

⁵ For one token of this type of charge, see Bruce A. Ware (2000, p. 32).

think (roughly) that God knows only and all truths. But anyone who denies (2) while, at the same time, admitting to (1) would be calling this conception of God's knowledge into question. For on this revised understanding of omniscience, there would at any given time be truths that God *did not* know.

But although the complaint that God is not omniscient may be applied to *these* open theists, there are many proponents of the open view to which this charge cannot be stuck. These are those open theists who deny (2) and, precisely *because* they believe God knows all truths, deny (1) as well. It is to this school that Boyd belongs, and the reason these open theists reject both (1) and (2) is because of their commitment to the idea that the future is, to use Alan Rhoda's terminology, *alethically open*. Rhoda (2011, p. 74) defines "alethic openness" in the following way.

Alethic Openness of the Future Thesis: The future is alethically open at time t if and only if for some state of affairs x and some future time t^* (i) neither $\langle x \text{ will obtain at } t^* \rangle$ nor $\langle x \text{ will not obtain at } t^* \rangle$ is true at t and (ii) neither of their tense-neutral counterparts, $\langle x \text{ does obtain at } t^* \rangle$ and $\langle x \text{ does not obtain at } t^* \rangle$, is true *simpliciter*.

"Simply put," Rhoda continues, "the future is alethically open just in case there is no 'complete true story' depicting a unique series of events as *the* actual future" (Ibid.).

The idea that the future is alethically open is what lies behind Boyd's conviction that the future is not only *non-determined*, but also that it is not fully *determinate*. Indeed, what the open future square of opposition is meant to show is that such a conception of ontology is in fact logically coherent and, therefore, representative of a possible way God might have decreed the future to be.

With the alethic openness of the future thesis articulated, the contrast between open and classical theisms that Boyd actually had in mind becomes evident. For since Craig and other Molinists take the actual world to be fully determinate or, rather, *alethically closed*,⁶ Boyd's observation that the Molinist God—like the God of classical theism more generally—knows the future exhaustively in terms of what will or will not come to pass seems entirely appropriate.

Of course, in saying that the God of Molinism knows the actual future exhaustively as a realm of "will" and "will not" propositions, Boyd is not suggesting that there are no "might" or "might not" propositions known by God. For when Craig (2011, p. 228) claims that he and other Molinists can "agree with Boyd that God knows the future as partly comprised of ontological possibilities and, hence, knows the truth-values of 'might' as well as 'will' propositions," in one sense, he's affirming a rather obvious truth. For instance, to borrow Craig's example, if it is true that tomorrow Claudius will go to the senate, then it is also true that he *might* go to the senate. Similarly, if it is true that tomorrow Claudius will not go to the senate, then it is true that he *might not* go. In each case, the former truth logically implies the latter (just as Fig. 1 indicates).

What Craig and other classical theists cannot affirm, however, is the *full* range of logical truths allowed by the open future square of opposition. Specifically, the Molinist cannot affirm that an inclusive disjunction such as "might *or* might not," when true in virtue of both

⁶ That is, to be such that, for all possible states of affairs x and all future times t^* , either $\langle x \text{ will obtain at } t^* \rangle$ or $\langle x \text{ will not obtain at } t^* \rangle$ is now true (or alternatively, either $\langle x \text{ does obtain at } t^* \rangle$ or $\langle x \text{ does not obtain at } t^* \rangle$ is true *simpliciter*).

disjuncts being true, actually *negates* both “will” and “will not” propositions. In other words, on the classical picture of reality, the conjoint truth of “might” and “might not” statements does not constitute a logically *distinct* category apart from both “will” and “will not.” But is this not at least logically possible? Craig, as we will see in a moment, seems to think not. And if not, then the openness of the future represented by Fig. 1 could not rise to the status of a metaphysical possibility, an *actual way things might be*. But, as Boyd notes,

the most distinctive aspect of open theism is simply its willingness to question why the reality God created and perfectly knows must, by metaphysical necessity, be exhaustively and eternally settled. Why must there be a determinate fact of the matter about which causally possible future is ‘the’ actual future? By what metaphysical necessity does the perfect nature of God’s knowledge dictate the content of the reality that God creates and perfectly knows? (Boyd 2011, p. 196)

In effect, what Boyd is asking here is this: why think that the future must be alethically closed (i.e., “settled”) rather than open? Here’s Craig’s answer.

He [Boyd] asks, ‘Why must there be a determinate fact of the matter about which causally possible future is ‘the’ actual future?’ Two reasons, I think. First, Scripture gives examples of such truths...Second, the logical principle of bivalence requires that any statement be either true or false. (Craig 2011, p. 228)

It is the second response that I am most interested in here. Curiously, where Craig anchors the (logical) case for an alethically closed future is in the idea that future contingent statements are *bivalent*. Indeed, Craig seems to see this as a real point of contrast between open and classical theisms, going so far as to claim that “*on Boyd’s view, the principle of bivalence must fail for future contingent statements, on pain of denying divine omniscience, resulting in the logical dislocations entailed by such a denial*” (Craig 2011, p. 229, my emphasis). This is Craig’s second complaint against Boyd’s understanding of reality, and if this further objection is right, then open theists like Boyd either have to ditch classical logic or give up on a traditional notion of omniscience. Since neither option is particularly attractive, it is worth exploring in more detail whether, in fact, Craig is right.

Initially at least, there does not appear to be any reason why someone who takes Fig. 1 seriously would need to deny bivalence for future contingents in order to secure an orthodox conception of omniscience. To see why, recall that, according to the open future square of opposition, there are three categories a putatively future event like Claudius’ outing might fall into:

- (3) Claudius will go to the senate.
- (4) Claudius will not go to the senate.
- (5) Claudius might and might not go to the senate.

Note that on this view (5) is *not* equivalent to

- (6) Claudius might or might not go to the senate.

Proposition (6) could be true if either (3) or (4) is true. But on Boyd's proposal, (5) is only true if both (3) and (4) are false.⁷ Neither Boyd nor any other open theist who holds to this framework, then, needs to reject the principle of bivalence since the mere fact that (3) and (4) are bivalent does not imply that one or the other is *true*. "The reason open theists are accused of denying divine omniscience," Craig writes, "is because they deny that God knows future contingent truths, such as truths about what agents will freely do" (Craig 2011, p. 228). By assuming that there *are* future contingent truths about what free agents will do, however, Craig's claim is that either (3) or (4) *is* true, which is to say, not just that they are bivalent but, moreover, that the *law of excluded middle*⁸ holds between these two statements. This further assumption threatens to beg the question against adherents of the open future square of opposition since it requires that (3) and (4) be construed as *contradictory* rather than contrary propositions. In contrast to this, Boyd's claim is that the contradictory of (3) is not (4) but rather

(4*) It is not the case that Claudius will go to the senate.

Now, one might wonder what possible difference this could make. After all, (4) and (4*) look like synonymous propositions. And, in natural language contexts anyway (e.g., everyday speech), we do not generally distinguish between the inner negation of (3), which is (4), and its outer negation, (4*). But three separate lines of reasoning can be mentioned in support of the idea that (4) and (4*) are, in fact, logically distinct propositions.

The first argument is based on their distinct logical forms. To begin, let "F" (read: "It will be the case that") be a future-tense operator on the present-tense proposition "Claudius goes to the senate." Given this notation, the obvious analysis of (3), as Craig agrees (1999, p. 61), is:

(3F) F(Claudius goes to the senate).

What this helps us to see is that the proper negation of (3)—and hence (3F)—is going to depend heavily on paying careful attention to the *scope* of the negation. For instance, if we require (4) to be the negation of (3), that is to say, if we suppose with Craig that (3) and (4) together constitute an instance of $p \vee \neg p$, then, when we go to analyze (4) in terms of the future-tense operator, what we will find is that to accurately express (4)'s form, which contains an internal or *embedded* negation (that is, the negation, expressed by the word "not," falls to the right of the word "will" in the phrase "will not"), the F operator will need to have wide scope over (i.e., will need to be *outside* of or, in other words, to the left of) the present-tense proposition:

(4F) F¬(Claudius goes to the senate).

But now, it is obvious that (4F) is not the negation of (3F). The reason this cannot be the correct negation of (3F) (which is just (3) or, as we have been supposing, p) is because (4F) does not have the proper form; it is not an instance of $\neg p$. To get the right form, the negation must range over the whole proposition p , and so, it is the "¬"

⁷ See note 2.

⁸ This logical law stipulates that for any proposition p , either p is true, or $\neg p$ is true.

operator that needs to have wide scope. So understood, the correct negation of (3) is not (4) but (4*), or

$$(4^*F) \neg F(\text{Claudius goes to the senate})$$

which is of the form $\neg p$, as required. Hence, it is (3F) and (4*F)—and their respective equivalents, (3) and (4*)—which, being the correct contradictory pair, are rightly construed as $p \vee \neg p$.

A second way to see the difference between (4) and (4*) is to note that, besides their distinct logical forms, these propositions can differ in their *meaning* as well. Consider, first, the fact that the “will” in the phrase “it will be the case that” expressed by the F operator can potentially be taken in two ways. On one reading, “will” is meant to be understood as having causal force, i.e., “it is now *definitely* going to come about that *x*.” This, as J. R. Lucas (1989, p. 25) mentions, is what is sometimes called the *posterior present tense* reading of “will.” As Dale Tuggy explains, “F[x],” so defined, “makes an assertion about the future *and* the present. It asserts that [x] happens down the line, and also, the present is such that this will definitely happen; the objective probability of [x] happening at some future time or other is presently (and at all future times) 1” (Tuggy 2007, p. 36, my emphasis).

Now, this was apparently Arthur Prior’s (and, before him, Charles Hartshorne’s) preferred analysis of the future-tense operator in question, and it is easy to see how (4F) and (4*F), when taken in this posterior present sense, assert very different things. For example, on this reading, a proposition like (3F) says that “As of now, Claudius will (definitely) go to the senate” or, in other words, *in all causally possible futures* Claudius goes to the senate. To say that this is untrue, however, is not to say that Claudius definitely *won’t* go to the senate. That is, from the falsity of (3F) it doesn’t follow that there are *no* causally possible futures where Claudius goes to the senate. If Claudius’ outing is a *contingent* event, then there are some possible futures where he does and some where he does not.⁹ That there are some causally possible futures where Claudius does not go to the senate, or that Claudius *might not* go to the senate, is what (4*F) asserts. (4F), on the other hand, is claiming something stronger; it states that it is now *inevitable* that Claudius will not go to the senate—or, that there are *no causally possible futures* where he does. So, given the posterior present reading of F, (4F), and (4*F)—and, thus, (4) and (4*)—can be seen to have different truth conditions, which means they are not, strictly speaking, logically equivalent statements.

Unfortunately, despite the ease with which the posterior present tense reading of “F” allows us to demonstrate a distinction between propositions like (4) and (4*), it is not an interpretation that is likely to be met with wide acceptance. For this sort of causally loaded or “now-inevitable” interpretation is not the only reading “will” admits of. There is also what we might call a merely predictive usage of “It will be the case that,” one whereby we simply mean to make an assertion that is *purely* about the future. This is what Lucas (following Hans Reichenbach) calls the *simple future tense* interpretation of “will,” and he contrasts it with the posterior present tense reading of the same in the

⁹ As Hartshorne (1965, p. 49) explains, “‘It is untrue that he wills or intends to do it’ fails to imply ‘he wills not to do it,’ for he may be irresolute or neutral as to the deed. If we abstract from this volitional tinge, we have in this third case simply that he may or may not do it. The outcome has yet to be ‘decided.’”

following way. The simple future of “There will be a sea battle tomorrow,” he would say, speaks *only* about tomorrow—that it is a sea-battle day—whereas the posterior present says something about today too, that it is a day-before-a-sea-battle-day (Lucas 1989, p. 25). Thus, given these distinctions, the assertion that Claudius will go to the senate can be understood as “At some future time or other, Claudius goes to the senate” (simple future tense) or as “As of now, Claudius will (definitely) go to the senate” (posterior present tense).¹⁰ The distinction is an important one, says Tuggy, since:

We can and do make assertions purely about the future which are neutral as to whether or not the named event is presently inevitable. Suppose a pundit predicts: ‘Hillary Clinton will be elected U.S. president in [2016],’ and that this is something that at the time of the prediction may or may not happen. We must get beyond what the pundit says to discover what she means, what she’s asserting. Is she asserting that Hillary’s election is now inevitable, that is, definitely going-to-be? She may be. If so, what she asserts is false...But she may not be asserting that. She may be assuming that the current probability of Hillary’s election is somewhat or very high. The one thing she can’t be presupposing (if her thoughts are consistent) is that its probability is now 0. And quite possibly, she’s never even considered the question of how probable Hillary’s future election is. But whatever her stance on the objective probability of Hillary’s election presently is, the pundit may simply be forecasting that eventually, Hillary’s election will happen. In this case, her statement is about some future time, and is *not* also about the present. In this way she can consistently say both ‘Hillary will be elected in [2016]’ and ‘As of now, Hillary’s election in [2016] may or may not occur.’ (Tuggy 2007, pp. 36–37)

From this, Tuggy concludes that:

The failure to distinguish between the simple and posterior present manifests in persistent confusion that $\neg F[x]$ and $F\neg[x]$ make the same assertion. If we read ‘F’ as simple future, these are logically equivalent. But reading the ‘F’ as posterior present, it is clear that they mean different things. (Ibid., p. 37)

According to Tuggy, then, unlike its posterior present interpretation, if we read “F” as simple future, (4F) and (4*F) are logically equivalent (as are (4) and (4*)). And, this means that, when taken in this (simple future) sense—a sense that we seem to use quite often—(3F) and (4F) would be contradictories. Moreover, this appears to be Craig’s interpretation of them as well. “Here,” Craig tells us, “there are no gaps in the facts, for the statements assert *merely that at some future time* [Claudius’ going or not going] will be the case” (Craig 1999, p. 62, my emphasis). If this is right, then there would appear to be many occasions when the open future square *does* represent a false opposition. For on the non-causal, merely predictive usage of “will,” future contingent statements like (3F) and (4F)—and therefore (3) and (4)—would, contrary to Fig. 1, turn out to be the correct instance of $p \vee \neg p$ after all.

¹⁰ The wording here is Tuggy’s (2007, p. 37); I have simply swapped his original example for the Claudius one.

This helps us understand why Craig would think that, “on Boyd’s view, the principle of bivalence must fail for future contingent statements, on pain of denying divine omniscience” (Craig 2011, p. 229). Tuggy, who is an open theist himself, is a case in point. Like Boyd, Tuggy holds that the future is alethically open. This allows him to say that, despite being epistemically open for God (as all open theists believe),¹¹ the future is nevertheless perfectly known by God since there are no truths that God does not know. But, he also agrees with Craig that (3) and (4) are, on many occasions, an instance of $p \vee \neg p$. Therefore, in order for Tuggy to generate an alethically open future (and hence preserve an orthodox notion of omniscience), he has to deny bivalence (or the law of excluded middle). So, Tuggy ditches bivalence for simple future tense propositions, thereby succumbing to, as Craig puts it, all the “logical dislocations entailed by such a denial.”¹² And he thinks Boyd must do the same.¹³ Here, we see Tuggy directing a little friendly fire at those open theists who, like Boyd, would like to hold on to both alethic openness *and* classical logic:

The importance of this distinction is that when it comes to statements about future contingents in the posterior present tense, there is no need to deny bivalence, as all such claims are presently true or false, as Boyd and Prior argue. However...we know that as of now, when p is a future contingent, reality doesn’t presently feature p happening or not happening in the future. Hence, both ‘it will be that p’ and ‘it will be that $\neg p$ ’ (simple future tense) are presently neither true nor false. (Tuggy 2007, p. 37)

So perhaps the Boyd *is* caught in the dilemma Craig mentions. Given a plausible reading of “It will be the case that,” future contingents like (3) and (4) end up looking like a contradictory pair. But open futurists like Boyd deny that God knows these sorts of future-oriented statements. So, “on pain of denying divine omniscience,” open theists must forfeit classical logic. Have the hopes for retaining both bivalence and omniscience on Boyd’s view, then, been sunk?

Not quite. Here is what an open theist such as Boyd could do to evade the dilemma: show that (4F) and (4*F)—even on a simple future tense reading—*still* are not logically equivalent statements. The question, then, is whether this can be shown. I submit that it can. To this end then, first recall that, when analyzed in terms of the future tense operator, Craig agrees that (3) should be read as follows:

(3F) It will be the case that Claudius goes to the senate.

Moreover, the proper negation of (3F), according to Craig, is simply

(4F) It will not be the case that Claudius goes to the senate

¹¹ According to Rhoda (2011, p. 75) the future is *epistemically open* at time t if and only if for some state of affairs x and some future time t^* neither $\langle x$ will obtain at $t^* \rangle$ nor $\langle x$ will not obtain at $t^* \rangle$ (nor their tense-neutral counterparts) is infallibly known either (i) at t or (ii) timelessly.

¹² You can find Craig rehearsing some of these logical dislocations with respect to Tuggy’s denial in Craig and David P. Hunt (2013, p. 51, n. 5).

¹³ There was a time when Boyd *did* deny bivalence for future contingents (see, e.g., (Boyd 2000, pp. 124–125)). But, as I shall argue below, the position he defends now is in no need of such a denial.

for again, as he points out, “Here there are no gaps in the facts, for the statements assert merely that at some future time [Claudius’ going or not going] will be the case.”

But Boyd’s contention is that the proper negation of (3F) is actually

(4*F) It is not the case that [It will be the case that Claudius goes to the senate].

Craig, however, wonders whether such a reinterpretation makes any difference at all. “To say that it is not the case that [Claudius’ going to the senate] will be the case,” he observes, “seems to be the same as saying that [Claudius’ going to the senate] will not be the case” (Craig 1999, p. 62). And, indeed, as we noted earlier, these statements do appear to be close. But appearances can be deceiving. And, as Patrick Todd (2016) has recently argued, in this case, appearances have been deceiving us for quite some time.

In order to see why (4F) and (4*F) are really distinct propositions even on the simple future tense interpretation of “will,” remember that, on this reading, such propositions are supposed to be solely about the future. Thus, for a future contingent statement like (3F) to be true, all that is required is that, in the actual future, Claudius goes to the senate. For as Craig (1999, p. 63) says, “what else does it mean for a future-tense statement to be true than for things to turn out as the statement says they will?” In other words, it would seem that the truth conditions for a simple future tense reading of “It will (will not) be the case that x ,” are being interpreted in the following way:

Simple Future “Will:” It will be the case that x , if and only if the unique actual future features x ,

and

Simple Future “Will Not:” It will not be the case that x , if and only if the unique actual future features not- x .

The important phrase here is “the unique actual future features x (not- x).” How are we to understand the structure of this statement? At this point, Todd draws our attention to a striking parallel between the way we might read this and the way Bertrand Russell, in an old debate with P. F. Strawson, understood the statement “The present King of France is bald.”¹⁴ Russell and Strawson were at one point embroiled over whether bivalence should apply to such a statement. For Strawson, to assert such a thing was to make a sort of category mistake and, therefore, to say something that was neither true nor false. Russell, on the other hand, thought that bivalence applied here. The way he saw it, anyone who sincerely asserted this sentence could only properly be understood to mean the following:

There is a present King of France, and he’s bald.

¹⁴ See mainly Russell (1905, 1957) and Strawson (1950).

And, admittedly, such an interpretation does seem plausible. So, a statement like “The present King of France is bald” was, for Russell, a hidden conjunction, and since its first conjunct is false (there is no present King of France), Russell reasoned that this statement should be regarded as false. Similarly, the statement “The Present King of France is not bald” would also be false.

In the same way, Todd (*Ibid.*, p. 789) suggests that the simple future tensor who claims that her statement is merely “about the future” is, in fact, implicitly quantifying over something that the open future advocate says does not exist—namely, a unique actual future! In other words, the most natural interpretation of the phrase “the unique actual future features x ” seems, like Russell’s reading of the above, to be: *There exists a unique actual future, and that future features x .*¹⁵ So understood, the truth conditions for (3F) and (4F) would be

(3Ftrue) It will be the case that Claudius goes to the senate if, and only if, there exists a unique actual future, and that future features Claudius going to the senate

and

(4Ftrue) It will not be the case that Claudius goes to the senate if, and only if, there exists a unique actual future, and that future does not feature Claudius going to the senate.

As with the present King of France example, this also seems like a reasonable interpretation of “the unique actual future features x .” Indeed, the idea that the simple future tensor is, in the back of their mind, really thinking that there *exists* a unique actual future “story line” to the world can be seen in the way they tend to view the phenomenon of retrospective prediction. For example, when it comes to our attitudes about future contingent propositions, Edwin Mares and Ken Perszyk point out that:

We argue about such conditionals and even sometimes bet on them. Suppose that two people at the sidelines of the [2016] presidential race—John and Cindy—are betting with each other about what a particular candidate will do. John might bet that [Hillary] will refuse to invite [Lewinsky], and Cindy might bet that [Hillary will invite her]... if Hillary is elected, then if she bars [Lewinsky] from the White House we would count John as *having been right all along*; and if she does not we would count Cindy as having been right.¹⁶

Now, what could account for the fact that whenever John or Cindy’s prediction P about some future event E came to pass one would be tempted to regard them as “having been right all along?” The most plausible explanation, it would seem, is because such a person is imagining P as having been true *prior* to E . But if P was true prior to E , then there was already an actual way things were *going to go* prior to E . So, for instance, even if P were a prediction concerning an

¹⁵ The phrase “the unique actual future” here is merely meant to convey that the future is alethically *closed*—i.e., settled concerning the truth of future indicative (“will” and “will not”) propositions.

¹⁶ Mares and Perszyk (2011, p. 106). I’ve here updated the original example.

indeterministic event, then, according to this way of thinking, among the myriad of causally possible paths the future *could* take, there would presumably have to be one that had nevertheless always *obtained*. Thus, if Cindy loses her bet with John and, as a result, pays up on account of her belief that he was “right all along,” the underlying assumption being made with respect to John’s prediction is that he was right *in the past* (and was right *all along* thereafter) about the actual way things were to eventually go. By parity of reasoning, Cindy’s prediction was wrong *in the past* (and was wrong *all along* thereafter). In other words, by admitting that John’s prediction was right all along, Cindy seems to be conceding in hindsight that the path history would take—the path that featured the outcome of John’s prediction rather than Cindy’s—already existed as a part of the world’s storyline *when their predictions were made*.¹⁷

And now, we are finally in a position to see why (4F) and (4*F) can, even on a simple future reading, be regarded as distinct propositions. Given the truth conditions for simple future statements outlined above, unlike (4*F), in order for (4F) to be true, there would need to *be* a unique actual future, i.e., a “complete true story” about the way things will or will not go. But (4*F) could be true even if there is not such a thing or, for that matter, even if there never were (and perhaps never will be) anyone named Claudius. Therefore, even on a simple future tense interpretation, (4F) and (4*F) can plausibly be seen to have different truth conditions, which means that it is (3F) and (4*F)—and thus, ultimately, (3) and (4*)—which are the correct contradictory pair. So, just as the open future square of opposition would suggest, open theists like Boyd can have their bivalence and omniscience too.

Craig, however, is not unaware of this sort of move. To those who would appeal to reference failure in order to establish the falsity (and hence the contrariety) of will and will not propositions, Craig, employing the statement “William Willis will be president in 2050” as an example, thinks one can respond in either of two ways:

(A) Before creating the world, God knew all the logically possible worlds he could create, populated by all the logically possible individuals he could create. William Willis is a member of some of those possible worlds, and in some of them he is president in 2050. *Since God knows which world he has created, he knows whether or not the actual world is a world in which Willis will be president.* Hence, individuals who do not yet exist can be identified on the basis of God’s knowing all logically possible worlds, all logically possible individuals, and the world and individuals he has chosen to create.

¹⁷ In contrast, the alethic open futurist denies that there exists, at any given time, a unique future history to the world. So, propositions like (3F) and (4F)—and therefore (3) and (4)—simply come out false at the time they are expressed. Of course, this does not mean that the alethic open futurist cannot make future predictions or even bet on them. If the future is alethically open, then future indicative statements about what will or will not occur are really predictive assertions about the present state of the world’s future *development*. In other words, to speak in this way is to assert that the present state of the world develops in such-and-such a way at some future time. Thus, according to the open futurist, those who win bets do not do so because their predictive assertions were *always* true, i.e., “right all along;” instead, people win bets because it was their prediction that *became* true.

(B) We can...conceive of the present as branching off into various directions, each representing a different possible future course of events. By providing complete and accurate descriptions in terms of genealogy, place, time, and so forth, we can pick out possible individuals on particular branches. *Of course, we do not know which branch represents the actual future*, but that does not stop us from referring to nonexistent individuals and making statements about them. *Hence, a statement about William Willis...can be true and will be true if the branch we have in mind should turn out to be the actual future.* (Craig 1999, pp. 62–63, all emphases mine)

But here, it is obvious that, in each case, Craig has simply begged the question against the open future square of opposition. In response (A), Craig simply assumes that a possible world has to be alethically closed. But the whole point of Fig. 1 is to illustrate the logical possibility that a world could be alethically *open*. True, such a world would not qualify as a “maximal possible state of affairs,” and so, by Alvin Plantinga’s (1974, p. 45) definition at least, would not enjoy the distinction of being called a “possible world” *per se*.¹⁸ But the fact that the open future square of opposition represents a logically coherent scenario means that such a definition cannot be applicable to all possible world types. Some worlds are not “fully complete” in terms of what will or will not come to pass.

When we come to Craig’s second response, we see a similar deficiency at work. For here, he directly appeals to the existence of a unique “actual future” branch among all the other causally possible future branches. But, again, this would require the future to be alethically closed rather than open.

Conclusion

Here, in sum, is the situation. By conceiving of “will” and “will not” as contraries rather than contradictories, the open future square of opposition is a logical-semantic model for the alethic openness of the future. When Boyd asked why such a picture could not be representative of the way things really are, Craig’s answer was that, since the principle of bivalence holds for future contingent propositions, the future must be alethically closed. But bivalence would only entail a settled future if “will” and “will not” were a contradictory pair, which the open future square explicitly rejects. Three arguments were then given in support of the idea that these are *not* a contradictory pair, the last of which Craig has tried to refute by appealing, twice, to the reality of an alethically closed future—but that is just what he is trying to prove.

I conclude therefore that the open future square of opposition represents a genuine way the future might be. A way that, if true, would allow an open theist to maintain both a traditional sense of omniscience and a classical conception of logic. Whether such a depiction of reality *is* true, of course, is another question entirely.

¹⁸ Rather, we might call it a possible *world-type*.

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