

Why Future Contingents Are Not All False*

John MacFarlane

Introduction

Let a *world* be a complete story about what is the case at each time, both in the past and in the future. Suppose that a context of use fixes a past. (That is, there is always a definite fact of the matter about what happened at any point in the past of a potential utterance.) Call a context *indeterministic* if there are multiple worlds that agree on the past of the context and are consistent with laws of nature, but diverge on the future.

The problem of future contingents, which dates back to Aristotle, is what to say about the truth of statements about the future, such as

SB There will be a sea battle tomorrow at noon.

NSB There will be no sea battle tomorrow at noon.

at indeterministic contexts. Here are some classic answers:

OneTrueDet Either *SB* or *NSB* is (determinately) true; which one is true depends on what happens on the *actual future history* determined by the context of use.

OneTrueInd Either *SB* or *NSB* is true, but it is indeterminate which, because it is indeterminate what the actual future history is.

BothGappy Neither *SB* nor *NSB* is true, and neither is false (that is, neither they nor their negations are true).

BothFalse Neither *SB* nor *NSB* is true, because they are false (that is, their negations are true).

*This is a revised version of my comments on Todd (2021) from the Author Meets Critics Symposium at the Pacific Division APA meeting in Vancouver in April 2022. I am grateful to Patrick Todd for useful conversation.

Todd's aim in *The Open Future* (Todd 2021) is to argue for BothFalse. According to Todd, all future contingents are false. The negation of a future contingent is, therefore, true. But we need to be careful: despite what one might think, NSB is *not* the negation of SB (and not equivalent to it). SB and NSB are both future contingents, and hence both false, and their negations

$\neg SB$ It is not the case that there will be a sea battle tomorrow at noon.

$\neg NSB$ It is not the case that there will be no sea battle tomorrow at noon.

are both true.

Todd claims that his view has certain advantages over the others:

Open future Unlike OneTrueDet, it acknowledges that the future is genuinely open. (Todd does not consider OneTrueDet to be a view that acknowledges an "open future," p. 23.)

No funny facts Unlike OneTrueDet and OneTrueInd, it need not accept that there are *primitively future-directed facts*, which do not supervene on facts about the present and past.

Classical semantics Unlike BothGappy, it does not require divergences from classical semantics, e.g. allowing a disjunction to be true even though neither disjunct is.

The possibility of omniscience Unlike OneTrueInd and BothGappy, it does not rule out the possibility of an omniscient God.

However, BothFalse seems to have a number of strikes against it:

Thomason's problem "There will be a sea battle tomorrow or there won't be" ($SB \vee NSB$) seems to have "the force of tautology." But according to BothFalse, it is false.

The negation problem We think of NSB as the negation of SB, or equivalent to it, but according to BothFalse, it is not.

The assertion problem We think it's sometimes okay to assert future contingents. How can that be, if they are all false?

The retraction problem If we asserted SB yesterday and there is a sea battle today, we don't think we have to retract our assertion on the grounds that it was false.

The retrospective assessment problem Instead, we regard our assertion as having been true.

The wondering problem We think it makes sense to wonder whether there will be a sea battle. Isn't this incoherent, if we take both SB and NSB to be false?

The betting problem If we take SB to be false, how could it ever be rational to bet that there will be a sea battle tomorrow?

The credence problem We think it makes sense to assign intermediate credences (e.g., 0.5) to SB and NSB. But that seems incompatible with holding that they are both false.

Most philosophers who have worked on the problem of future contingents, including me, have thought that these problems for BothFalse are insurmountable. Todd's aim is to convince us otherwise. His book goes farther than anything yet written in defending the view that all future contingents are false. It is an impressive and resourceful attempt to revive a dead view—but not, I think, a successful one.

Let me lay my cards on the table. I'm with Todd in rejecting OneTrueDet (the view he calls "Ockhamism"). His reasons are metaphysical: he doubts that there are primitive future-directed facts that don't supervene on present or past reality. I'm not sure what to think about these arguments. My own argument against OneTrueDet is a semantic one, based on the predictions the view makes about retrospective assessments (MacFarlane 2014, 209–11). I suppose Todd won't like this argument, because similar arguments would tell against BothFalse, but since neither of us like OneTrueDet, let us set this view aside.

I also agree with Todd in having doubts about OneTrueInd, though I find it intriguing. It has been developed recently in a very interesting way by Fabrizio Cariani and Paolo Santorio (Cariani and Santorio 2018; Cariani 2021). Here my doubts have to do with the notion of indeterminacy that is being used. Indeterminacy, here, must amount to more than the historical possibility of various futures, since all four views acknowledge that. So in what sense is it "indeterminate" which is the actual future? One might gloss this as "there is no fact of the matter which history is actual." But what does this "no fact of the matter" talk come to? Here one might find comfort in the fact that we find such talk natural in other areas—for example, vagueness. Many philosophers want to say that there's no fact of the matter where the boundary between heaps and non-heaps falls. But how is *that* to be understood? If I am right that the "no fact of the matter" talk in the case of vagueness should be understood in terms of

practical indecision about where to draw the line (MacFarlane 2020), then it's not going to be any help in the case of future contingents. For nobody thinks that which future histories are candidates for actuality is a pragmatic matter for us to determine through decision. It is not clear to me, then, that we have a grip on a notion of indeterminacy that would allow us to understand OneTrueInd.

In what follows, then, I'll focus on the choice between BothGappy and BothFalse. I'll argue that defenders of BothGappy have resources to meet many of the problems noted above that are simply not available to defenders of BothFalse. I'll argue that the solutions Todd offers to these problems are not adequate. I'll concede that BothGappy does constrain what we can say about omniscience, but in a way that is not particularly problematic. In the end, we must weigh advantages against disadvantages. And any disadvantages of BothGappy's restrictions on the possibility of omniscience are hugely outweighed by the enormous sack of bullets a defender of BothFalse must bite.

Compositional semantics, postsemantics, and truth

There are actually two distinct questions one can ask about the truth conditions of future contingents:

Compositional semantics What are the *semantic values* of future contingents (and the temporal expressions that make them up)? That is, what are the conditions for future contingents to be true at a *point of evaluation*?

Postsemantics What are the conditions for future contingents to be true at a *context of use* (and for relativists, a context of assessment)?

Semantic value and *point of evaluation* are technical terms. The main job of semantic values is to *compose*: the semantic values of complex sentences should be determined by the semantic values of their constituents. Most commonly, we think of the semantic values of sentences as functions from *points of evaluation* (which might be, for example, world/time pairs, or context/moment/history triples) to truth values. But nobody except semanticists cares about truth at a point of evaluation. What we actually care about, in the use of language, is truth at a *context*. That is what we assume speakers are aiming at, and it is because of this assumption that we can get information from their utterances (Lewis 1975, 1980). We care about semantic values only because we need them to give a systematic definition of truth at a context for arbitrary sentences of the language. The *postsemantics* (MacFarlane 2003, 329) relates the semantically relevant notion of *truth at a point of evaluation* to the pragmatically relevant notion of *truth at a context*.

For a simple language with temporal and modal operators, we can take our points of evaluation to be world/time pairs. The following semantic clauses for Will_n (it will be the case in n units of time) and Was_n (it was the case n units of time ago) are then natural:

Will (linear) $\text{Will}_n\phi$ is true at w, t iff ϕ is true at $w, t + n$.

Was (linear) $\text{Was}_n\phi$ is true at w, t iff ϕ is true at $w, t - n$.

On this semantics, Will_n and Was_n simply move you forward and backwards in time along a world history.

What about the postsemantics? Here we have to say how truth at a context relates to truth at a world/time pair. We will assume that a context determines a unique time. But, given indeterminism, there may be many worlds that coincide up to the moment of the context and diverge afterwards. Here we have choices. One alternative is to suppose that, somehow, the context picks out one of these histories as the actual one; a “thin red line” marks it out as the one that “really will happen”—the “world of the context” w_c :

Thin red line postsemantics ϕ is true at context c iff ϕ is true at c, w_c, t_c

That gives us a version of OneTrueDet. But another alternative is to quantify over all the worlds that overlap (share a common past) at the context:

Supervaluational postsemantics ϕ is true at context c iff ϕ is true at w, t_c for all w that overlap at c .

This gives us a BothGappy view.

Here, the locus of disagreement is the postsemantics; these views agree on the compositional clauses for Will_n and Was_n . Sometimes, though, the locus of disagreement is the compositional semantics. For example, in place of the linear clause for “will” given above, we might substitute

Will (Peircean) $\text{Will}_n\phi$ is true at w, t iff for all w' that coincide with w up through t , ϕ is true at $w', t + n$.

We will still need a postsemantics. Since we reject an “actual future,” the Supervaluationist postsemantics is appropriate. Combined with the Peircean semantics, this yields a BothFalse view.

The semantics Todd defends is not the Peircean semantics, but rather

Will (generic modal) $\text{Will}_n\phi$ is true at w, t iff for all w' that are *available* at w and t , ϕ is true at $w', t + n$.¹

This differs from *Will (Peircean)* only in quantifying over the *available* histories at w and t , instead of *all* the histories that coincide with w up through t . This difference, Todd thinks, makes *Will (generic modal)* “neutral,” in the sense that all of the theories he is comparing can accept it, given different views about the *availability* relation. His own view is that the available histories at w and t just are the histories that coincide with w up through t , so his view makes the same predictions as the Peircean view. But this view about availability, he thinks, is a substantive, metaphysical thesis, not part of the semantics. So these predictions are not *analytic* truths, but consequences of a neutral semantics and a substantive thesis about availability. As he sees it, those who reject BothFalse do so because they reject this substantive thesis, holding instead that there are “primitive future-directed facts” in virtue of which only *one* of a bundle of histories that coincide up to t is available. Intuitions that

(1) $\text{Will}_1\phi \vee \text{Will}_1\neg\phi$

has “the force of tautology” (Thomason 1970, 267), or that $\text{Will}_1\neg\phi$ is equivalent to $\neg\text{Will}_1\phi$, are to be explained by their holders’ presupposition that there is an actual future history.

This is a clever strategy, but I don’t think it works. Thomason himself is clear that he rejects the presupposition of an actual future history (Thomason 1970, 270–71), so his endorsement of the quasi-tautological status of (1) cannot be explained by his acceptance of that presupposition.² Belnap and Green (1994), too, endorse (1) while rejecting an actual future, as do I (MacFarlane 2003, 2008; MacFarlane 2014, ch. 9).

Todd is perfectly correct in thinking that some of the differences between opposing views about the truth of future contingents are attributable to metaphysical disagreements. At the postsemantic level, these views all face the question how to move from truth at a world and time (the output of the compositional semantics) to truth at a context, and here their different metaphysical views lead them in different directions. The proponent of OneTrueDet will accept the view Todd (2021, 25) labels

(I) “there is only one available future, and it is determinate what it is.”

¹See Todd (2021), p. 30 n. 5 for the clearest statement of this clause (albeit for a non-metric “will”).

²Quasi-tautological because (1) can be falsified “at the end of history” (when there are no future histories that extend 1 unit of time into the future). I will ignore this complication.

which yields the *Thin red line postsemantics* (truth at a context is truth at the single actual world). The proponent of OneTrueInd will accept

(II) “there is only one available future, and it is indeterminate what it is”

which yields an indeterministic thin red line postsemantics (truth at a context is truth at the actual world, but it is indeterminate which this is). And the proponents of BothGappy and BothFalse will accept

(III) “There are exactly as many available futures as there are futures consistent with the past and the laws.”

which yields the *Supervaluational postsemantics* (truth at a context is truth at all worlds compatible with the past and present).

But these metaphysical views are being brought to bear on the the choice of a *postsemantics*. Todd’s notion of availability is supposed to play a role in the compositional semantics—specifically, in the clause for “will.” Here, availability has to be relativized to a world and time, and it must be defined for *every* world/time pair (since we might need to evaluate “will” in an embedded context where the time or world is shifted by a temporal or modal operator). If availability is really an extra-semantic, metaphysical assumption, then we should expect that the views that appeal to (I) in the postsemantics would appeal to something like

(i) Only $\text{TRL}(w, t)$ (the “actual world” at w, t) is available at w and t

in the compositional semantics, that views that appeal to (II) in the postsemantics would appeal to

(ii) Only w is available at w, t

and that those that appeal to (III) in the postsemantics would appeal to

(iii) All worlds that coincide with w up through t are available at w, t .

But in fact it does not work out this way. Anyone who embraces (iii) in the compositional semantics will be committed to BothFalse. So the supervaluationist, who was guided by (III) in the postsemantics, needs (ii) in the compositional semantics. (Note that *Will (generic modal)* + (ii) is equivalent to *Will (linear)*.) And the OneTrueDet view described in the previous section—the one who appeals to (I) in the postsemantics—will *also* need (ii) in the compositional semantics.³

³Could the view not be developed using (i)? Only at the cost of allowing sentences like

These two very different views agree on what they say about availability in the compositional semantics, while disagreeing about the metaphysical issue of whether there is an actual future. I think this shows that *available*, as it functions in the compositional semantics, can't be thought of as a metaphysical notion. It's just another technical semantic notion. *Will (generic modal) + (ii)* is just a notational variant of *Will (linear)*, and *Will (generic modal) + (iii)* is just a notational variant of *Will (Peircean)*. So Todd has not shown that we can factor out a common set of assumptions about meaning, so that all disagreements about future contingents turn on metaphysical questions. In the end, his view is just a version of the Peircean view.

It seems to me that Todd's whole discussion is vitiated by a failure to distinguish between compositional semantics and postsemantics—something he would have had to do if he had presented his semantic theory in a rigorous way, rather than staying at an informal level. He would then have seen that there are two very different places at which the question of an actual future might arise: the compositional clause for “will” and the postsemantics. Having made this distinction, he might have recognized that the supervaluationist and the Peircean are guided by the same metaphysical view: a rejection of an actual future. Both respond by quantifying over all the possible futures. They only differ in *where* they do this: the supervaluationist does it (only) in the postsemantics, while Peircean does it (also) in the semantic clause for “will.”⁴ Todd's assumption that all disagreements about the truth of future contingents are rooted in metaphysical disagreement about “availability” forces him to say, implausibly, that the supervaluationist is committed to positing that “there is an actual world” and “*does* believe that there is a ‘thin red line’ ” (p. 77). This will come as a big surprise to many supervaluationists, who are generally explicit about their rejection of an “actual future history” in any form.⁵ Maybe Todd will say that they are confused about what they are doing. But I think it is Todd

(2) There's no sea battle now, but it was the case two days ago that there would be a sea battle in two days.

$$\neg B \wedge \text{Was}_2 \text{Will}_2 B$$

to be true. For the argument, see Belnap and Green (1994), p. 380. It is possible to develop a version of OneTrueDet that does not have this drawback, but one must use the linear semantics for “will” and appeal to the privileged history in the postsemantics (MacFarlane 2003, 330 n. 10).

⁴I am assuming, as noted above, that Todd will will to quantify over all the worlds overlapping at the context in the postsemantics, since the alternative—appealing to a privileged future history—is one he decisively rejects. That means that he is not in a position to criticize the supervaluationist's postsemantics, which he shares.

⁵If supervaluationists hold that one of the possible histories overlapping at the context is actual, but it is indeterminate which (p. 77), why do they say that SB is not true? Why not say, instead, that it is indeterminate whether SB is true?

who is confused. He sees, correctly, that in order to fit into the framework of *Will (generic modal)*, supervenientists will need view (ii) about “availability.” But he then conflates this purely semantic commitment with the substantive metaphysical view (II).

Retraction and retrospective assessment

I won’t say anything about the assertion problem, because here BothGappy and BothFalse face similar problems. But I do want to make some remarks about the retraction problem and the retrospective assessment problem, because here I think BothFalse views face serious problems that BothGappy views can avoid.

The problem is that, once a sea battle is raging around us, it seems hard to deny that someone who said yesterday that there would be a sea battle in one day said something true. Todd’s view, however, is that they said something false. Presumably, assertions that are known to have been false should be retracted. But far from being a candidate for retraction, the person’s assertion seems to be vindicated.

I argued in MacFarlane (2003) that if we adopt a postsemantics that is along supervenientist lines, but that relativizes truth to a context of assessment, we can accommodate the judgement that, viewed retrospectively, the assertion is correct and need not be retracted. And in MacFarlane (2008), I observed that even a standard (non-relativist) supervenientist view can vindicate

(3) What you asserted yesterday was true

where “true” is a monadic predicate of propositions.⁶ So BothGappy views can get the right verdicts about retrospective assessments. BothFalse views, though, just have to bite the bullet and say that

(4) What you said yesterday was false, when you said that there would be a sea battle today—even though there is a sea battle, just as you said there would be.

I find this hard to swallow. And Todd can’t explain my reluctance as due to my acceptance of the view that there is a unique actual future at every context, since that’s a view I reject.

⁶Note that (3) can be true at a context of use even if the sentence asserted is not true at the context in which it was asserted, yesterday. For details see Thomason (1970), pp. 278–9; MacFarlane (2008), pp. 94–6; MacFarlane (2014), pp. 93–4, 222–3

The reason the views I favor don't face this problem is that they vindicate what Todd calls⁷

Retro-closure $\phi \rightarrow \text{Was}_n \text{Will}_n \phi$

So Retro-closure is really the locus of disagreement here: the linear semantics for Will vindicates it neatly, while the modal semantics that Todd defends does not. So far, given the embarrassing nature of (4), this looks like a strong point in favor of the linear semantics.⁸ But Todd wants to turn the tables and claim that any semantics that implies Retro-closure should be *rejected*, on the grounds that it rules out a plausible conception of omniscience.

Omniscience

Just to be clear, Todd is not arguing that because there is an omniscient God, Retro-closure must be rejected. His argument, rather, is that the possibility of an omniscient God should not be one we can rule out just based on our knowledge of meaning. We cannot accuse theologians who affirm God's omniscience of linguistic error or conceptual confusion.

The basic argument, which Todd developed together with Brian Rabern,⁹ goes like this. Omniscience requires believing everything that is the case and nothing that is not the case.¹⁰ So, letting $\text{Bel } \phi$ mean "God believes that ϕ ," God's omniscience implies every instance of the schema

Omnni-accuracy $\phi \equiv \text{Bel } \phi$

Assume that Omni-accuracy holds at every world and time. (Technically, God could be omniscient just for an instant, but the traditional theological view is that God is eternally and necessarily omniscient.) Then we are licensed to substitute the right hand side for the left hand side *salva veritate*, even in embedded contexts.

For any ϕ , Retro-closure gives us

(5) $\phi \rightarrow \text{Was}_1 \text{Will}_1 \phi$

⁷To be pedantic, it actually vindicates a slightly weaker principle, namely $(\phi \wedge \text{Was}_n \top) \rightarrow \text{Was}_n \text{Will}_n \phi$, since the unqualified principle can be false at the very beginning of a history. But this qualification won't matter for our purposes. Either Retro-closure or the more qualified version given here will rule out things like (4), when combined with some platitudes about truth and propositions.

⁸Thomason (1970), pp. 267–7 says that "arguments such as 'There is space travel; therefore it was the case that space travel would come about' strike us as valid on logical grounds.

⁹Rabern is listed as co-author of Chapter 7, which is a reprint of Todd and Rabern (2021).

¹⁰This is only a necessary condition, of course, since knowledge requires more than just belief.

Omni-accuracy gives us

(6) $\phi \rightarrow \text{Was}_1 \text{Bel Will}_1 \phi$

and then

(7) $\phi \rightarrow \text{Bel Was}_1 \text{Bel Will}_1 \phi$

This amounts to the claim that, for anything that is the case, God remembers anticipating that it would be so. (*Remembering* is believing that it was the case; *anticipating* is believing that it will be the case.)

So, what's the problem? Surely (7) is a reasonable thing for a defender of omniscience to accept. The problem, according to Todd and Rabern, is that (7) is "in tension with the doctrine of the open future" (p. 157), in a way that the following dialogue is supposed to bring out:

US: God, do you anticipate a sea-battle tomorrow?

GOD: It is not true that I do.

US: Do you anticipate peace tomorrow?

GOD: It is not true that I do.

US: So, the future is open?

GOD: Precisely.

[... a day passes, and a sea-battle rages]

US: God, did you anticipate this sea-battle?

GOD: Yes, of course I did. (pp. 157–8)

I will shortly question whether God has been given the right lines in this play. But before doing that, I want to point out that, *at best*, Todd and Rabern's argument will establish that Retro-closure *plus* Open Future rules out omniscience. Since Open Future is a metaphysical doctrine, not a semantic one, the argument doesn't show that a believer in Retro-closure would be ruling out omniscience on purely semantic grounds. Even if we concede that "a semantics for future-directed talk [should not] make presuppositions about the existence or non-existence of an omniscient being" (p. 167), we should certainly not concede that such a semantics *plus* a non-semantic assumption must be neutral on this question.

In fact, even the combination Open Future + Retro-closure is compatible with Omni-accuracy. To see why, let's go back to our dialogue. Why should God be willing to assert that it is not true that He anticipates a sea-battle, and not true that He anticipates peace? If we adopt a BothGappy view, then neither

(8) There will be a sea-battle tomorrow

nor its negation is true at the first day's context. So, holding fixed Omni-accuracy, neither

(9) God anticipates that there will be a sea-battle tomorrow

nor its negation is true at the first day's context. God, then, should not assert that He does not anticipate a sea-battle tomorrow. Nor should He assert, using the *monadic* truth predicate, that it is not true that He anticipates a sea-battle tomorrow, since that would be equivalent to asserting that he does not anticipate a sea-battle.¹¹ Instead, He should refrain from comment:

US: God, do you anticipate a sea-battle tomorrow?

GOD: ...

US: So it's not true that you anticipate a sea-battle tomorrow?

GOD: ...

US: You're not answering because the future is open?

GOD: Precisely. I'm omniscient, and because the facts aren't settled, it isn't yet settled what I believe now.

[... a day passes, and a sea-battle rages]

US: God, did you anticipate this sea-battle?

GOD: Yes, of course I did.

US: Was it settled yesterday that you did?

GOD: No; just as the fact was not settled, neither was my belief.

This dialogue does not seem incoherent. To get a real inconsistency with Omni-accuracy, as Todd and Rabern acknowledge, we need not just Open Future and Retro-closure, but

Settledness of Belief $\text{Bel } \phi \rightarrow \text{Sett Bel } \phi$.

This principle says that what one believes at a moment can't be contingent on what happens later: "whether God currently counts as believing that there will be a sea-battle tomorrow doesn't await the unfolding of time" (p. 159). I don't think it's obvious that this principle is true (see Jackman 1999 for a direct argument against it). But, like Open Future, it's also not a purely semantic principle. So, what Todd and Rabern have shown is not that Will (linear) is incompatible with Omni-accuracy, but only that it is incompatible with the package Omni-accuracy + Open Future + Settledness of Belief.

¹¹See Thomason (1970, 278–79); MacFarlane (2014, 93).

Does it follow, at least, that those who accept the open future must reject either God's omniscience or the Settledness of Belief? That depends on what it *means* for God to be omniscient. It is worth noting that few (if any) defenders of the *omnipotence* of God would accept the view that omnipotence implies every instance of the schema

Omni-powerful God can make it the case that ϕ .

(even when ϕ is "2+2=5" or "a stone exists that is too heavy for God to lift"). Their reaction is not to conclude that God is not omnipotent, but to refine their conception of omnipotence. Thus Aquinas:

All confess that God is omnipotent; but it seems difficult to explain in what His omnipotence precisely consists. For there may be a doubt as to the precise meaning of the word "all" when we say that God can do all things. If, however, we consider the matter aright, since power is said in reference to possible things, this phrase, *God can do all things*, is rightly understood to mean that God can do all things that are possible; and for this reason He is said to be omnipotent. (Aquinas [1265–1274] 1911, Q. 25, Art. 3)

It isn't unreasonable to think that after reflecting on one's other metaphysical commitments, one will come to see that Omni-accuracy is similarly in need of refinement. For example, just as Aquinas restricts Omni-powerful to instances where ϕ is not a "contradiction in terms," one might restrict Omni-accuracy to instances where ϕ is determinate.

Credence and wondering

David Lewis wrote:

The trouble with branching exactly is that it conflicts with our ordinary presupposition that we have a single future. If two futures are equally mine, one with a sea fight tomorrow and one without, it is nonsense to wonder which way it will be—it will be both ways—and yet I do wonder. (Lewis 1986, 207–8)

I do not think this is a problem for branching *per se*. A supervaluationist will not agree that "it will be both ways," because on the supervaluationist view, $SB \wedge NSB$ ("it will be both ways") is false and $SB \vee NSB$ ("it will be one of the ways") is true. But Todd's view does face a version of Lewis's problem.

For although it takes “it will be both ways” to be false, it takes “it won’t be either way” ($\neg SB \wedge \neg NSB$) to be true. So we can ask a question just like Lewis’s. What sense can it make to wonder whether there will or won’t be a sea battle tomorrow at noon, if we already know it won’t be either way?

This problem about wondering can be generalized to a problem about credences. It seems coherent for someone who takes the future to be open to think that it is *likely* that a sea battle will take place tomorrow. But surely we must assign a low credence to a proposition we believe to be false. It seems incoherent to believe that

(10) It is not the case that there will be a sea battle tomorrow, but it is likely that there will be one.

Todd does not want to say that we can’t think it likely that there will be a sea battle tomorrow, so his view commits him to the coherence of (10). He recognizes that this is a difficult position to defend, saying that “some who are otherwise attracted to the views defended in this book may despair at the results to come” (p. 130).

You might think BothGappy views have the same problem, because they allow you to assign a non-zero credence to a sentence you regard as untrue. But that’s *untrue at a context*. These views don’t say that you should accept the proposition

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

So these views aren’t committed to anything like (10).¹² Todd can’t defend his view in the same way, because he accepts (11).

The solution, Todd thinks, is this:

we must distinguish between the probability *of the claim* (the future contingent) that it will rain tomorrow from the probability of rain tomorrow. We must distinguish between the strength of the world’s tendency to produce a certain outcome tomorrow—viz., *rain*—and the likelihood of the claim that there will be rain. The current causal tendencies of the world can make rain tomorrow likely, but *not* make likely the truth of the proposition that there will be rain tomorrow. (p. 135)

¹²See MacFarlane (2014, 235), and note that, contrary to what Todd insinuates, this defense does not depend on the relativist (assessment-sensitive) components of my view; it would be available also to a supervaluationist like Thomason.

An immediate consequence is that statements like

(12) It is probable that it will rain tomorrow,

which we use to express our credences, should not be taken to have the logical forms they appear to have, that is:

(13) probable [will-tomorrow [rain]] (p. 137).

Instead, we have to take the combination of “probable” and “will” as a kind of idiom; the overall force of (12) is to assert that the “current causal tendencies of the world” favor rain tomorrow.¹³

I think there are two problems here. The first is the loss of compositionality. If Todd is right, then we cannot understand “It will probably rain” by leveraging our existing understandings of “will” and “probably.” We need to learn the meaning of “will probably” separately. But then we should expect to find people who understand “will” and “probably” but don’t understand “will probably,” just as we can find people who understand “kick” and “bucket” but not “kick the bucket.” I would not want to bet on this expectation. And what about more complex embeddings, such as

(14) It’s likely that either it rained yesterday or it will rain tomorrow [so no need to turn on the sprinklers].

This just begs to be understood as

(15) probable [[was-yesterday [rain]] or [will-tomorrow [rain]]].

But if “probable” and “will” don’t combine compositionally, we can’t understand it that way. Todd owes an explanation of our ability to understand (14) and indefinitely many other sentences I could add to it, for example,

(16) It’s not likely that Jim both RSVP’d and will come to the party.

The second problem is that Todd’s recommended gloss on the “probably will” combination—in terms of causal tendencies—is too objective. Sometimes our credences track what we take to be objective chances, but sometimes they

¹³In defense of this strategy, Todd notes that opponents of Conditional Excluded Middle for counterfactuals will have to say something similar, since they will want to allow assignment of intermediate credences to counterfactuals they regard as false. This is a nice point, and in general Todd’s deployment of analogies to the literature on counterfactuals is one of the strong points of the book. So I regret that there is not time here for a fuller discussion.

are based on other factors and don't represent our estimation of an objective "tendency." For example, even a strict determinist, who think that it's already settled which way a flipped coin will land, can sensibly have credence 0.5 that it will land heads. Similarly, an indeterminist who is just agnostic about whether a coin is biased towards one side or the other may have a 0.5 credence that it will land heads. This credence, then, is not a commitment to any claim about objective causal tendencies. So, even leaving compositional issues aside, I don't think Todd has given a solution to the Credence problem.

Conclusion

Todd wants us to believe that his BothFalse view is the only view that makes sense if we really reject the idea of an actual future history. As I have argued, this is not so: supervenient BothGappy views can be motivated on the same metaphysical picture.

The differences between the views lie in their different predictions about the compositional behavior of "will." Supervenientism validates¹⁴ $\text{Will}_n\phi \vee \text{Will}_n\neg\phi$ and $\neg\text{Will}_n\phi \supset \text{Will}_n\neg\phi$, both of which have strong intuitive plausibility, while Todd's view takes these to be false when ϕ is a future contingent. Todd tries to explain away the tautological feel of these principles as reflecting a metaphysical commitment to an actual future, but many proponents of these principles explicitly reject an actual future and seem to share Todd's metaphysical views.

Supervenientism also validates Retro-closure ($\phi \rightarrow \text{Was}_n\text{Will}_n\phi$), which is not only intuitively compelling but key to replying to worries about retrospective assessments. Todd's view rejects this plausible principle, leaving him without a response to those worries. He tries to turn this apparent liability into an advantage, arguing that we must reject Retro-closure if an omniscient being is to be a conceptual possibility. It is true that proponents of Retro-closure must reject at least one of Open Future, Omni-accuracy or Settledness of Belief. But this leaves two paths forward for open futurists who defend Retro-closure: (a) hold that if there is an omniscient being, Settledness of Belief must fail for it, or (b) hold that omniscience, properly understood, does not imply Omni-accuracy but only something weaker.

Finally, Todd's attempt to make sense of our attitudes about future contingents commits him to giving a novel, non-compositional account of probability judgments according to which it can be coherent to think that it is probable that

¹⁴As noted above, some pedantic qualifications are needed: $\neg\text{Will}_n\phi$ can be true when $\text{Will}_n\neg\phi$ is false if there is no future history that extends n units into the future.

p even when one considers p to be false. He has only sketched how this might work, but the sketch is not promising.

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