

Fabrizio Cariani, *The Modal Future*.

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Cariani's *The Modal Future* is a book about future language. At its heart is a challenge to the received *symmetric* picture of temporal language. Many think past tense and future auxiliaries are mirror images of each other: one simply has "later" where the other has "earlier". *The Modal Future* aims to supplant this symmetric picture with an *asymmetric* one, where future thought and talk is *modal*, and explores issues in the pragmatics, epistemology and cognition of future claims in the light of this asymmetric picture.

Cariani motivates the asymmetric picture with a dilemma. "Will" appears to have properties characteristic of modal expressions. But existing modal accounts face a variety of extremely serious problems. Take the Peircean view, where "will φ " is true at w and t iff φ is true in all futures that are possible at w and t . Cariani shows this view makes a mess of our future credences. If I am about to toss a fair coin, what should my credence be that the following is true?

(1) The coin will land heads.

0.5, of course. But the Peircean predicts it should be 0: I should be *certain* this universal claim has a counterexample. Cariani argues, convincingly in my view, none of the standard modal views ultimately do better.

Cariani's alternative, building on Cariani and Santorio 2018, is the *selection semantics* for "will". This theory draws on the selection functions from Stalnaker's theory of conditionals, which, given a world and a proposition, select the closest world where that proposition is true. On Cariani's semantics, "will φ " is true at w just in case φ is true at the selected world with the same history as the actual world. Of course, this selected world *just is* the actual world; so, in simple unembedded contexts, "will φ " is simply equivalent to φ . (This equivalence is broken in various embedded contexts, like conditionals, where further information is added to the proposition supplied to the selection function.) We get a nice account of the dilemma: "will" is indeed a modal; but its true modal nature is hidden in simple, unembedded claims.

After sketching the basic idea, Cariani addresses important technical questions for the semantics. A particularly pressing question is how to secure the *future* orientation of "will" without disrupting the scope relations between "will" and negation. Cariani solves this issue by adapting Condoravdi 2001's account of future orientation in modals. This involves an event semantics, where verbs quantify over events and tenseless clauses are interpreted relative to worlds and *intervals*. In this framework, "will" effectively shifts the interval of evaluation: the embedded tenseless clause is evaluated relative to the interval starting at the time of utterance and continuing into the future indefinitely. This accounts for the future orientation of "will" without unwanted scope relations.

From here, the book addresses a range of related questions and the selection semantics becomes an important background assumption. One cluster of issues centers on assertion and the open future. Cariani, who is ultimately agnostic about openness, argues for a conditional claim: if the future is open, we should adopt a particular bivalent approach to openness.

Cariani first argues against a venerable, Aristotelian approach, where future claims have a third indeterminate truth-value, when the future is open. This view faces a puzzle about assertion and the

open future. The Aristotelian seems to predict no future contingents are assertable. Truth is a very plausible necessary condition on assertability. But many future contingents *are* assertable: I can for instance tell my friend that I *will* be arriving on the 1.30 train.

Cariani endorses a *bivalent indeterminist* Thin Red Line view. On the Thin Red Line view, even when multiple futures are consistent with the present, one *particular* history has the privilege of being ours. On bivalent indeterminism about the future, future claims have classical truth-values, even when they are not settled; it is simply indeterminate which *particular* classical value they have. So on Cariani's Thin Red Line view, one history has the privilege of being the one we live in; but it is indeterminate *which* future that thin red line is. Unlike other modal views, Cariani's selection semantics is a good fit for this kind of view.

This view has two interesting consequences. First, it is often indeterminate whether one has violated a norm of assertion. When I make my assertion about the train, it is indeterminate whether I have spoken truly; so it is also indeterminate whether I have violated the truth norm. Second, this status will eventually be resolved, one way or the other: if the train did arrive on time, my assertion came true and so it is now determinate that the norm was not violated; if it did not arrive on time, it is now determinate the norm was violated. (I did wonder whether the Aristotelian will be satisfied: are future contingents not often *determinately* assertable at their time of utterance?)

The book also deals with the topic of future epistemology and cognition, concluding with a discussion of a puzzle from Ninan (forthcoming). Future claims seem to require weaker evidence to be assertable than past claims. For instance, a meteorologist may be able, on the basis of a century of past weather data, to assert:

(2) It will snow in Boston in winter 2023.

But once winter 2023 has come and gone, the meteorologist cannot use the same meteorological data to assert

(3) It snowed in Boston in winter 2023

To assert (3), they require further *direct* evidence. This is puzzling — are they not saying the same thing on both occasions?

Cariani says they are not. Cariani proposes a *lexical* account, where predicate meanings place restrictions on the speaker's evidence. For instance, the semantic value of "died" in a context is treated as a *partial* function from a world w and individual x to truth values, one which only returns a truth-value if the speaker in the context has evidence that settles whether x died in w . Cariani proposes these evidential requirements are *removed* in certain embeddings, particularly by modals. For instance, "must" clearly removes the evidential requirement: the meteorologist *can* say

(4) It *must have* snowed in Boston in winter 2023.

Given Cariani's earlier claim that "will" is a modal, the lexical account predicts that (2) does not require the same direct evidence as (3).

Every section of this book is deserving of extensive discussion; and, because of the book's modular structure, one can engage with many of the main claims both individually and as a package. That being said, the claim that "will" is a modal undergirds very much of the discussion. I am convinced that, if "will" is a modal, Cariani's semantics is the best currently on the market. The guiding idea of the selection semantics idea is ingenious; and the problems for its competitors are extremely serious. But I am not yet completely convinced of the antecedent: is "will" really a modal? I close with some remarks about the argument Cariani regards as the strongest, the argument from modal subordination.

Roberts (1989) directed our attention to discourses like:

(5) A wolf might come in. It would eat you first.

While the second sentence lacks any overt conditional, the modal 'would' is understood conditionally: I am saying that *if a wolf came in*, it would eat you first. This kind of reading *prima facie* appears to require a modal. Consider:

(7) a. If John bought a book at all, it'll be a mystery novel.
b. # He's at home reading it right now.

But Klecha (2014) notes that "will" also gives rise to modal subordination:

(8) A wolf might come in. It will eat you first.

So, the argument concludes, "will" is a modal.

But on closer examination the data are messy. First, to my ear, the contrast is strongest in discourses with a mixture of tenses and/or auxiliaries. But a natural hypothesis here is that this mixture of tense and auxiliaries, rather than the absence of "will", somehow blocks the subordination in (7-b). Second, and relatedly, when we consider more uniform discourses, apparent subordination is easier. Cariani acknowledges apparent subordination is possible with the past. Consider:

(9) If he went to the park yesterday, he had a sandwich. He enjoyed it.

I note that future directed uses of the present also permit apparent subordination:

(10) If it doesn't rain on Monday, we go camping in Yellowstone that evening. We leave Yellowstone early on Tuesday morning.

In (9) Cariani suggests that the second sentence is understood as being conjoined to the conditional consequent. But of course this kind of move would explain the original subordination data too.

To Cariani's mind, the most powerful data point is that "will" appears to go in for modal subordination across clause type. Consider:

(11) Please do not throw paper towels in the toilet. It will clog.
(12) Does Cinderella stay at the ball? The carriage will turn into a pumpkin!

The conditional interpretations here cannot be due to conjunction. Furthermore, Cariani argues there are no parallel data when it comes to the past. Imperatives are necessarily future oriented; but past oriented questions do seem to bear out a contrast, at least initially. Compare (12) to:

(13) Did Cinderella stay at the ball? The carriage turned into a pumpkin!

I think Cariani is right that subordination is not possible here. But a possible confounder here is that it is not always entirely straightforward to subordinate material from a past tense question, even when "will" *is* present. For consider:

(14) Did you throw paper towels in the toilet? It will clog.

I find the subordinated reading harder to access here than in (11). (Maybe not as crashingly bad as (13); but not as effortless as (11).) A final data point is that it *does* seem possible to get modal subordination across clauses with the future directed present:

(15) If Cinderella doesn't leave before midnight, her carriage turns into a pumpkin. Do the footmen turn back into mice?

So I am not sure modal subordination is a straightforward diagnostic of modality. It still could well be that the best account requires "will" to be a modal. To decide the issue, I suspect we will need some sustained attempt to develop a non-modal alternative. (An alternative starting point: perhaps rather than reinterpreting the apparently subordinated claims, we simply add them to a *derived* context containing extra suppositions.)

However this turns out, *The Modal Future* does extremely important work in articulating a significant and novel picture of our thought and talk about the future. Cariani covers an impressive amount of ground, proposing a range of interesting and novel views in a range of debates, and the discussion is consistently of very high quality. It is a must read for anyone working in these areas.

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References

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