BOOK REVIEW: TODD, P. *The Open Future: Why Future Contingents are All False.* Oxford University Press, (Oxford 2021, 224 pp).

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Abstract: This is a review of Patrick Todd's book: Patrick Todd, The Open Future: Why Future Contingents are All False. Oxford University Press, Oxford 2021.

The future is open if the present state of the world and the laws of nature do not determine every future state of the world. Usually, the reasons that lead people to believe that the future is open have to do with quantum physics and with the intuition that human beings are free in a libertarian sense. Suppose that the future is open and that 'It will rain tomorrow' is a future contingent, that is that the present state of the world and the laws determine neither that it will rain tomorrow nor that it will not rain tomorrow. What is the semantics of this sentence? There are at least three options: 1) either 'It will rain tomorrow' or 'It will not rain tomorrow' is true, even though we cannot know which of the two

sentences is true and which is false (Ockhamism); 2) both 'It will rain tomorrow' and 'It will not rain tomorrow' are devoid of truth value (Aristotelianism) or they have a truth value but it is indeterminate which it is (supervaluationism); and 3) both 'It will rain tomorrow' and 'It will not rain tomorrow' are false (Peirceanism). Most scholars embrace options 1) and 2), while Peirceanism has found few advocates.

Patrick Todd's book is a powerful and intelligent defence of option 3). It addresses the main criticisms that this option has raised, proposing new solutions and insights. I believe that, after the publication of this book, Peirceanism can no longer be ignored by the specialists and that it is a viable option with at least equal dignity to the other two. It is therefore one of the merits of this book that it draws attention to a long-neglected theoretical option.

A first important theoretical innovation is the following: Todd does not believe that the differences among options 1)-3) are semantics. Rather, he believes that the semantics of the future tense is common to these three options. Such semantics is: F*p* (where F is the future tense operator) is true if *p* is true in every *available* future, false otherwise. Rather, the differences among the three positions are metaphysical and concern which futures are available. A future is available if it is compatible with the present state of the world, the laws of nature and the *primitive future-directed facts*, that is primitive facts about what will happen in the future. According to position 1), there are primitive future-directed facts: Even though the present state of the world does not determine every future state, there is a fact of the matter concerning the rain of tomorrow. In other words, even though the future is not determined, one of the possible future histories is that that will *actually* take place. According to option 2), there are primitive future-directed facts, but it is indeterminate which they are. Therefore, there is one

actual future history of the world, but it is indeterminate which it is. According to position 3), there is no primitive future-directed fact. If we combine these metaphysical options with the semantics seen above and if F*p* is a future contingent, then 1) according to the first option, there is only one available future history and F*p* is true if *p* is true in this history, false otherwise; 2) this is also true in the second option: F*p* is true if *p* is true in the only available history; however, since it is indeterminate which it is, F*p* is also indeterminate; and 3) according to the third option, available histories coincide with those left open by the laws of nature and, thus, F*p* is false. If Todd's view is close to Peirceanism, it differs from it in an important aspect. Peirceanism is a theory concerning the *semantics* of the future tense, while Todd's theory is a stance about the *metaphysics* of the future.

This has relevant consequences. One of the main problems of Peirceanism is that we do not feel any difference between sentences such as 'It is not the case that it will rain tomorrow' and 'It will not rain tomorrow'. In other words, ¬F*p* and F¬*p* seem equivalent. This is not a problem for positions 1) and 2), which assume the existence of a unique available future history. Indeed, 1) and 2) assume that 'It is not true that in the unique future history *p*' and 'In the unique future history it is not true that *p*' are equivalent propositions. But in model 3), there is more than one available future history and, therefore, a distinction should exist between ¬F*p* and F¬*p* exactly as between ¬∀ and ∀¬. However, since the distinctions among the various models is metaphysics and not semantics, Todd can defend his model claiming that the equivalence between ¬F*p* and F¬*p* is not semantics but depends on the assumed metaphysics of the future. The basic idea is that, in ordinary contexts, persons tend to assume that there are primitive future-directed facts and that for this reason they do not feel any difference

between $\neg F p$ and $F \neg p$. Even though this option is usually taken for granted in ordinary contexts, it is not the only possible philosophical option. In philosophical contexts, it is possible to assume a different metaphysics according to which there is a difference between $\neg F p$ and $F \neg p$. In particular, if $F p$ is a future contingent, $\neg F p$ is true and $F \neg p$ is false. The distinction emerges only in philosophical circles, however, where the various options regarding available futures become salient.

This also allows for overcoming another problem. Since in model 3) all future contingents and their internal negations are false, this model seems to negate the truth of 'Either it will rain tomorrow, or it will not rain tomorrow'. This is problematic because this sentence seems to be an instance of the law of excluded middle (LEM). Therefore, model 3) seems to negate basic logical principles. However, Todd demonstrates that this objection confuses with each other two different principles, which should instead be sharply distinguished: $F p \vee \neg F p$ and $F p \vee F \neg p$. The first principle is clearly an instance of LEM, but model 3) validates it. The second one is not valid in model 3), but it is not an instance of LEM. The fact that people, in ordinary contexts, do not distinguish between $\neg F p$ and $F \neg p$ accounts for the confusion between these two principles. However, since $F p$ is a future contingent, more than one future is available in model 3), and, since F is a universal quantifier on future histories, the distinction between the two principles is clear, as it is clear there is a distinction between $\forall x P x \vee \neg \forall x P x$ and $\forall x P x \vee \forall x \neg P x$. $\forall x P x$ and $\neg \forall x P x$ are two contradictory propositions and therefore the first principle is an instance of LEM, but $\forall x P x$ and $\forall x \neg P x$ are two contraries, and they can both be false. This is exactly what model 3) claims regarding $F p$ and $F \neg p$: If $F p$ is a future contingent, they are both false because they are contraries.

In Chapter 4, Todd cleverly demonstrates that a comparable dialectics also concerns counterfactual conditionals. We also do not feel any distinction between 'It is not the case that, if the coin were tossed, it would come up tails' and 'If the coin were tossed, it would not come up tails', even though in Lewis's semantics, counterfactuals are interpreted as quantifiers on possible worlds. Todd believes that this is due to the fact that people commonly assume that there is always a fact of the matter if a counterfactual is true or false. It is as if ties were impossible and as if there were always a possible world most similar among other worlds to the actual world. If this were the case, the truth conditions of these two counterfactuals would be equivalent, because the first would state that it is not true that in the world most similar to the actual world in which the coin is tossed, it comes up tails, while the second would state that in the world most similar to the actual world in which the coin is tossed, it does not come up tails. However, if this presupposition is not accepted and ties are in fact possible, then the distinction between $\neg(p > q)$ and $p > \neg q$ becomes relevant. Likewise, it is possible to state two principles about counterfactuals akin to those we have seen about the future. We can distinguish between $(p > q) \vee \neg(p > q)$ and $(p > q) \vee (p > \neg q)$, and only the first one turns out to be an instance of LEM. The second one is not, because both disjuncts are false in the case of ties between two *p*-worlds most similar to the actual world. In this case too, whereas $(p > q)$ and $\neg(p > q)$ are two contradictory propositions just like $\forall x\mathrm{P}x$ and $\neg\forall x\mathrm{P}x$, $(p > q)$ and $(p > \neg q)$ are two contraries just like $\forall x\mathrm{P}x$ and $\forall x\neg\mathrm{P}x$.

The comparison among these three metaphysical models is very clear and interesting. However, it seems to me that the author has not considered all the options available to the advocate of model 2). One might argue that future

contingents do not have an indeterminate truth value but that they have no truth value at all. In other words, they are devoid of truth value, and this is different from claiming that they have a truth value, but it is indeterminate which it is. The treatment of model 2) and of supervaluationism by Todd has certainly been influenced by the writings of Barnes and Cameron and of Cariani and Santorio[1], but it is not the unique possible interpretation of this theoretical option. Related to this, it is the fact that Todd considers model 3) as the sole possible alternative if the existence of future-directed facts is negated. However, in the absence of any fact indicating whether tomorrow it will rain or not, claiming that both 'It will rain tomorrow' and 'It will not rain tomorrow' are false is not the only possible outcome. One might suspend judgment and maintain that they are neither true nor false. After all, similar reactions are common in other contexts: In the absence of 'fictional facts' about the number of Harry Potter's hairs, it is certainly possible to say that it is false that Harry Potter has *n* hairs for any *n* (which is Todd's view). However, it is also possible to suspend judgment and say that it is neither true nor false that Harry Potter has *n* hairs (where *n* is any reasonable natural number). Likewise, it is possible to say that it is false that the infamous actual king of France is bald, but it is also possible to argue that it is neither true nor false that he is bald. I do not mean that this solution is better than Peirceanism, but I believe that it is a viable alternative to Peirceanism in the absence of future-directed facts.

In Chapters 6 and 8, Todd deals with some classical objections to Peirceanism: It seems that, if all future contingents are false, then 1) it is absurd to bet on a future contingent (if it is false that tomorrow Dover will win the

[1] Cf. Barnes & Cameron (2009) and Cariani & Santorio (2018).

horse race, how can one bet on Dover's victory?), 2) we cannot assert a future contingent, if the usual norms of assertion prescribe not to say what is false, 3) we have to assign probability 0 to any future contingent. If it is false that the coin will come up tails, then the probability that it will come up tails should be 0 and not 0.5, as the classical theory of probability states. As for bets, according to Todd, the problem arises from a mistaken understanding of the speech act of betting. Bets are not assertions of what will happen in the future but commitments to behave in a certain way – for instance, to pay a certain sum – if something were to happen in the future. Betting on Dover's victory entails that the parties pledge to do something in the future if Dover will win or lose. Therefore, the present truth value of 'Dover will win' is irrelevant for the speech act of betting.

The case of assertions of future contingents is much more complex for Peirceanism. Unlike bets, assertions are strictly connected to the truth of the asserted proposition. In this case too, Todd appeals to the distinction between ordinarily accepted metaphysics and philosophical metaphysics. It is usual to make assertions about the future because it is usual to believe that there is a unique available future history of the world. Therefore, assertions of future contingents are literally false because they are based on an erroneous metaphysics. However, this does not prevent the advocate of Peirceanism from making such assertions in ordinary life. Todd compares this situation with the situation of someone who, like Van Inwagen, believes that ordinary objects such as tables and chairs do not exist and that, rather, there exist only atoms arranged chairwise or atoms arranged tablewise[2]. A proposition such as 'There is a table in this room' is for these philosophers literally false because it is

[2] Cf. van Inwagen (2014).

based on wrong metaphysics. However, nobody will blame Van Inwagen for making such assertions in ordinary life. A philosopher who would not adapt to common parlance and metaphysics in ordinary life will be judged to be bizarre at best. The same can be said of the advocate of Peirceanism who would refuse to assert any future contingent on any occasion. Furthermore, not every assertion of future contingents should be taken literally. Often, when something is asserted, something else is meant, as the study of pragmatics has widely demonstrated. We often make assertions about the future meaning other things, for example illustrating our present plans about the future, our present intentions about the future, or the present tendencies of the world. For instance, an assertion such as 'I will be there tomorrow', which literally concerns the future (and it is therefore literally false), can be understood as conveying something like 'According to my plan, I will be there tomorrow' or 'If all goes as planned, I will be there tomorrow', and these sentences can be accepted as true even by the Peircean.

The fact that the Peirceanist can accept that there are present tendencies in the world that point towards certain future outcomes helps to solve the problem of the probability of future contingents. Surely, for the Peircean, both 'It will rain tomorrow' and 'It will not rain tomorrow' are false – supposing they are future contingents – and, therefore, the probability of their truth is 0. However, the actual tendency towards a certain outcome is measurable in probabilistic terms. It is possible to state that, even though it is false that it will rain tomorrow, the probability of rain is 0.8: '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. 134). However, I find this solution puzzling. If the probability of rain tomorrow is 0.8, this seems to entail that the probability of the proposition 'It will rain tomorrow' is 0.8. If we accept the T-schema: $p \leftrightarrow T(p)$, it is difficult to reject $Pr(p) \leftrightarrow Pr(T(p))$. In other words, the fact that the world presently tends to rain with a probability of 0.8 makes probable that it will rain tomorrow and, therefore, that it is probable that it is true that it will rain tomorrow. Of course, asserting that *p* is probable or that it is probable that *p* is true is different from asserting that *p* is true. In fact, if the *objective* probability of *p* is 0.8, *p* is untrue. Otherwise, *p* would have a probability of 1. Model 2) seems to be more in line with the classical theory of probability. On the contrary, I find it difficult to reconcile the fact that the world presently tends towards rain with a probability of 0.8 with the fact that 'It will rain tomorrow' is false and, thus, has a probability of 0.

In Chapters 5 and 7, Todd makes very intriguing connections between his theory of the open future and questions of philosophy of religion. This is not surprising. Since the Middle Ages, the issue of future contingents has attracted the attention of many philosophers for its evident connections with the topic of divine prescience, and much actual philosophy concerning future contingents and the semantics of future tense sentences in general is rooted in problems about divine foreknowledge, starting from Arthur Prior's works. Todd supposes that God is temporal. Since He is omniscient, for every time He knows all the propositions true at that time. However, since future contingents are not true, He cannot know them. This view is defended by Open theism, according to which not even God completely knows the future.

The supposition of the existence of such a God is used by Todd to support his view of future contingents. Since God is omniscient, He anticipates every true future tense

proposition. Then, Ant(p) ↔ F(p), where Ant(p) means that p is anticipated by God. Since God anticipates nothing about future contingents, then, if F(p) is a future contingent, then ¬Ant(p) and ¬Ant(¬p) are true, whereas Ant(p) and Ant(¬p) are false. This has evident analogies with the view defended by Todd, according to which ¬F(p) and ¬F(¬p) are true, whereas F(p) and F(¬p) are false. Moreover, the difference between not anticipating p and anticipating ¬p (or between not believing that p will occur and believing that p will not occur) makes the defence of the distinction between ¬F(p) and F(¬p) more plausible.

The reference to divine omniscience has another interesting application. Models 1) and 2) support the validity of $p \rightarrow$ PFp, even though Fp was a future contingent in the past. In other words, even though it was open yesterday whether it would rain today or not, if it rains today, it was true yesterday that it would rain today. This principle seems to be intuitive, and it is at the basis of assertions such as, 'It rains. You were right yesterday when you said that it would rain today', or, 'It rains. Yesterday you said the truth when you said that it would rain today'. We make such assertions even though we are sure that the state of the world yesterday and the laws of nature did not determine the weather today. Such intuitions are at the basis of McFarlane's relativism, according to which 'It will rain tomorrow' uttered at time t is indeterminate if evaluated in the context of assessment t but determinate if evaluated in the context of assessment t+1. Model 3) does not validate principle $p \rightarrow$ PFp, and this seems to be a drawback. However, Todd demonstrates that the advocates of models 1) and 2) must assume $p \rightarrow$ P(Fp ∧ ¬Ant(p)), if p is a future contingent. In other words, yesterday it was true that it would rain today but yesterday God did not anticipate that it would rain today. He did not

anticipate it because He could not do so, given that F*p* was a future contingent yesterday. It seems that the advocates of models 1) and 2) must say that yesterday there was something true that God did not believe that it would occur. However, this seems to deny the *possibility itself* of an omniscient God. That certain metaphysics of time denies this possibility is an argument against this metaphysics and in favour of model 3).

For the richness of the addressed themes, for the novelty with which several problems are faced, and for the search for original solutions, the reading of this book is absolutely recommended to all interested in the semantics and metaphysics of the open future. Another virtue of the book is its clarity: The argumentation is plain and never abstruse, and this makes the reading very pleasant. For this feature, although it is not a textbook, some chapters can also be recommended within university courses.

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