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The Fourfold Openness of the Future

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Open theists are theists of a "broadly classical" sort.[1] But why the qualifier? What puts the "open" in open theism? The answer to that question has two sides to it. One concerns the openness *of the future*, meaning, roughly, that the shape of things to come is not fully given in advance. Instead, things are progressively "taking shape" as events unfold, as choices are made, as contingencies become resolved one way or the other.[2] The other side has to do with the openness *of God*,[3] who, according to open theists, freely enters into dynamic, ongoing, two-way relations with his creation. As open theists see matters, these two sides to the openness question are intimately related. Having a world with an open future requires a degree of openness in God. As an essentially perfect knower responsible for creating and sustaining an open-ended world, God's knowledge and experience of the world must change to accurately reflect changes in the world. Conversely, God's openness to creation, particularly his openness to developing loving relationships with his creatures, requires an open future in which their free contributions help to determine the shape of things to come.

The foregoing sketch of open theism is, admittedly, quite rough. No doubt there are many non-open theists who, with suitable qualifications, could endorse most or all of it. To refine the sketch, and to make more precise the issues that divide open and non-open theists, I think it is most helpful to focus on the openness of the future. There are several different senses in which

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[1] In Rhoda (2007) I define "broadly classical theism" as the view that God is a personal being who exists necessarily, who possesses a maximal set of compossible great-making properties, including maximal power, knowledge, and goodness, and who created the world *ex nihilo* and can unilaterally intervene in it as he pleases.
[2] Right now I'm just
[3] This concern is reflected in the title of the book that gave the open theism movement its name, viz., "The Openness of God" (Pinnock *et al.* (2004)).

the future may be thought of as "open" that need to be carefully distinguished. In this paper I identify four types of future openness: *causal*, *ontic*, *alethic*, and *epistemic*. After defining these, I argue that they are connected in important ways. Working from premises that many if not most *non-open* theists accept, I argue for a series of 'symmetry principles', according to which two or more of the four senses of openness stand or fall together. Using those principles, I give reasons for thinking that *if* the future is causally open, then it is open in *all four* senses. I close by highlighting the ramifications my argument for both open and non-open theists. For one thing, if I'm right, then open theism may be the *only* viable position for free will theists (i.e., theists who believe in creaturely libertarian freedom) to take. For another, I will suggest that one major version of open theism[4] is untenable.

Four Senses of Openness Defined

I begin by clarifying some of the terms that I'm going to use in my definitions and arguments. First, by a 'state of affairs' I mean *a concurrent arrangement of concrete particulars*. The word 'concurrent' is essential for me because I need to be able to speak about states of affairs obtaining *at a time*. As for 'concrete particulars' I mean to stay neutral as to whether these are enduring substances, perduring substances, bundles of tropes, Whiteheadian 'actual entities', or something else. What is important for my purposes is that states of affairs be able to serve as truthmakers, be able to obtain at a time, and be able to possess causal powers and/or stand in causal relations.

Second, by a 'proposition' I mean an abstract or conceptual representation of a state of affairs. A proposition is *true* if and only if a state of affairs corresponding to the represented state of affairs obtains. Thus, the proposition expressed by the sentence token "My daughter Janelle is

[4] For a description of three different versions of open theism, see Rhoda (2008).

hungry" represents Janelle, my daughter, as being hungry and it is true if and only if a state of affairs that includes her being hungry obtains.

Third, I speak of states of affairs obtaining 'at a time', as well as of propositions being true 'at a time'. This needs both defense and clarification. As for defense, some contemporary philosophers reject the notion of a proposition's being true at a time, claiming to find the idea unintelligible.[5] Such worries are misplaced, in my opinion. The standard examples used to question the notion of truth at a time come from mathematics, where the worry, for example, is that to say that 2+2=4 is true *now* falsely implies that it might have *failed* to be true at some other time. But there is no such implication. That 2+2=4 is true *now* is fully compatible with its being a necessary truth. Intuitions to the contrary stem from a failure to distinguish logical implication from conversational implicature.[6] Furthermore, refusal to admit the notion of truth at a time becomes decidedly awkward when we face questions like "Will it be the case *tomorrow* that 2+2=4?" The question is not incoherent—imagine, if you wish, that it is asked by a child who hasn't yet *realized* that 2+2=4 is a necessary truth. The obvious answer to the question is "of course." But how can one sensibly affirm that it will be *the case* tomorrow that 2+2=4 while denying that it will be *true* tomorrow that 2+2=4? Finally, the notion of truth at a time is harmless provided we can find a way to translate from truth *at a time* to truth *simpliciter*, and that's not a problem.[7]

Turning to the issue of clarification, it is important to observe that the word "time" in 'truth at a time' and 'obtains at a time' is to be understood in an *absolute* sense, not in the

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[5] For example, van Inwagen (1983: 34–43).

[6] See the classic essay "Logic and Conversation" in Grice (1989). To answer the question "Is 2+2=4?" with "It is true *now*" does misleadingly suggest that it might have failed to be true at some other time, but this suggestion is merely 'implicated' by the conversation context. It is not logically implied by the response.

[7] Various philosophers will effect this translation differently. For example, if presentism is right, then only what is true *now* is true *simpliciter*. Alternatively, if truth is temporally invariant, then whatever is true *at any time* is true *at all times*, in which case truth at a time reduces to truth *simpliciter*. Finally, if truth is timeless, then a tensed proposition is true at a time just in case a proposition expressing its tenseless truth conditions is true *simpliciter*.

relativistic sense introduced by Einstein's special theory of relativity (STR). STR defines 'simultaneity' in terms of the experimental possibility of synchronizing clocks by light signals. Due to the finite speed of light, what events count as 'simultaneous' varies from one reference frame to another. Hence, it is sometimes claimed that STR has shown that there is no such thing as absolute time.[8] But, as has been extensively documented,[9] Einstein's definitions of 'simultaneity' and of 'time' are fundamentally epistemological. He held for broadly verificationist reasons that if we can't *experimentally identify* absolute simultaneity relations then such relations are physically dispensable.[10] That may work fine for physics, but it won't work for philosophical theology, where the idea of a sempiternal God must be taken seriously.[11] On such an account, God is immediately, and thus, in an absolute sense, simultaneously present to all of reality. Clearly, the finite speed of light, which creates relativistic issues for us, cannot be an issue for God so conceived. Hence, if, as open theism requires, divine timelessness is false and God experiences succession, then from God's perspective there is a succession of moments in absolute time.

Fourth, by a 'world state' I mean an all-inclusive state of affairs, the totality of what obtains *at a given time* from an absolute or "God's eye" perspective. A world state, I must stress, is not a 'possible world', as most philosophers understand that term. Possible worlds are proposition-like abstract entities. World states, and states of affairs generally, are concrete. History, I take it, has been a continuous succession of world states beginning, if there was a beginning, with an initial world state consisting of God and God alone *sans* creation.

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[8] The classic expression of this argument is Hilary Putnam, "Time and Physical Geometry," in Putnam (1975). For an extended response, see Craig (2001a).
[9] See, for example, Craig (2000a) and (2001a).
[10] Verificationism is widely regarded as self-refuting. Regardless, it should be clear that the inference from the epistemological claim that "we cannot experimentally identify absolute simultaneity relations" to the metaphysical claim that "there are no absolute simultaneity relations" is a *non sequitur*.
[11] Sophisticated recent defenses of divine sempiternality include Craig (2001b) and DeWeese (2004).

Finally, in some of my definitions I'm going to employ locutions like "for some state of affairs X and some future time *t**" in which I quantify over possible states of affairs and future times. This is for ease of communication, and is not meant to imply commitment to the existence of such entities. If we wish, such locutions can be paraphrased into talk of propositions representing matters *as if* a certain state of affairs obtained at a future time.

These clarifications in place, I now define four different senses in which the future may be conceived of as "open." After each, I'll make a few comments to clarify what I have in mind. First, the future may be *causally* open:

> The future is *causally open* at time *t* if and only if for some state of affairs X and some future time *t**, the world state at *t* neither guarantees nor precludes X's obtaining at *t**.

"Guarantees" and "precludes" here have the sense of rendering *inevitable* the obtaining or the non-obtaining of X at *t**, respectively. To put the same idea another way, if we understand "might" in "X might obtain" in the non-epistemic sense of causal possibility, then we can say that the future is causally open at *t* with respect to X's obtaining at *t** if and only if it is, as of *t*, both the case that X *might* obtain at *t** and the case that X *might not* obtain at *t**. In these terms, the future is causally open at *t* in that respect if and only if both "X might obtain at *t**" and "X might not obtain at *t**" are true at *t*. Equivalently, and much more simply, we can say that X's obtaining at *t** is a *future contingent* with respect to the world state at *t*.

Second, the future may be *ontically* open:

> The future is *ontically open* at time *t* if and only if the world state at *t* does *not* stand in an 'earlier than' relation to a unique and complete sequence of subsequent world states.

This definition is meant to imply a dynamic theory of time while restricting the range of such theories to those that either deny the existence of future world states altogether or that deny that there is a unique and complete sequence of future world states that is *the* actual future. One view that denies the existence of future world states is 'presentism'. According to presentism, there is only one world state, the present one. Past world states no longer exist. Future ones do not yet exist. The present world state, in virtue of its intrinsic dynamism, evolves (or morphs, if you prefer) into a new world state that replaces it. Another view that eschews future world states is the 'growing block' view. According to this position, the present world state is the leading edge of a sequence of world states stretching back into the past. All past and present world states (tenselessly) exist. They are not replaced, as on the presentist view, but are succeeded as new world states come into being. Another model that entails ontic openness is Storrs McCall's branch attrition model[12] according to which all of the many causally possible future world states (tenselessly) exist. Accordingly, for him there is no *unique* sequence of future world states. Regarding completeness, to my knowledge no one has seriously proposed that some but not all future world states (tenselessly) obtain. And, frankly, it's hard to see what could plausibly motivate such a view. It would face all of the standard objections to dynamic theories of time without any of the standard advantages,[13] and it would create new problems to boot—Why do

[12] McCall (1996).

[13] Standard objections to dynamic models include those stemming from McTaggart's paradox and from the special theory of relativity. Standard arguments for dynamic models appeal to their better fit with our psychological experience of time and with a realist understanding of causality. For a helpful discussion of these and related issues issues, I recommend DeWeese (2004: ch. 2).

only some future states of affairs exist? Why these and not others?—For these reasons I'm going to stipulate a *no partial futures* (NPF) thesis: It is not possibly the case that some but not all future world states (tenselessly) obtain.

Third, the future may be *alethically* open:

> The future is *alethically open* at time *t* if and only if for some state of affairs X and some future time *t** neither "X will obtain at *t**" nor "X will not obtain at *t**" is true at *t*.

There are two ways in which alethic openness can be satisfied. The first involves a denial of bivalence, the principle that every proposition is either true or, if not true, then false. Thus, it has been suggested by some that, if X's obtaining at *t** is a future contingent, then both "X will obtain at *t**" and "X will not obtain at *t**" either have a third indeterminate truth value or have no truth value at all.[14] The second way of satisfying alethic openness retains bivalence by holding that "X will obtain at *t**" and "X will not obtain at *t**" are *contraries*, not contradictories. Accordingly, it is possible that both be *false* just in case both "X might obtain at *t**" and "X might not obtain at *t**" are true.[15] While I favor this second approach,[16] I'm not going to presuppose it in what follows.

Fourth and finally, the future may be *epistemically* open:

> The future is *epistemically open* at time *t* if and only if for some state of affairs X and some future time *t** neither "X will obtain at *t**" nor "X will not obtain at *t**" is infallibly knowable either (i) at *t* or (ii) timelessly.

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[14] See, for example, Jan Łukasiewicz, "Many-Valued Systems of Propositional Logic," in McCall (1967).
[15] Here and throughout, I continue to use "might" and "might not" in a strictly non-epistemic sense.
[16] I defend it in Rhoda, Boyd, and Belt (2006).

This is intended to parallel my definition of alethic openness. Essentially, it says that the future is epistemically open just in case it is alethically open *as far as anyone could possibly infallibly know*. The adverb "infallibly," and clause (ii) at the end, are there to avoid trivialization. It is, after all, boringly obvious that the future is epistemically open to fallible beings like ourselves. Epistemic openness only becomes an interesting and controversial issue when it concerns an essentially perfect (and infallible) knower, like God. As for (ii), a timeless God has no temporal properties and stands in no temporal relations and so cannot know anything *at a time*. Since I'm sure that advocates of divine timelessness don't want to be committed to epistemic openness simply on that account, (ii) adds a necessary restriction.

Of these four senses of openness, causal openness is widely, though not universally, accepted, whereas the other three—ontic, alethic, and epistemic—are all quite controversial. Causal openness is rejected by causal determinists but affirmed by proponents of the 'libertarian' conception of free will, and also by those who think that quantum mechanics reveals the existence of causal indeterminacy in nature.[17] Ontic openness is rejected by philosophers who hold to a static block theory of time, as well as by those who hold to certain versions of the dynamic theory of time, such as the so-called 'moving spotlight' view. It is accepted, however, by both presentists and growing blockers.[18] As for alethic openness, a great many philosophers reject it. Quite a few of them, however, take its falsity for granted and assume without argument that there is such a thing as 'the future' that can be completely described in terms of what either *will* or *will not* obtain.[19] Finally, whether the future is epistemically open is a contested issue

[17] See, for example, Shimony (1988).
[18] For an overview of major views on the metaphysics of time, I recommend the introduction to Bourne (2006).
[19] William Lane Craig, for example, takes the alethic settledness of the future as axiomatic. He writes (Craig 2001b: 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" (emphasis added).

among theists. A growing minority (open theists) say that it is, but many others (theological determinists and non-open free will theists) believe that the future is epistemically settled.

As we can see, there are a number of distinct, yet interrelated debates concerning the openness of the future. I believe that we can make significant headway on some of these debates, and especially on the open theism debate, by identifying interdependencies among the four senses of openness that I have distinguished. To that project I now turn.

Identifying Interdependencies

In what follows, I assume the existence of God.[20] Moreover, I assume that God is an essentially perfect knower, that is, a being who necessarily knows all that can be known as well as it can be known. As such, I take it that God has maximal knowledge in both the propositional sense of infallibly believing all truths that can be known and in the experiential sense of being fully acquainted with all of reality. In sum, I assume that God is essentially as close to being unqualifiedly omniscient as it is possible for a being to be. Theists on all sides of the open theism debate can, I think, agree on that much.

To simplify discussion, I'll use symbols. Bold letters **A**, **C**, **E**, and **O** stand for the alethic, causal, epistemic, and ontic openness of the future, respectively. To represent their denials, according to which the future is *settled* in one of those respects, I'll put a tilde, ~, in front of the letter. Thus, ~**A** (read as 'not-**A**') means that the future is alethically settled. In addition, I use '$\rightarrow$' to symbolize entailment,[21] '$\leftrightarrow$' for two-way entailment, '$\supset$' for the material conditional, '$\equiv$' for material equivalence, '$\vee$' for truth-functional inclusive disjunction, and '$\wedge$' for conjunction. With that, I begin with the most obvious derivations.

[20] Readers who are non-theists can substitute a hypothetical ideal knower for God.
[21] By entailment, I mean strict implication. Thus, $p \rightarrow q$ is equivalent to $\Box(p \supset q)$.

A→**E**: This is clearly a necessary truth. It follows from the platitude that knowledge entails truth (KET). If neither "X will obtain at *t**" nor "X will not obtain at *t**" is true at *t*, then God cannot know either of those propositions at *t*.

E→**C**: This follows from core theistic commitments. Suppose ~**C**. That is, suppose that the future is causally settled. In that case, the present world state determines a unique sequence of future world states. Hence, just like Laplace's demon, a God who was fully acquainted with the present world state could predict with certainty exactly how future history will unfold. It follows that ~**C**→~**E**, which transposes to **E**→**C**.[22]

E→**O**: This also follows from core theistic commitments. According to theism, everything that exists is either an aspect of God's being or a part of God's creation. As an essentially perfect knower, God has perfect self-knowledge. As omnipresent creator and sustainer of everything else, God is fully acquainted with all of creation. Hence, there can be nothing in all of reality that is hidden from God.[23] Now, either there is a unique and complete sequence of future world states or there isn't. If there is, then God is fully acquainted with it, and knows it, in which case the future is not epistemically open. It follows that ~**O**→~**E**, which transposes to **E**→**O**.[24]

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[22] Since I am not presupposing bivalence, one may legitimately wonder whether I am entitled to use transposition, since it is not generally valid for multi-valued logics. In reply I note that a principle that is not generally valid may still be valid for a *restricted class* of propositions. Since it is only propositions that lack truth values, or that have indeterminate truth values, that create problems, transposition remains valid for propositions that are *necessarily bivalent*, and **A**, **C**, **E**, and **O** are all such propositions. Take **A** for example. Either there is some state of affairs X and some future time *t** such that neither "X will obtain at *t**" nor "X will not obtain at *t**" is true at *t* or there isn't. There is no *tertium quid* in this case. (I thank Michael Rea for bringing this issue to my attention.)

[23] Cf. Hebrews 4:13, "Nothing in all creation is hidden from God's sight. Everything is uncovered and laid bare before the eyes of him to whom we must give account" (NIV).

[24] A theist could resist this inference if she allows that there might be future world states subsequent to *t* that are inaccessible to God at *t*. This position requires denying that God's perspective on reality is necessarily identical with the proverbial "God's eye" or absolute perspective on reality. Whether that be tenable, I leave it to the reader to judge. (I thank Joseph Jedwab for suggesting this option to me.)

The foregoing derivations will, I think, be accepted by nearly all theists. From here on things get more controversial, so let's pause for a moment to note some consequences.

First, from **A**→**E** and **E**→**C** it follows that **A**→**C**.

Second, from **A**→**E** and **E**→**O** it follows that **A**→**O**.

Combining these with **A**→**E**, we get the result that **A**→(**C** ∧ **O** ∧ **E**). In other words, if the future is alethically open, then it must be open in all of the other three senses. Let's continue.

E→**A**: This follows if God essentially knows *all* truths,[25] an assumption that all *non-open* theists, and many open theists, will grant. Thus, if the future is alethically settled, then for every possible state of affairs X and every future time *t**, either "X will obtain at *t**" or "X will not obtain at *t**" is true now, at *t*. Hence, if God essentially knows all truths, then the future must be epistemically settled for God. I should note that *some* open theists reject **E**→**A**. According to Richard Swinburne and William Hasker, God is not omniscient in the unqualified sense that he essentially knows all truths, but rather in the qualified sense that he essentially knows *all truths that can be known*,[26] where that is supposed to be a proper subset of *all truths*. For now, let's set this view aside (I'm going to argue against it later). Since non-open theists concede **E**→**A**, let's accept it and see what follows.

We have now derived **E**→**C**, **E**→**O**, and **E**→**A**. Combining these, we get the result that **E**→(**C** ∧ **O** ∧ **A**). In other words, if the future is epistemically open, then it must be open in all of

[25] Strictly, **E**→**A** follows from the weaker assumption that God essentially knows all truths *about the future*. On a separate note, some philosophers believe that first-person truths, such as the one I know when I know "I am Alan Rhoda," are essentially unknowable by anyone else. This position is controversial, but if correct, it affects all theists, and not just open theists. For discussion see Wierenga (1989: ch. 2).

[26] See Swinburne (1993: 180); Hasker (1989: 187); Hasker (2001: 110–111).

the other three senses. In addition, combining **E**→**A** and **A**→**E**, gives us an important symmetry principle:

> **A**↔**E**: (*AE symmetry*) Necessarily, the future is alethically open (settled) if and only if it is epistemically open (settled).

Now let's shift our focus to ontic and causal openness. We'll start with **O**→**E** and **O**→**A**. Both of these, it turns out, are *false* unless **C** is necessarily true.[27] As already noted, if the future were causally settled, then a God who was fully acquainted with the present world state could predict with certainty a unique and complete sequence of future world states, in which case the future would not be epistemically open. It follows that (**O** ∧ ~**C**)→~**E**. From **A**→**E**, it also follows that (**O** ∧ ~**C**)→~**A**. Now, nearly all theists have wanted to say that **C**, if true, is only *contingently* true.[28] Since it seems to me that that is the right thing to say, I will not try to defend either **O**→**E** or **O**→**A**. Instead, I will argue for the weaker (**O** ∧ **C**)→**E** and (**O** ∧ **C**)→**A**.

My argument requires the assumption that *truth supervenes on being* (TSB). According to TSB, every difference in truth corresponds to a difference in being, such that if anything that is true had not been true, then there would have been a corresponding difference in reality.[29] In other words, reality must be such as to discriminate propositions that are true from those that

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[27] **O**→**C** is trivially true if **C** is necessarily true, but almost certainly false otherwise. Most theories of time that affirm an ontically open future, such as presentism and the growing block theory, are compatible with a causally settled future. I will therefore set **O**→**C** aside.

[28] Process theists are the main exception. In distinction from more classical forms of theism, they hold that **C** is necessarily true, and hence that ~**C** is necessarily false. Conversely, some theological determinists hold that **C** is necessarily false. In general, free will theists, including open theists, take **C** to be contingent on the grounds that God could have created a causally settled world, but didn't.

[29] Aquinas argues for the stronger principle that *ens et verum convertuntur*, being and truth are convertible (*Summa Theologiae* 1a.16.3). This entails TSB and adds to it the claim that every difference in being corresponds to a difference in truth. This addition is controversial, particularly if one thinks that truth depends on the existence of minds and that the existence of minds is contingent. If that's right, then presumably it is possible for there to be being without truth (for example, before any sentient life has evolved). That objection, however, is not available to theists who believe in the necessary existence of an essentially omniscient Mind (i.e., God).

aren't. I take TSB to be a necessary truth. It is, I submit, an indispensable assumption for a realist (as opposed to an anti-realist) approach to metaphysics and theology. To deny TSB is to admit that truth can "float free" of being. Some may be comfortable with that idea.[30] I am not.

Now, suppose that future is alethically settled (~**A**), such that for all possible states of affairs X and all future times *t**, either "X will obtain at *t**" or "X will not obtain at *t**" is now true. Form the conjunction Ω of all of those true propositions. Either sufficient metaphysical grounds obtain for the truth of Ω or they do not. If not, then we have a violation of TSB, for reality fails to discriminate between the truth of Ω and contrasting alternatives. If sufficient grounds obtain for the truth of Ω, then either some combination of *non-future* states of affairs constitutes that sufficient ground or it does not. If it does, then the future is causally settled, which violates **C**. For if any possible state of affairs were such that it both 'might' and 'might not' obtain, then the grounds would not yet be *sufficient*, contrary to hypothesis. If, however, sufficient grounds for the truth of Ω are not given by non-future states of affairs, then they must be given by *future* states of affairs (perhaps in conjunction with non-future states of affairs).[31] Given NPF (no partial futures), if some future states of affairs obtain, then all do. Moreover, since this sequence of future states of affairs must discriminate between Ω and contrasting alternatives, it must be unique. We are therefore led to posit a unique and complete sequence of future states of affairs, which violates **O**.[32]

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[30] Molinists may object to TSB because it creates problems for them vis-à-vis the well-known 'grounding objection', but I think the proper response to that is "so much the worse for Molinism." As Graham Oppy (2004: 69) puts it, "The principle that there are no pairs of possible worlds with minimal supervenience bases that differ *only* with respect to the truth-values of counterfactual claims is . . . a pretty secure piece of metaphysical doctrine" (emphasis his), one that is well-motivated independently of issues in philosophical theology.

[31] Craig (2000b: 213–214) tries to skirt the issue by proposing that a contingently true proposition about the future (e.g., "X will obtain") is true not in virtue of what (tenselessly) *exists* at a future time but rather in virtue of what *will exist* at a future time. But this reduces to the options in the text, for "what will exist" either consists of states of affairs that are wholly *non-future* or it includes *future* states of affairs or it consists of no states of affairs at all, in which case TSB has been implicitly denied. See Rhoda, Boyd, and Belt (2006) for further discussion.

[32] A similar argument has been developed by Rea (2006).

So there we have it. If TSB is correct (and it is) then we cannot consistently reject **A** without giving up either **C** or **O**. We have shown, then, that $\sim\mathbf{A}\rightarrow(\sim\mathbf{O}\vee\sim\mathbf{C})$, which is equivalent to $(\mathbf{O}\wedge\mathbf{C})\rightarrow\mathbf{A}$. Combining that with $\mathbf{A}\rightarrow\mathbf{E}$ gives us $(\mathbf{O}\wedge\mathbf{C})\rightarrow\mathbf{E}$.

From here we can derive some useful results. $(\mathbf{O}\wedge\mathbf{C})\rightarrow\mathbf{A}$ is equivalent to $\Box((\mathbf{O}\wedge\mathbf{C})\supset\mathbf{A})$, which is equivalent to $\Box(\mathbf{C}\supset(\mathbf{O}\supset\mathbf{A}))$, which is equivalent to $\mathbf{C}\rightarrow(\mathbf{O}\supset\mathbf{A})$. From that and $\mathbf{A}\rightarrow\mathbf{O}$ we get $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{A})$. A parallel derivation gives us $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{E})$. We thus arrive at a pair of conditional symmetry principles.

> $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{A})$: (*Conditional OA symmetry*) Necessarily, if the future is causally open, then the future is ontically open (settled) if and only if it is also alethically open (settled).
>
> $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{E})$: (*Conditional OE symmetry*) Necessarily, if the future is causally open, then the future is ontically open (settled) if and only if it is also epistemically open (settled).

Finally, if we combine $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{A})$ and $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{E})$, or if we combine either of those with $\mathbf{A}\leftrightarrow\mathbf{E}$, then we can derive another conditional symmetry principle:

> $\mathbf{C}\rightarrow(\mathbf{O}\equiv\mathbf{A}\equiv\mathbf{E})$: (*Conditional OAE symmetry*) Necessarily, if the future is causally open, then it is either ontically, alethically, and epistemically open or ontically, alethically, and epistemically settled.

Because these symmetry principles hold on the condition that **C** is true, they won't impact theological determinists. But freewill theists of all stripes will have to admit them unless they bite a bullet and reject either KET, TSB, NPF, or the idea that God is essentially fully acquainted

with all of reality.[33] Since the first three of those assumptions are highly plausible independently of theism, and the last is highly plausible given theism, it's tough to avoid the conclusion that **C**→(**O**≡**A**≡**E**). And if that's right, then one cannot consistently be a freewill theist *and* affirm either an ontically or alethically open future without also being an open theist. It also means that a successful argument from **C** to *any* of **O**, **A**, or **E** automatically gives us the rest. Accordingly, let's see what we might be able to derive from **C**.[34]

First, however, I need to introduce a distinction between two competing theories regarding the semantics of propositions about the future. The distinction can be appreciated by means of a simple example. Suppose that a fair coin is about to be tossed and that the world, right up until the moment of the toss, is perfectly indeterministic (50–50 odds) with respect to whether the coin lands heads or tails. Call the time at which the coin is flipped F. Suppose further that a few moments later the coin lands heads. Call the time at which the coin lands L. I now pose the question: Was it true *at F* that the coin was going to land heads at L? There are two plausible ways of answering this question.[35] According to the 'Ockhamist' proposal, the proposition "X will obtain at *t**" is true at all times prior to *t** just in case X obtains at *t**. With respect to the coin, therefore, it all depends upon what happens *at L*. Since the coin did land heads at L, it was true at all previous times (and thus at F) that it was going to land heads at L. According to the alternative 'Peircean' proposal, the proposition "'X will obtain at *t**" is true *at t* just in case sufficient grounds obtain *at t* for X's obtaining at *t**. With respect to the coin, therefore, it all

[33] KET grounds the inference from **A**→**E**; TSB and NPF grounds the derivation of **C**→(**O**⊃**A**); and God's being essentially fully acquainted with reality grounds the inference from **E**→**O**. From there we can derive all three of the conditional symmetry principles.

[34] In what follows I am not trying to give airtight arguments to establish that **C** implies **O**, **A**, or **E**. It would take a series of papers to explore those issues in adequate depth. Instead, I am simply pointing out that there are *prima facie* plausible reasons for thinking that **C** implies **O**, **A**, and **E**.

[35] These proposals are distinguished and discussed in Prior (2003), "The Formalities of Omniscience."

depends on what obtains *at F*. Since *ex hypothesi* sufficient grounds were not in place at F for the coin to land heads at L, it was not true then that it was going to land heads at L.

Clearly, **C**→**A** follows immediately *if* the Peircean semantics is correct. Thus, from **C** it follows that there is some state of affairs X and some future time *t** such that X's obtaining at *t** is a future contingent. Hence, sufficient grounds are not *now* in place for either X's obtaining at *t** or X's not obtaining at *t**. Accordingly, by the Peircean semantics, neither "X will obtain at *t**" nor "X will not obtain at *t**" are now true, which entails **A**. Given that semantics, then, **C**→**A**. From that, along with **A**→**C**, **A**→**O**, and **A**→**E** (derived above), we get **C**→(**O** ∧ **A** ∧ **E**): If the future is causally open, then it must be open in all of the other senses.

But are there any reasons for thinking that the Peircean semantics is correct? I think so, and I've developed a line of argument for this elsewhere.[36] Here I'll offer a briefer argument from elimination:

(1) Either the Peircean or the Ockhamist semantics is correct.

(2) The Ockhamist semantics is incorrect.

(3) The Peircean semantics is correct. (from 1 and 2)

Premise (1) is, I think, very plausible. Ockhamism and Peirceanism each have had a long history and many able defenders (though not usually under those labels, of course).[37] Apart from a few

[36] Rhoda (2007).

[37] The Peircean semantic tradition goes back at least as far as Aristotle (*De interpretatione* 9), and was the received view in antiquity. For example, Barnes (2007: 72) notes of a recognizably Peircean semantic proposal that it was accepted "by Plato, by Aristotle, by Epicurus, by the Stoics; and no doubt by everyone else." Two widely recognized modern champions of the Peircean semantics are Prior (2003) and Hartshorne (1965). The Ockhamist tradition, in contrast, is more or less the received among modern philosophers, but was very rare in antiquity. The earliest known precursor seems to have been Carneades (214–129 BC), a head of the skeptical or "new" Academy. See Cicero's *De fato*, 32–33, and Barnes (2007: 27–29, 71–72).

recent attempts to construct a hybrid semantics,[38] I know of no other serious proposals. Sure, one *could* pick a time (or a set of times) distinct from either F or L as the relevant moment of evaluation for determining whether "The coin will land heads at L" is true at F, but why? If anyone thinks there is a defensible alternative, the burden of proof is on them to explain why we should take it seriously.

As for premise (2), I observe that if Ockhamism is correct, then the only way the future can be alethically settled if for it to be ontically settled. In short, ~**A**→~**O**. Why? Because Ockhamist semantics requires that 'will' and 'will not' propositions about future contingents depend for their truth on *future* states of affairs. By NPF (no partial futures), if some future states obtain, then a complete sequence of future states obtains. By TSB, this sequence of future states of affairs must be unique. Hence, given Ockhamism, if ~**A** (there is now a complete, true description of a unique actual future in terms of 'will' and 'will not' propositions) then ~**O** (the future is ontically settled).[39] Now, ~**A**→~**O** entails **O**→**A**, which (by **A**→**E**) entails **O**→**E**. But **O**→**E**, I argued above, is *false* unless **C** is necessarily true. And **C**, I and most theists would maintain, is not a necessary truth. God could have created a fully deterministic world if he had wanted to. If this is right, then Ockhamism is false because it entails something false.

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[38] Sophisticated hybrid positions have been proposed by both J. R. Lucas (1989) and John MacFarlane (2003). One problem with such accounts is that they render the notion of 'truth' systematically ambiguous. Thus, Lucas distinguishes between 'predictive' and 'valedictory' truth. The first behaves in a Peircean manner; the second in an Ockhamist manner. Similarly, MacFarlane relativizes the truth of propositions about the future to the evaluator's temporal standpoint vis-à-vis the putative future event. Prior to the event, truth values are assigned in a Peircean fashion. Afterwards, they are assigned in an Ockhamist fashion. On either proposal, it becomes unclear how to talk about what is true *simpliciter*, and that's what we need to do when dealing with questions concerning *God's* knowledge, which is inherently absolute and non-relative.

[39] A related argument from Ockhamism to ~**O** is developed in Finch and Rea (2008). I should add that William Hasker and I have vigorously disagreed on this issue in correspondence. A self-professed TSB-affirming presentist and semantic Ockhamist, Bill maintains that propositions like "X will obtain at *t**" do not require for their truth the existence of a *future state of affairs* that includes X's obtaining at *t**, but rather the *future existence* of X's obtaining at *t**. I maintain that his position is incompatible with the combination of TSB and presentism. On a presentist metaphysics, future existents have *no metaphysical status* whatsoever, and thus are not available as bases for truths to supervene upon or as relata in a correspondence relation.

If my defenses of premises (1) and (2) have been adequate, then we can reasonably conclude that the Peircean semantics is correct and that **C**→**A**.

Now let's consider **C**→**E**. Obviously, if **C**→**A** is true, then (by **A**→**E**), **C**→**E** is true as well. The question is whether there are any independent arguments for **C**→**E**. Indeed there are. A popular strategy of arguing for the incompatibility of exhaustive divine foreknowledge (which implies ~**E**) and creaturely libertarian freedom (which implies **C**) takes the Ockhamist semantics for granted and tries to show that even on that assumption, incompatibilism follows. Initially this strategy looks doomed to failure, for Ockhamism entails a distinction between 'hard facts' and 'soft facts' that seems to resolve the incompatibilist worry. Roughly, a *soft fact* relative to time *t* is one that is a future contingent relative to the world state at *t* and thus is true at least partly in virtue of states of affairs that are future relative to *t*. Conversely, a *hard fact* relative to time *t* is one that is either not contingent or not even partly about the future relative to the world state at *t*; hence, sufficient grounds for its truth are given by states of affairs that are past, present, or otherwise non-future relative to *t*.[40] This distinction bears on incompatibilism given that past truths about future free choices are soft facts. So if I freely drive to work tomorrow (3/10/2008), then it was a soft fact 200 years ago that I will drive to work on 3/10/2008. Since that fact is past I cannot now change it, but this poses no difficulty for my freedom because the only reason it was a fact at all 200 years ago is because on 3/10/2008 I drive to work. So far so good. Ockhamist semantics clearly reconciles creaturely freedom with *foretruth*. But arguments for the incompatibility of God's *foreknowledge* or *forebelief* and creaturely freedom are not so easily parried. Several authors, notably Nelson Pike and William Hasker, have argued that *God's past*

[40] The hard/soft fact distinction can be tricky to articulate. For a collection of papers discussing Ockhamist responses to incompatibilist arguments see Fischer (1989).

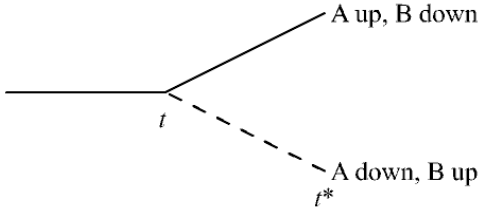
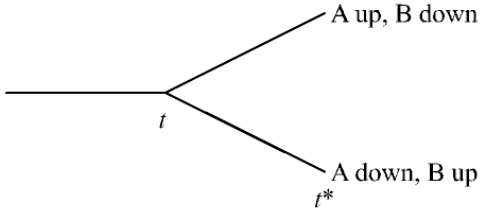
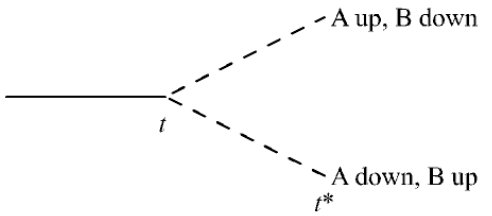
beliefs are hard facts,[41] and if they're right, then **C**→**E** even if the Ockhamist semantics be granted.[42] From there, along with **C**, **E**→**O**, and **E**→**A**, we can again derive **C**→(**O** ∧ **A** ∧ **E**).

Finally, let's consider **C**→**O**. I know no simple and direct arguments for this result that are likely to meet with wide acceptance.[43] Establishing **C**→**O** requires defending a robustly causal theory of time, according to which the flow of time consists in the absolute becoming of new world states as a consequence of previous world states.[44] But while this is quite possibly right, it is far from obvious. After all, it certainly *seems* possible that future states of affairs might exist without that implying determinism. On a Humean conception of causation, for example, earlier world states don't provide sufficient grounds for later world states. Rather, what we call "laws of nature" are simply generalizations over actual events.

What about the weaker **C**⊃**O**? This more defensible result may be obtained from either **C**→**A** and **C**→(**O**≡**A**) or **C**→**E** and **C**→(**O**≡**E**). In addition, there is an independent line of reasoning for **C**⊃**O** that is worth exploring. It is an inductive argument, one that appeals to explanatory considerations to show that **O** is more plausible, given **C**, than is ~**O**. Suppose, then, that **C** is true. To make matters definite, let's consider a setup similar to that in the famous EPR experiment.[45] A source emits at time *t* a pair of electrons, A and B, moving in opposite directions. The electrons are in a state of quantum entanglement, such that a measurement on one of them to determine its spin instantly correlates to an opposite spin on the other electron, regardless of their distance apart. Prior to measurement, the quantum system has two possible outcomes: {(A – spin up, B – spin down), (A – spin down, B – spin up)}, and it cannot be

[41] Pike (1965); Hasker (1989).
[42] Would affirming divine timelessness help? Maybe, but arguably not. As Linda Zagzebski (2002) has pointed out, it is not at all clear that we could now have the power to determine what God timelessly knows.
[43] For one thing, any eternalist who wants to allow for the possibility of a causally open future will reject this.
[44] Tooley (1997) develops a sophisticated version of the growing block theory of time that gives this result.
[45] For a helpful account of the EPR argument, see Fine (2004).

predicted which will obtain. In short, the world state at *t* causally underdetermines which of two possible successor states obtains at *t**. Now, how should we model this situation? There seem to be three possibilities:

I		The future is ontically settled. A unique sequence of future world states exists in which one of the two possible outcomes is realized at *t**. I have arbitrarily chosen the first one.
II		The future is ontically open. Both possible future world states exist; hence, there is no *unique* sequence of world states subsequent to *t*.
III		The future is ontically open. As of *t*, no future world states exist.

Now, it seems to me that, all other things being equal, (III) is clearly the best model. (III) is preferable to (I) because, like (II), it preserves symmetry between the two possible outcomes. The empirical data give us no reason for thinking that either possible outcome is privileged in advance as the 'actual' outcome. Second, (III) is preferable to (I) and (II) for reasons of parsimony. Positing future world states does no explanatory work in this situation because it is only *when the measurement occurs* that the nature of the world state at *t** becomes settled. The direction in which the quantum system collapses is not explained by future world states; rather, it is the collapse of the quantum system that determines which possible future world state becomes actual. I conclude that, in the absence of other considerations favoring ~**O**, **C** gives us a good reason for **O**. Given $\mathbf{C} \supset \mathbf{O}$, along with **C**, $\mathbf{C} \rightarrow (\mathbf{O} \equiv \mathbf{A})$, and $\mathbf{A} \rightarrow \mathbf{E}$, we can derive $\mathbf{C} \supset (\mathbf{O} \wedge \mathbf{A} \wedge \mathbf{E})$.

Recap and Conclusions

Let's review the major results. That knowledge entails truth (KET) gave us **A**→**E**. From the thesis that God is essentially fully acquainted with all of reality, we got **E**→**C** and **E**→**O**. From those and **A**→**E** we derived **A**→**C** and **A**→**O**. The thesis that God essentially knows all truths then gave us **E**→**A**, which allowed us to derive **A**↔**E** (AE symmetry). With the additional assumptions that truth supervenes on being (TSB) and that there can be no partial futures (NPF), we then derived (**O** ∧ **C**)→**A** and (**O** ∧ **C**)→**E**, from which (along with previous results) we derived **C**→(**O**≡**A**) (Conditional OA symmetry), **C**→(**O**≡**E**) (Conditional OE symmetry), and **C**→(**O**≡**A**≡**E**) (Conditional OAE symmetry). Finally, I argued that there is at least a *prima facie* plausible case to be made on behalf of **C**→**A**, **C**→**E**, and **C**⊃**O**. If one of those last three principles is correct, then we can derive **C**→(**O** ∧ **A** ∧ **E**), or at least **C**⊃(**O** ∧ **A** ∧ **E**).

From this we see that there are several routes to open theism, which may be defined minimally as a commitment to theism, **C**, and **E**:[46]

(a) If a theist accepts **C** and **O**, then he is committed to **A** (because of (**O** ∧ **C**)→**A**) and to **E** (because of **A**→**E**).

(b) If a theist accepts **C** and **C**→**A**, then he is committed to **E** (because of **A**→**E**).

(c) If a theist accepts **C** and **C**→**E**, then he is committed to **E**.

(d) If a theist accepts **C** and **C**⊃**O**, then he is committed to both **C** and **O**, and thus to **E** by the same logic as in (a).

(e) If a theist accepts **A**, then he is committed to **E** (because of **A**→**E**) and **C** (because of **A**→**C**).

[46] See Rhoda (2008) for a technical definition of open theism.

(f) If a theist accepts **E**, then he is committed to **C** (because of **E**→**O**).

These entailments can, of course, be blocked if one is prepared to jettison principles like KET, TSB, NPF, God's exhaustive acquaintance with reality, and God's knowledge of all truths. But the first three of those principles have high intuitive plausibility, and the last two would seem to follow from the idea that God is the greatest possible being. *Non-open* theists, therefore, are left with a choice between biting a bullet by denying one or more of those principles and denying **C**, **O**, or both. If all five of those principles be granted, the options are few. Theological determinists deny **C**, but they pay a price for this by setting themselves up for an especially difficult time with the problem of evil.[47] Non-open *free will* theists, on the other hand, are committed to **C**, so we would expect them to deny **O**, as well as **A** and **E**.[48] The tenability of the resulting position {**C**, ~**O**, ~**A**, ~**E**} depends on being able to block any inferences from causal openness to the other three kinds of openness. Interestingly, however, many non-open free will theists affirm *both* **C** and **O**.[49] If my arguments are right, then they *have* to reject either KET, TSB, or NPF. Otherwise, we can use those to derive (**O** ∧ **C**)→**A** and (**O** ∧ **C**)→**E** and generate an inconsistency. For similar reasons, versions of open theism that affirm **C** and **E**, but deny either **A** or **O**, are problematic. Hasker, for example, accepts **C**, **O**, and **E**, but denies **A**. Accordingly, he must deny (**O** ∧ **C**)→**A**, and along with it one or more of KET, TSB, or NPF. In addition, he has to deny that God essentially knows *all* truths (otherwise we could derive **E**→**A** and generate an inconsistency.[50] What Hasker can (and does) say is that God knows all that *can* be known while admitting that there are truths about which future contingents 'will' or 'will not' obtain

[47] See chapter 7 of Hasker (2004) for elaboration on the bearing of theological determinism on the problem of evil.
[48] Given **C**→(**O**≡**A**≡**E**), **C**, and ~**O**, it follows that ~**A** and ~**E**.
[49] See, for example, Craig (2001b) and DeWeese (2004).
[50] Similarly, open theists who deny **O** would have to deny God's exhaustive acquaintance with reality. Otherwise, we could generate an inconsistency from **E**→**O**.

that cannot be known. But in the absence of a compelling account of how there can be truths that are in principle unknowable, even for God, qualifying divine knowledge in this way puts open theists at a polemical disadvantage vis-à-vis their competitors.[51] Besides, it is not at all clear why the qualification is necessary. Whatever reasons we have for thinking that 'will' and 'will not' propositions about future contingents are not knowable are also reasons for thinking that they are *not true* in advance. After all, given **C** and **O**, there is no combination of past, present, or future world states upon which their status as truths could supervene. Recognizing this allows the open theist to restore polemical parity by arguing that it is precisely *because* God believes all and only truths that the future is epistemically open for God. Open theists, then, are much better off if they affirm **A** and **O** in addition to **C** and **E**.

In closing, I would like to comment briefly on the $\mathbf{C} \supset (\mathbf{O} \wedge \mathbf{A} \wedge \mathbf{E})$ thesis. If this is right, as I think it is, then the theist's options are limited to open theism and theological determinism. The first option commits one to the fourfold openness of the future—causal, ontic, alethic, *and* epistemic—and with it a dynamic world of open-ended possibilities in which the shape of things to come is, in some respects at least, yet to be decided. The story is only partially written and it is one to which we, if we have libertarian freedom, have the privilege of contributing a chapter. In contrast, the second option commits one to a future that is settled in *at least* its causal, alethic, and epistemic respects.[52] It may still be ontically open, but not open-ended. In such a world, the shape of things to come is already fully present in its causes. The story is fully written; there remains only to play it out and, hopefully, to enjoy it along the way (if that is part of the script).

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[51] Many popular critics of open theism, like Ware (2000), charge that the God of open theism is not *really* omniscient and is therefore a "diminished God," or not even a God at all.

[52] Given the falsity of Ockhamism and the non-necessity of **C**, there is no entailment from ~**C**, ~**A**, and ~**E** to ~**O**. (And if **C** were necessary it would be a trivial entailment, since a necessary falsehood entails anything and everything.)

Naturally, my sympathies are with the first option (open theism), and with that I commend the fourfold openness of the future to my fellow theists.[53]

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