

Critical Notice of *The Modal Future*

The Modal Future: A Theory of Future-Directed Thought and Talk. By Fabrizio Cariani. (Cambridge: Cambridge University Press, 2021. Pp. xxv + 292.)

At least since Aristotle's famous discussion of the sea-battle tomorrow in *On Interpretation 9*, philosophers have been fascinated by a rich set of interconnected puzzles regarding our thought and talk about the future. Fabrizio Cariani's new book *The Modal Future* is an important contribution to this longstanding discussion, and incorporates insights from a wide array of sources in linguistics, philosophy of language, and metaphysics. The book is at times extremely technically demanding, but the patient reader with broadly non-technical interests can usually make out the basic ideas. In this essay, I stick to decidedly non-technical themes.

First a brief overview. After some preliminaries in Chapters 1 and 2, Chapter 3 articulates the linguistic case for a "modal" view of *will*, Chapter 4 criticizes extant quantificational accounts, and Chapter 5 develops Cariani's "selectional" alternative.¹ Chapters 6, 7, and 8, Cariani says, are the most technical in the book, and address certain problems for the basic view articulated in Chapter 5. Chapter 9 is a reprint of Cariani's paper (in *Ergo*) "On Predicting", and can be read in relative isolation from the rest of the book. Chapter 10 develops the "assertion problem" for views on which future contingents are neither true nor false, and Chapter 11 develops Cariani's preferred version of an "open future" view. Chapter 12 develops some themes about future cognition, and again can be read in relative isolation from the other chapters. Chapter 13 addresses a fascinating puzzle concerning knowledge of the future raised by Dilip Ninan (2022). The central narrative of the book is in Chapters 3, 4, and 5, and then in turn Chapters 10 and 11. These chapters are the focus of this essay.

I. Will as a "modal"

Cariani's hypothesis is that *will* is a "modal" like *may*, *must*, *ought*, and *should* – and so a natural first place to begin is with the question, "what is a modal?" Unfortunately, it isn't easy to say, though Cariani ultimately ends up settling on a semantic understanding whereby modals involve what he calls "worldly displacement" (46). In advancing his case, Cariani relies heavily on data (which I lack the space to review) from Peter Klecha (2014) involving "modal subordination" – but the

¹ The basics of this view were first presented in Cariani and Santorio 2018.

data here strike me as inconclusive.² Ultimately, however, Cariani mounts an impressive cumulative case, and I am happy to grant Cariani the key claim that *will* is a modal.

So *will* is a modal – again, like *may* and *must*. Now, standard lore about modals has it that they have either existential or universal force vis-à-vis some relevant “domain”. For instance, *He may do it* means that there is *some* permissible world in which he does it, whereas *He must do it* means that in *every* permissible world, he does it. Well, what worlds are relevant for *will*? And is *will* an existential or a universal? Cariani’s answer to the latter question: it is neither. And this is where things start getting difficult.

But let’s back up and review Cariani’s case (Ch. 4) against treating *will* as a universal quantifier. Cariani’s chief foil here is the so-called *Peircean* proposal famously defended by A.N. Prior: *will* is a universal quantifier over every historically possible future (roughly, those futures consistent with the past and the laws of nature). Cariani identifies two problems with Peirceanism (which would apply to any universalist proposal with a non-trivial domain; more on this shortly). First, Cariani says, *will* fails to enter into meaningful scopal interactions with negation. As Cariani sees it, (1) and (2) are equivalent in meaning:

- (1) It is not the case that there will be a sea-battle tomorrow.
- (2) It will be tomorrow that there is not a sea-battle.

But if *will* were a universal quantifier, then of course we should expect to hear a key difference between (1) and (2), just as we hear a key difference between *not all are* and *all are not*. Second, as Prior of course recognized, the Peircean proposal ultimately renders *future contingents* – claims to the effect that it will be that *p*, when some but not all of the possible futures are *p* futures – systematically false. But if such claims are (known to be) false, our credence in them must be 0. But it seems strange to have credence 0 in the claim that there will be a sea-battle tomorrow, merely on grounds that it isn’t *determined* that there should be a sea-battle tomorrow. Peirceanism must therefore be rejected. And indeed, its rejection (Ch. 5) points towards the following: in order to ensure that *will* is properly “scopeless” (and credences behave as expected), we must suppose that, of the historically possible futures, there is one such future that is ours: the future marked with what Belnap and Green (1994) called “thin red line” (TRL). And Cariani’s core semantic proposal falls out naturally: *will* does not quantify over a range of futures, but instead

² Cf. Boylan 2023.

“selects” the unique actual future/the thin red line from amongst the historical possibilities.³ (The commitment to the thin red line isn’t always transparent in Chapter 5, but it’s there; more on this below.) Because whichever future is “selected” behaves classically, if it is not the case that that future is a p future (in n units time), it follows that that future is a $\sim p$ future (in n units time). Scopelessness follows straightaway, as does its corollary, the principle of “Will Excluded Middle” (WEM), which states that any claim of the form “Will $A \vee$ Will $\sim A$ ” is a logical truth.

Here we come to my first concern. The arguments Cariani gives against the claim that *will* is a universal quantifier are not really arguments against the claim that *will* is a universal quantifier. Instead, they are arguments against the view that there could ever be more than one world within the *domain* of that quantifier. But these are claims are importantly different. In other words, we can straightforwardly handle the data Cariani adduces here in a universalist framework, given assumptions Cariani is independently perfectly happy to make, viz., that there is always some one future history which is the “thin red line”. The project is the trivial one of defining the modal domain of the quantifier so that, given this assumption, the quantifier only ever returns one single future, viz., the thin red line. This strategy will have the same effect as a “selectional” modal, as far as I can see, and yet we stick with the usual, default quantificational understanding of modals.⁴ This approach perhaps throws up some technical challenges, but these appear to be no greater than those Cariani has already overcome.⁵

We could also put this point as follows. What is the empirical difference between these two views?

View 1: *will* selects the “actual future”/the TRL out of those that are historically possible.

View 2: *will* quantifies over every historically possible future *not ruled out as actual by facts about which future is the actual future*. (i.e. every historically possible future consistent with the facts about which future is the TRL.)

³ Slightly more carefully: *will* selects the actual future, unless it is embedded in certain environments (as in cases of modal subordination). This is important for Cariani’s overall project, but not important for the issues at stake in this brief essay.

⁴ For a very similar (and perhaps the exact same) point, see Willer 2022; unfortunately, I lack the space to draw out this comparison.

⁵ The idea that genuine universal modals can have such domains doesn’t strike me as outlandish; if we became convinced that there is only one permissible world, for instance, presumably this wouldn’t overturn the standard view that deontic *must* is a universal quantifier.

If we assume that there is indeed some one future is that is the actual one, then these views appear to be empirically equivalent – or perhaps “notational variants”. A comparison. Cariani explicitly models his proposal on Stalnaker’s proposal for the conditional. But that proposal, many assume, can be formally stated in terms a universal quantifier over a singleton set. Why not proceed likewise in the case of *will*?⁶

To my mind, the observation that we can state Cariani’s core proposal in terms of a universal quantifier helps to clarify the debate considerably. If we adopt View 2, then we can say (a) that there is a TRL, and so this set is always a singleton set – in which case we preserve scopelessness/Will Excluded Middle (as Cariani prefers), or (b) there is no TRL (as some writing under the banner of the “open future” insist), and so, given that there is sometimes more than one historically possible future, this set is *not* always a singleton set; *will* is a universal modal with a non-trivial domain, with the anticipated knock-on effects in the logic, viz., the denial of WEM. The difference comes down to the metaphysics: TRL or no?

II. Cariani on Todd on “neg-raising”

In previous work, motivated by the desire to avoid a primitive TRL, I have been bold enough – or naïve enough – to attempt to explain away the data in favor of scopelessness suggested by Cariani.⁷ On pages 72-6, Cariani replies. Let us consider that reply.

But first the minimal background. As noted earlier, Cariani relies on judgments like the following. Assume any non-win is a loss; then (3) and (4) seem equivalent:

(3) No ticket will win.

(4) Every ticket will lose.

On my account, however, (3) should have – and does have – a reading which does not entail (4): once we appreciate that there is no TRL, we can access the judgment that just because no one ticket is such that it will *win*, that doesn’t imply that every ticket is such that it will *lose*. (Cariani would of course disagree that we can access that judgment.) But set this aside for the moment. My basic reply is that this argument shows too much. Imagine someone saying, “No one should suffer from malaria if he’s living in modern day Scotland.” And now imagine someone saying, “Yes, but let me go further: Everyone should be free from malaria if he’s living in modern day

⁶ View 2, I should note, is exactly the semantic proposal for *will* I made in Todd 2021: Chapter 2.

⁷ Todd 2020. (Cf. Todd 2021: Ch. 3.)

Scotland.” Needless to say, the second “addition” is puzzling: intuitively, they’ve both just said the same thing. Will Cariani now endorse “Should Excluded Middle”? Or consider “No one thinks that Jack is the villain.” That seems to convey “Everyone thinks Jack isn’t the villain.” Or: “No one is usually here”/“Everyone is usually gone”, or “No one wants to go”/“Everyone wants to stay”. Belief Excluded Middle? Usually Excluded Middle? Wants Excluded Middle?

In Todd (2020) (and in Todd 2021: Ch. 3) I suggested what is essentially a pragmatic explanation of Cariani’s data. Here I must be alarmingly brief. Sometimes there are contexts in which two contraries are assumed; in such contexts, asserting the negation of one amounts (pragmatically) to the assertion of the other. It is important here to note the following (which I confess I should have more explicitly noted). Some theorists – not including me – have tried to develop this basic pragmatic story into a full-blown *theory* of what has been called “neg-raising” – which is itself a bit of linguistic terminology that is, like the term “modal” itself, very difficult to nail down in a theoretically neutral way. At any rate, I pointed to a very (very) small corner of the neg-raising literature in order to supply a kind of precedent for the phenomenon I sought to identify: to say that it is false that there will be a sea-battle tomorrow will reliably convey that there will be *no* sea-battle tomorrow, precisely because it is typically assumed that some one future is *our actual future* – and so either there will be a sea-battle tomorrow, or there will be no sea-battle tomorrow.⁸ To deny the first is then to imply the second, although they are semantically distinct.

Cariani concedes that “some of the evidence that is accounted for by a scopeless analysis can also be captured by a neg-raising analysis,” (73) but goes on to say that “despite this concession, my argument stands virtually unharmed.” But I wasn’t sure what Cariani meant by “my argument”. If Cariani means his *overall* position that *will* is scopeless, then he has a point; scopelessness isn’t motivated *solely* – or even, perhaps, primarily – by the relevant “negation-swap” judgments. But if he means by “my argument” the explicit argument that invokes exactly these judgments, then this claim seems premature. That argument *is* harmed – even if not conclusively refuted – by the observation that it threatens to overgeneralize in the ways noted above.

My sense is that the dialectic regarding the “neg-raising” conjecture is somewhat unclear. For instance, Cariani attempts to argue that *will* is not a “neg-raiser” by appeal to a certain

⁸ Note how my explanation of what supports Will Excluded Middle mirrors Cariani’s almost precisely; the difference between us, it seems, comes down to this: Cariani contends that this assumption – that some one future is our actual future – is an assumption we have to make, exactly because WEM is valid, whereas I contend that it is assumption that we *can’t* make, because nothing in an attractive metaphysics supports it. I feel like Cariani is getting the semantical cart before the metaphysical horse, but I must set this issue aside.

diagnostic test (74). But even if this diagnostic (Cariani doesn't give a citation) did show that *will* is not a "neg-raiser", this point may be little more than terminological; the basic story I developed does not depend on whether *will* should be categorized as a "neg-raiser" by this or that test, and I'd be happy to drop the label if pressed. Future work on these points needs to tread carefully.⁹

It must be said that Cariani ultimately relies heavily on the credence argument. I can barely adequately state the credence argument in this space, let alone address it, let alone *solve* it. But for my own part, it strikes me that work on this problem is in its infancy, and there are a wide range of options to explore.¹⁰ And there are antecedent reasons for skepticism about this argument – namely, that it is exactly parallel to an argument that would establish the truth of Conditional Excluded Middle for counterfactuals, a principle that strikes me – and many others – as deeply implausible.¹¹ Still, the credence problem is difficult and deserves an answer.

III. Cariani's "Open Future" view

Even if Cariani's objections to "Peircean" open future views like my own were fatal, this wouldn't imply that his own preferred version of an "open future" view succeeds. Let's look at that view more closely. But first a methodological aside.

Cariani's aim in Chapter 11 is to set forth (without fully endorsing) a picture that would "preserve a robust sense of the openness of the future." But this naturally raises the question at the head of 11.1: "What is the Open Future Hypothesis?" In my judgment, this whole section reads strangely, as it searches, not "for a *theory* of the open future, but rather a useful pre-theoretical characterization of what we are talking about when we say that the future is open." But it strikes me as implausible that any pre-theoretic sense of "openness" can carry the discussion one will find in a cursory glance at the literature pertaining to what *philosophers* have called "the open future" view. Insofar as "the future is open" means anything in a philosophically innocent setting, it seems to mean that (i) we don't know what the future holds, or (ii) we can affect the future (although not the past), or both. It certainly *doesn't* mean anything like that future contingents are false, neither true nor false, or even – as Cariani's bivalent proposal has it – they are either true or false, but it is indeterminate which. We are better off stipulating some terms and moving on.

⁹ For a recent look at some of the relevant issues, see De Florio and Frigerio 2022(b).

¹⁰ Iacona and Iaquinio 2021, De Florio and Frigerio 2022(a), Baron forthcoming.

¹¹ For a nice presentation of the parallel argument, see Mandelkern 2018.

At any rate, Cariani's theory can be assessed independently of the idle question of whether this theory does or does not capture some allegedly pre-theoretic notion of the "openness of the future". So what is that theory? Cariani writes:

The central idea of the thin red line view is that although there are many objectively possible futures, there is exactly one actual future. The sophisticated spin on this idea is that if the future is genuinely open, then it is objectively indeterminate which of the objectively possible futures is the thin red line. (208)

The indeterminacy of the future consists of there being indeterminacy in regard to which of the many worlds that agree on the history until now is the actual future. What it is to be indeterminate in this sense is not further analyzed. (211, section 2.11, "Metaphysical Indeterminacy")

For Cariani, facts having to do with *meaning* tell us that there must be a thin red line: "the semantics of the future needs contexts to mark a thin red line." (215) So that there is a TRL is non-negotiable. If we want something like "openness", then it's clear what we'll have to say: though there is a TRL, it is indeterminate which history is the TRL.

Straight away, many philosophers will balk at the invocation of this kind of metaphysical indeterminacy – a type of indeterminacy that is neither linguistic nor semantic, but somehow *in re*. But suppose we waive this concern. Does Cariani's proposal avoid the key problems for the alternatives he rejects? It isn't clear.

First, Cariani (Ch. 10) advances an "assertion problem" against views on which future contingents are not true (whether because false, or neither true *nor* false): if future contingents aren't true (and, crucially, we know this), then how or why is it that we "happily, regularly, and unapologetically assert them" (199)? But suppose it is metaphysically indeterminate whether the man before us is the same person who committed the crime, and we know this. Presumably this is not consistent with "unapologetically" sending him to prison. If it is "indeterminate" whether what we're doing is appropriate, and we know this, why should we be so "unapologetic" about doing it? I don't offer this objection as decisive against Cariani – far from it. I offer it as a way of suggesting that we ought to rethink aspects of the very setup that would give us an "assertion problem" in the first place.

Second, consider the credence problem. The problem is generated by observations like the following. Consider a commonplace judgment like that *it is more likely than not* that there will

be a sea-battle tomorrow. If one adopts certain open-future views, then once one comes to know that this matter isn't determined either way, it seems that one must give this judgment up. After all, claims like the following seem strange at best:

(5) The claim that there will be a sea-battle tomorrow is neither true nor false [false] – but it is more likely than not that it is true.

(6) The claim that there will be a sea-battle tomorrow is neither true nor false [false] – but it is probably true.

The basic point: one cannot sensibly maintain that *p* is neither true nor false, or false, and yet also that *p* is probably true. For instance: how could I maintain with a straight face *both* that the claim that Jones is bald is neither true nor false – but also that he's probably bald?

There is certainly a vexing issue here, but Cariani's proposal is vulnerable too. Just on the surface, we can observe that *it is objectively indeterminate whether p* gives rise to similar troubles:

?? (7) That Jones is bald is either true or false, it's just objectively indeterminate which. But it's probably true. (That is, he's probably bald.)

I submit that if this sounds any better than the parallel claims involving “neither true nor false” or “false”, that's because we have little to no independent grasp on what “objectively indeterminate” means here. But the problem goes deeper. *Prima facie*, it appears that the *whole point* of saying that it is objectively indeterminate whether *p* is to say that, once one knows this, one will know that *there is nothing further to know* as regards *p*. You can't grant that it is objectively indeterminate whether Jones is bald, but then in the same breath *wonder* whether Jones is bald: to wonder is to assume that there's something here you don't know, but when you know that this matter is objectively indeterminate, you know all that there is to know.¹² The tension in Cariani's view now becomes stark. After all, insofar as I judge that *it is more likely than not* that there will be a sea-battle tomorrow, then there is obviously room to *wonder* whether there will be a sea-battle tomorrow. It's more likely than not, but *which is it?* I wonder. Slightly more carefully:

Insofar as I judge that *it is more likely than not* that *p*, then there is room to *wonder* whether *p*.

¹² For more on this “wondering” issue, see Torre 2021.

Insofar as I judge that *it is objectively indeterminate* whether p , then there is no room to *wonder* whether p .

The result is that I can't sensibly maintain that it is more likely than not that there will be a sea-battle tomorrow, but also that it is objectively indeterminate whether there will be a sea-battle tomorrow. My basic point: the only view that doesn't give rise to a credence problem is the *classical* TRL theory (sometimes called "Ockhamism"): the facts about the undetermined future are there, and they are fully determinate; we just don't know what they are – but we can form estimates this way or that.

After clarifying his picture of the indeterminate TRL, Cariani turns to rebutting arguments *against* the TRL. In keeping with the book's overall technical orientation, Cariani deftly handles several technical objections to the TRL developed by Belnap and Green (1994) and MacFarlane (2014). Belnap and Green's only *non-technical* motivation, however, is never mentioned:

We have considered two alternatives to the open future doctrine, and have found each of them wanting. Let us note also that each of these forms of actualism about the future involves commitments to facts that do not supervene upon any physical, chemical, biological or psychological states of affairs. The fact, if it is one, that at a given indeterministic moment m there is some history such that it is the one that will occur, is not a state of affairs that supervenes upon what is true of particles, tissues or organisms that exist at m . Those of us who do not postulate a Thin Red Line have no need of such a mysterious realm of fact. (We hope you join us in regarding as spurious a reassurance having the form, "but it's only a logical fact." That's bad logic.) (1994: 381)

After reading *The Modal Future*, I still don't know how Cariani would respond to this basic concern – which, in some guise or other, strikes me as the only serious motivation for the "open future" view in the first place.¹³ But if this is your motivation for "openness", the indeterminacy theory of Cariani seems disadvantaged from the start: if you find it strange that there should even *be* facts of a certain kind, how should it help to be told that it is *indeterminate* what they are?

Let me end with the following. I have been critical of certain aspects of Cariani's book, but this should in no way be taken to imply that I think it is anything less than excellent. If I

¹³ There is another historical motivation for the open future view: to avoid logical/theological fatalism. But I set this aside.

have been critical, it is because I feel that Cariani's arguments are amongst those that most deserve a reply. The book covers a wide range of fascinating material untouched in this essay, and should be read by anyone interested in the thought and talk about the future.¹⁴

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¹⁴ For helpful discussion/feedback on previous versions of this essay, I would like to thank Brian Rabern, Wolfgang Schwarz, Malte Willer, Stephan Torre, Matt Mandelkern, Fabrizio Cariani, and Derek Ball.

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