

Fatalism and Future Contingents

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Abstract

In this paper I address issues related to the problem of future contingents and the metaphysical doctrine of fatalism. Two classical responses to the problem of future contingents are the third truth value view and the all-false view. According to the former, future contingents take a third truth value which goes beyond truth and falsity. According to the latter, they are all false. I here illustrate and discuss two ways to respectively argue for those two views. Both ways are similar in spirit and intimately connected with fatalism, in the sense that they engage with the doctrine of fatalism and accept a large part of a standard fatalistic machinery.

Keywords: Fatalism, Future Contingents, Bivalence, Third Truth Value View, All False View.

Introduction

The problem of future contingents received a lot of attention throughout the history of philosophy, ever since the famous Aristotelian Sea Battle argument of *De Interpretatione IX*. In a nutshell, the problem is that of establishing what truth value we should assign to future contingent sentences, i.e. future oriented sentences that are about events which might or might not take place. The problem is entangled with metaphysical considerations

regarding free will and fatalism. An example can easily show why. Let us say that we are back in the 44BC on the day before the Ides of March. If the future contingent sentence that claims that Brutus will stab and kill Caesar tomorrow is already true (or false) *now*, how can Brutus refrain from doing so (or how can he bring it about what was already false)? Brutus's freedom with respect to his future decision of stabbing or not stabbing Caesar seems to be ruled out by the truth value of the relevant future contingent sentence.

Among the responses to the problem, we find two views: the third truth value view and the all-false view. According to the former, future contingents take a third truth value which goes beyond truth and falsity. According to the latter, they are all false. The goal of this paper is to carefully illustrate two specific argumentative ways to respectively justify these two views. Any philosophical position rests upon the acceptance and/or rejection of one or more principles. Here I will focus on how the two views mentioned above can be argued for *via fatalism*. More specifically, *via fatalism* here means how these two views can be argued for through a *rejection* of fatalism *together* with the *acceptance* of a standard argument that typically enters the fatalistic argumentative machinery. The fact that the problem of future contingents is intertwined with the problem of fatalism is part of a long-standing shared knowledge in philosophy, and thus the points I am going to make are not completely original. However, what follows can be seen as a clarification and a close inspection of the relationship between the two.

In the first section, I will show what fatalism amounts to, and I will illustrate the standard argument typically used to reach the fatalistic conclusion. In the second one, I will show how the third truth value view can be argued for via fatalism. In the third one, I will show how considerations along the same lines of the ones made in section 2 can justify the all-false view. Ultimately, I will draw a philosophical moral about these ways of arguing for the third truth value view and the all-false view about future contingents.

1 Fatalism

Brutus *did* stab Caesar and *did not* refrain from doing so. Imagine that Brutus could not have done otherwise than stabbing him — that refraining from doing so was not a possibility for him. This latter claim is something a fatalist would maintain. For fatalism holds that agents are always powerless to do other than what they in fact do. Now take Jane, a future time T that occurs tomorrow and the act of raising her right hand. Either Jane raises her right hand at T or she does not do so. If she does, the fatalist maintains that she cannot do otherwise — it is impossible for her not to raise her right hand. If she does not, the fatalist maintains again that she cannot do otherwise — it is impossible for her to raise her right hand. It follows that either it is impossible for her not to raise her right hand or it is impossible for her to raise her right hand. By modal equivalences, either it is necessary that she raises her right hand at T , or it is impossible for her to raise her right hand at T . This of course generalizes to any agent, act and future time. Given any act and any agent, either it is necessary that the agent performs the act at a future time T , or it is impossible that the agent performs it at that time. Such view leaves no room for contingency, i.e. there are no possible acts that are not necessary. The relevant modal notion of necessity and (im)possibility at play in this fatalistic discourse is the time-dependent notion of historical necessity. In this sense, something is necessary when it is unavoidable or unpreventable. Almost anyone agrees that past events are in this sense *now* necessary. That is, no one has the power now to prevent past events from happening, nor one can now bring about past events which did not take place. But a fatalist goes further, by treating the future in the same manner we treat the past. According to a fatalist, all future events that will happen are now unavoidable — that is, no one now has, nor will have, the power to prevent them — whereas those that will not happen it's impossible they will — that is, no one now has, nor will have, the power to bring them about.

There are several ways to argue in favor of fatalism. One of the most famous is the so-called Main Argument.¹ The Main Argument, informally put, goes as follows. Suppose

¹The Main Argument is also known as the Master Argument. The name 'Main Argument' is used,

Jane will in fact raise her right hand tomorrow. Then, it is true *now* that Jane will raise her right hand tomorrow. But, the argument goes on, if a proposition has a truth value at a time, it has that truth value at all times, earlier times included. If so, it was true, say, 1,000 years ago, that Jane would raise her right hand tomorrow. This latter claim refers to something which was the case 1,000 years ago, way before Jane was even born. Hence, it seems plausible to say that Jane has now no power over that. What was true 1,000 years ago lies in the past, and as such, it is necessary in the sense introduced above. Hence, *necessarily*, it was true 1,000 years ago that Jane would raise her right hand tomorrow. Moreover, it seems to be a matter of necessity that if it was true 1,000 years ago that Jane would raise her right hand tomorrow, then Jane will do so tomorrow. Given that in standard modal logics necessity distributes over conditionals, it follows by *modus ponens* that it is necessary that Jane will raise her right hand tomorrow. To recap, the Main Argument can be put in the following (informal) way.

The (informal) Main Argument

Assume Jane will raise her right hand tomorrow. Then, it is true now she will do so and it was true at all earlier times as well. Then,

- P1 Necessarily, it was true 1,000 years ago that Jane will raise her right hand tomorrow
- P2 Necessarily, if it was true 1,000 years ago that Jane will raise her right hand tomorrow, then Jane will raise her right hand tomorrow
- C Necessarily, Jane will raise her right hand tomorrow

By assuming that Jane will raise her right hand tomorrow, we end up concluding that she will do so necessarily. Under the notion of historical necessity here adopted, it means that if Jane will raise her right hand tomorrow, it is now inevitable she will do so. Needless to say, there is nothing special with the event of Jane raising her right hand tomorrow, nor with the time 1,000 years ago and therefore the argument generalizes to any future event. As a result, it turns out that apparent contingent events will all happen out of necessity.

among others, by Fischer and Todd (2015), Merricks (2009) and Rea (2006).

The Main Argument often strikes the readers as a form of sophistry. Why should facts about truth and falsehood limit our freedom of action? It seems that the truth and falsity of propositions depend on, among other things, what we do or don't do, and not the other way around. It is thus no wonder that the Main Argument can be, and has been, challenged in several ways. For instance, one might argue that it is illicit to claim that the kind of propositions employed in the Main Argument — propositions such that a reference to a time is part of their content — have a truth value *at a time*. According to this line of reasoning, we should take such propositions to have a truth value *simpliciter*, and if things are so, the Main Argument simply vanishes.² Or, one could adopt an Ockhamist³ strategy by distinguishing between *soft* and *hard* facts about the past. Roughly, an hard fact about the past is a fact that is about an intrinsic feature of the past, i.e. a feature which a past time has independently of what happens at other times. On the contrary, a soft fact about the past is a fact about an extrinsic feature of the past, more specifically a feature that the past has in virtue of what goes on at some future time.⁴ With this distinction in mind, an Ockhamist maintains, as a fatalist who believes in the Main Argument needs to say, that in the example given above it was true 1,000 years ago that Jane would raise her right hand tomorrow. However, the Ockhamist would say that the fact just reported is a *soft* one, and as such might not be now historically necessary. Jane might tomorrow have within her power to refrain from raising her right hand, and hence she might be able to act in such a way that that soft fact about the past would have always been different. If so, P1 is not true and the argument is thus unsound.⁵ A further strategy to resist the

²See for example Van Inwagen (1983, chapter 2), who offers a reasoning along these lines to oppose the Main Argument.

³I here refer to the contemporary distinction between soft and hard facts that is commonly named Ockhamism after the work of the medieval philosopher William of Ockham. Ockham was mostly concerned with the problem of how to reconcile divine foreknowledge and free will. I set aside the question whether William of Ockham himself can be considered an Ockhamist in the contemporary sense.

⁴See Plantinga (1986) and Fischer and Todd (2015, Introduction) for the distinction between soft and hard facts.

⁵A detailed defence of the Ockhamist position can be found in Fischer and Todd (2011).

Main Argument comes from a view called Mutable Futurism, according to which the future can literally change.⁶ That is, there might be events such that at some point it is true that they are going to happen in the future, and later on end up not happening. One of the possible motivations of this view comes from the notion of prevention. The idea is that when there is a case of prevention, what is prevented is something that was going to happen and then ended up not happening. In such cases, a future time T can *change* from containing the event that will be prevented to not containing it. Under this view, some instances of the Main Argument are again unsound. In fact, to stick to Jane’s example, P2 is untrue because it is no longer the case that it is a matter of *necessity* that if it was true 1,000 years ago that Jane would raise her right hand tomorrow, then she will do so tomorrow. Something happening between 1,000 years ago and tomorrow might prevent the event of Jane raising her right hand.

Discussing the details of these ways of challenging the Main Argument would be beyond the scope of this paper, and I thus go on by giving a formal version of the Main Argument in order to make its structure more clear. To do so, I borrow Øhrstrøm (2009) tempo-modal formalism and the argument he illustrates there, with some passages made more explicit. The tempo-modal formalism takes the following four principles as axioms, where ‘ ϕ ’ and ‘ ψ ’ are metavariables ranging over well-formed formulas in the language, F(n) is the future metric operator which means ‘in n time units it will be the case that ...’, P(n) is the past operator which behaves analogously, and ‘n’ is the temporal index which specifies the time interval.

Axioms

$$A1 \quad F(y)\phi \rightarrow P(x)F(x)F(y)\phi$$

$$A2 \quad \Box(P(x)F(x)\phi \rightarrow \phi)$$

$$A3 \quad P(x)\phi \rightarrow \Box P(x)\phi$$

$$A4 \quad \Box(\phi \rightarrow \psi) \rightarrow (\Box\phi \rightarrow \Box\psi)$$

⁶The view has been recently discussed by Todd (2011, 2016), and it is originally due to Geach (1977).

These axioms parallel the assumptions the Main Argument makes in order to get through. A1 corresponds to the move the Main Argument makes from the truth of a proposition at a time to the truth of the same proposition at an earlier time. In fact, A1 tells us that we are allowed to ‘go back’ in time as much as we want, provided we make the necessary adjustments with the metric of the tensed operators. A2 captures the idea that it seems a matter of necessity that if, in the example discussed, it was the case 1,000 years ago that Jane would raise her right hand tomorrow, then she will do so tomorrow. A3 delivers the idea of the necessity of the past. If something was the case in the past, it is now unpreventable, i.e. there is nothing we can do about it and hence it is necessary in the relevant sense. A4 is just the modal principle K which states that the necessity-operator distributes over a conditional. We are now in a position to give the Main Argument in a formal and general fashion.

The Main Argument

1	$F(y)\phi \rightarrow P(x)F(x)F(y)\phi$	A1
2	$P(x)F(x)F(y)\phi \rightarrow \Box P(x)F(x)F(y)\phi$	A3
3	$F(y)\phi \rightarrow \Box P(x)F(x)F(y)\phi$	1,2
4	$\Box(P(x)F(x)F(y)\phi \rightarrow F(y)\phi)$	A2
5	$\Box(P(x)F(x)F(y)\phi \rightarrow F(y)\phi) \rightarrow (\Box P(x)F(x)F(y)\phi \rightarrow \Box F(y)\phi)$	A4
6	$\Box P(x)F(x)F(y)\phi \rightarrow \Box F(y)\phi$	4,5
7	$F(y)\phi \rightarrow \Box F(y)\phi$	3,6

Step 1 is an instance of A1. Step 2 is an instance of A3. Step 3 follows from 1 and 2 and the transitivity of conditionals. Step 4 is an instance of A2. Step 5 is an instance of A4. Step 6 follows from 4 and 5 in virtue of propositional logic. The conclusion 7 follows from 3 and 6 in virtue of propositional logic. The result is that the schema $F(y)\phi \rightarrow \Box F(y)\phi$,

which I shall call MA after the Main Argument, is a theorem. This correctly parallels what the (informal) Main Argument aimed to prove. The (informal) Main Argument given above starts with the assumption that Jane will raise her right hand tomorrow, and then concludes through the steps we have seen above that she will *necessarily* do so. The formal version has as a conclusion the conditional MA which reflects such a pattern. Interestingly, Ockhamism and Mutable Futurism do not accept at least one of the 4 axioms which together provide MA. Under Ockhamism, A3 does not hold unrestrictedly because if ϕ is replaced by a formula which starts with the future operator, we might be dealing with a case where the antecedent of A3 reports one of those soft facts about the past over which necessity does not apply. Under mutable futurism, A1 and A2 do not hold unrestrictedly. Given that what will happen can change, there are cases where even if something will now be the case, it wasn't going to be the case in the past (against A1). And there are also cases where something was going to be the case, and then it ended up not happening (against A2).

MA is a principle standardly employed to support fatalism. Yet, it should be noted that MA does not entail fatalism by itself. A further principle is needed, namely the Future Excluded Middle (FEM), $F(x)\phi \vee F(x)\neg\phi$ — which must not be confused with the Excluded Middle ($\phi \vee \neg\phi$) because in the former the negation is embedded in the future operator. FEM has a strong intuitive force. It is justified by the very plausible thought that among two mutually exclusive events which exhaust the possibilities, one of the two will take place at a given future time. With the help of FEM and classical logic, we can proceed further with the argument FEM-MA-F (From the Future Excluded Middle and the Main Argument to Fatalism).

FEM-MA-F

1	$F(x)\phi \vee F(x)\neg\phi$	FEM
2	$F(x)\phi \rightarrow \Box F(x)\phi$	MA
3	$F(x)\neg\phi \rightarrow \Box F(x)\neg\phi$	MA
4	$\Box F(x)\phi \vee \Box F(x)\neg\phi$	1,2,3

This way, the fatalistic thesis — given any act and any agent, either it is necessary that the agent performs the act at a future time T , or it is impossible that the agent performs it at T — is eventually reached at line 4.⁷

To sum up, I here⁸ take fatalism to be a position which accepts the 4 axioms given above which provide MA as a theorem, the plausible principle FEM, and therefore the resulting fatalistic conclusion at line 4. In the next section we shall see what this has to do with the introduction of a third truth value with respect to future contingents.

⁷To be more precise, it is worth mentioning some further steps. If we assume that the negation and the future operator commute freely, i.e. that the negation can be moved from inside the scope of the future operator to its outside (and viceversa), without affecting the truth conditions of the sentence, then we have that $F(x)\neg\phi$ and $\neg F(x)\phi$ are equivalent. If so, we have that $\Box F(x)\neg\phi \leftrightarrow \Box \neg F(x)\phi \leftrightarrow \neg \Diamond F(x)\phi$, in virtue of basic principles of modal logic and the commutation just mentioned. As a result, from line 4 of FEM-MA-F we can derive $\Box F(x)\phi \vee \neg \Diamond F(x)\phi$, which reflects the fatalistic thesis that right now any future event, those involving agents' actions included, is such that it is either *necessary* that it will happen or *impossible* that it will. No further option is left. More on the commutation between negation and the future operator in section 3.

⁸Of course, there are different ways to reach the same fatalistic conclusion, without resorting to the Main Argument. For instance, Taylor (1962) provides an argument in favor of fatalism which takes as assumptions principles that are different from the ones we have seen in this section.

2 The Introduction of a Third Truth Value

We are now in a position to see how to argue, via fatalism, for the first of the two views on future contingents here discussed, namely the third truth value view. We will illustrate this with the help of a quote from the seminal work of Łukasiewicz (1930) on three-valued logic.

I can assume without contradiction that my presence in Warsaw at a certain moment of next year, e.g. at noon on 21 December, is at the present time determined neither positively or negatively. Hence it is possible, but not necessary, that I shall be present in Warsaw at the given time. On this assumption the proposition I shall be in Warsaw at noon on 21 December of next year can at the present time be neither true nor false. For if it were true now, my future presence in Warsaw would have to be necessary, which is contradictory to the assumption. If it were false now, on the other hand, my future presence in Warsaw would have to be impossible, which is also contradictory to the assumption. Therefore the proposition considered is at the moment neither true nor false ... (p. 53)

The first thing to note is that Łukasiewicz rejects fatalism. For Łukasiewicz starts his reasoning by saying that both his future presence in Warsaw and his absence are possible and not necessary, in contrast with the fatalistic idea that one of the two must be necessary. We state this thought with (1).

- (1) it is not necessary in 1930 that Łukasiewicz will be in Warsaw one year later and it is not necessary in 1930 that Łukasiewicz will not be in Warsaw one year later.

I have just said that this should count as a rejection of fatalism, rather than as a refutation. In fact, Łukasiewicz does not here provide any reason to believe that his future whereabouts is not yet determined. Although this is intuitively highly plausible, it may very well be that how things are in 1930 determines Łukasiewicz's whereabouts one year later. Hence, (1) seems here to be grounded on nothing more than an intuitive basis. Whether

Łukasiewicz has somewhere else good reasons to justify anti-fatalistic claims like (1) should not interest us here, though. What must interest us most is that when Łukasiewicz says ‘for if it were true now, my future presence in Warsaw would have to be necessary... If it were false now, on the other hand, my future presence in Warsaw would have to be impossible...’ he accepts the principle MA.

To sum up, Łukasiewicz accepts MA, the principle used in most of fatalistic arguments, and rejects fatalism in virtue of the counterexample (1). Thus far the position is tenable, given that fatalism is implied by MA *together* with FEM, as the valid argument FEM-MA-F in the previous section showed. However, FEM-MA-F validity implies that FEM is the principle which has to be relinquished in order to hold MA and reject fatalism. This move will lead us to the introduction of a third truth value for future contingents.⁹ To see why things are so, I consider the argument FEM-MA-F with respect to Łukasiewicz’s whereabouts in 1931. We reason as if we were in 1930 and we take ‘*w*’ to stand for

⁹There are ways to accept both FEM and an assignment of the third truth value to future contingent sentences. For instance, Tooley (1997) and Bourne (2004) have this goal. However, in these accounts, the introduction of a third truth value is justified by considerations related to indeterministic laws of nature. Given that here I am interested in the justification of the introduction of a third truth value which has to do with fatalism, I set these positions aside. In any case, Iacona (2007) offers an overview and a criticism of them. MacFarlane (2003, 2008) offers a view that relinquishes the absoluteness of truth values of future contingents. Roughly, in his semantics and postsemantics, truth is relative both to a context of utterance and a context of assessment. This view preserves FEM, whilst future contingents can take a third truth value, at least in some pairs of contexts of utterances and assessments. In another vein, Cariani and Sartorio (2018) offer a view such that its semantics for future contingents preserves the Future Excluded Middle, while maintaining a sense according to which there might be indeterminacy with respect to their present truth value. Their semantics presupposes that in case multiple futures are possible, there is a unique fully specified way things will actually be (p. 142). That being so, each future contingent is evaluated in the unique actual future, which is provided in the semantics by the context. This way, to use the case at hand, we have that $F(1)w \vee F(1)\neg w$, because one of the two must happen in the unique actual future, and thus FEM is preserved. However, building on Barnes and Cameron (2009), they argue that there is still room for indeterminacy outside semantics. In the case of future contingencies, they claim that it is indeterminate which context the utterance of a future contingent sentence takes place in.

‘Łukasiewicz is in Warsaw’.¹⁰

- (2) $F(1)w$ is true or $F(1)\neg w$ is true
- (3) if $F(1)w$ is true, then necessarily $F(1)w$
- (4) If $F(1)\neg w$ is true, then necessarily $F(1)\neg w$
- (5) therefore, necessarily $F(1)w$ or necessarily $F(1)\neg w$

Premise (2) is not exactly an instance of (FEM), nor are (3) and (4) exact instances of MA, because of the presence of ‘is true’. Yet, the argument just given can be obtained from FEM-MA-F by making the plausible assumption that ‘ ϕ ’ is true if and only if ϕ .¹¹

Again, by rejecting the conclusion (5) in virtue of (1), and by assuming the truth of (3) and (4), we have to give up the quasi-instance of FEM (2). What happens if we claim that (2) is false? (2) is a disjunction, equivalent to a negation of the conjunction of the two disjuncts negated. Hence, saying it is false gives us (\neg 2)

- (\neg 2) (it is not the case that $F(1)w$ is true) and (it is not the case that $F(1)\neg w$ is true)

(\neg 2) is a conjunction, so by classic logic we are allowed to draw conclusions from both conjuncts and then put the results together. We start from the first conjunct.

- (i) it is not the case that $F(1)w$ is true. (ii) Hence, $F(1)w$ is false. (iii) Therefore, $\neg F(1)w$

¹⁰The reasoning which follows features both the object language and the metalanguage. This is so because we are dealing with what truth value we should assign to sentences in the object language and the object language cannot contain truth predicates for obvious reasons.

¹¹Another position on the issue worth mentioning at this point is Supervaluationism, see for instance Thomason (1970). Such semantic theory of tenses is designed to preserve FEM while assigning a third truth value (or a truth-value gap) to future contingent sentences. Thomason denies the equivalence that ‘ ϕ ’ is true if and only if ϕ . Or else one might start from instances of FEM featuring future contingents, and then proceed via the equivalence to assign truth or falsehood to every future contingent, leaving no room for values in between. At any rate, I set aside this position because here I am interested in the justification of the introduction of a third truth value that is based on the acceptance of MA. Thomason’s theory does not accept such principle (see p. 275).

Step (ii) is justified if bivalence — the principle according to which truth and falsity are mutually exclusive and jointly exhaustive values — holds and we use standard truth tables compatible with bivalence. If truth and falsity are the only possible truth values as bivalence dictates, from the fact that it is not the case that $F(1)w$ is true, it must follow that $F(1)w$ is false. Step (iii) is justified by the thought that the negation of a false claim is true, which holds independently of bivalence.

The second conjunct leads us to $F(1)w$ in a similar but slightly more complicated way.

(iv) it is not the case that $F(1)\neg w$ is true. (v) Hence, $F(1)\neg w$ is false. (vi) Hence, $\neg F(1)\neg w$. (vii) Hence, $\neg\neg F(1)w$. (viii) Therefore, $F(1)w$

Step (v) is justified if bivalence holds. Again, if truth and falsity are the only possible truth values, from the fact that it is not the case that $F(1)\neg w$ is true, it follows that $F(1)\neg w$ is false. Step (vi) is justified by the idea that a negation of a false statement is true, which, as just seen, is independent from bivalence. Step (vii) moves the negation sign which follows the future operator in (vi) before the future operator. Its intuitive ground is the fact that saying that at a given future time something will not take place is tantamount to saying that it is not the case that at the given future time that thing will take place. We shall see later that the claim just made can be disputed. Step (viii) is just the result of canceling out two negation signs from (vii), which holds within classical logic.

As a result, we have that the acceptance of (\neg 2), bivalence and other inferential principles gave us (iii) and (viii), which together form a plain contradiction. Hence, something must be given up. At this point, a third truth value theorist decides to give up bivalence. Statements about future events that are not presently settled, like Łukasiewicz whereabouts one year hence, take a third truth value which goes beyond the list of truth values allowed by bivalence. This way, both $F(1)w$ and $F(1)\neg w$ take this third truth value. It doesn't matter how we call this third truth value. It is usually referred to as indeterminate, neuter or neither true nor false. What is important is that it represents a middle ground between

truth and falsehood, and that the introduction of it amounts to a denial of bivalence. Moreover, given that both $F(1)w$ and $F(1)\neg w$ have the third truth value, neither of them is true. Hence, the disjunction $F(1)w \vee F(1)\neg w$ is not true either, meaning that FEM is not valid, in accordance with the initial step that consisted in denying (2).¹² Denying (2), or equivalently accepting ($\neg 2$), also gave rise to a contradiction through the steps (i)-(iii) and (iv-viii). However, the third truth value theorist can block it. By jettisoning bivalence as she does, the steps from (i) to (ii) and from (iv) to (v) are no longer correct. From the fact that (i) it is not the case that $F(1)w$ is true it does not follow (ii) that $F(1)w$ is false, because $F(1)w$ can have the third truth value, and likewise for (iv-v). Hence, the path to the contradiction is stopped and a third truth value is coherently introduced.

3 The All-false View

It turns out that a reasoning along the lines of the one just showed, i.e. via fatalism, can be used to argue for the second view here discussed, namely the view according to which future contingents are all false. Priorean Peirceanism is one of such views.¹³ The reasoning is similar in virtue of the fact that the initial steps are the same as the ones we have seen in the previous section. That is, we start by holding MA and by rejecting fatalism. This forces one to reject FEM in virtue of FEM-MA-F validity. To stick to the example used above, we end up denying the quasi-instance of FEM (2), and thus we have ($\neg 2$).

($\neg 2$) (it is not the case that $F(1)w$ is true) and (it is not the case that $F(1)\neg w$ is true)

From it, we again have the two inferences from its two conjuncts, and the consequent contradiction formed by (iii) and (viii).

(i) it is not the case that ($F(1)w$ is true). (ii) Hence, $F(1)w$ is false. (iii) Therefore,

¹²Under Supervaluationism (see fn. 11), this does not hold. Instances of FEM can be true even if neither disjunct is. But again, we set aside this position here.

¹³See Prior (1967) and Øhrstrøm and Hasle (2015) for Priorean Peirceanism. A recent original way to justify an all-false view can be found in Todd (2016).

$\neg F(1)w$

(iv) it is not the case that ($F(1)\neg w$ is true). (v) Hence, $F(1)\neg w$ is false. (vi) Hence, $\neg F(1)\neg w$. (vii) Hence, $\neg\neg F(1)w$. (viii) Therefore, $F(1)w$

At this point, the reasoning employed to argue for the all-false view via fatalism departs from the one used to justify a third truth value view. Whereas the reasoning we have seen above blocks the steps from (i) to (ii) and from (iv) to (v), in this case we accept those steps, and we conclude the reasoning here by saying that both $F(1)w$ and $F(1)\neg w$ are false. Bivalence is thus preserved because a third truth value is not introduced. And, FEM is not valid because of cases like $F(1)w \vee F(1)\neg w$, which is false in virtue of the falsehood of both disjuncts. Like in the third truth value view, at this point something must be said to avoid having both (iii) and (viii). At least one of the paths which led us there must be stopped. The all-false theorist can resort to the following strategy. The main idea is to claim that the operator $F(n)$ means something like “it is presently determined that in n time units it will be the case that...”. This way $F(n)\phi$ is true if and only if ϕ is already settled, and false otherwise. This means that $F(n)\phi$ is false in two cases. Either $F(n)\phi$ is false because $\neg\phi$ is determined to happen in the future, or because ϕ is not presently settled. This also means that formulas like $F(n)\neg\phi$ and $\neg F(n)\phi$ are not equivalent, under such reading of the future operator. Whereas the implication from $F(n)\neg\phi$ to $\neg F(n)\phi$ *does* hold, the one from $\neg F(n)\phi$ to $F(n)\neg\phi$ does *not*. For if we have $F(n)\neg\phi$, then $\neg\phi$ is settled to happen n units of time hence. Thus $F(n)\phi$ is false, and its negation $\neg F(n)\phi$ is guaranteed to be true. In the other direction though, if we have $\neg F(n)\phi$, then $F(n)\phi$ is false. But $F(n)\phi$ is false in two cases. Either because $\neg\phi$ is presently settled, or because both ϕ and $\neg\phi$ are presently unsettled. In the latter case, $F(n)\neg\phi$ is false, and thus it is not guaranteed to be true when $\neg F(n)\phi$ holds. Thus we do not have this equivalence. In light of this, the step from (vi) to (vii) is not legitimate. For $F(1)\neg w$ is embedded in a negation, and therefore

cannot be replaced by $\neg F(1)w$, the two formulas being not equivalent.¹⁴ Hence, the path to the contradiction is stopped and the all false view is coherently motivated.¹⁵

4 Conclusion

The main aim of this paper was to show how the third truth value view and the all-false view about future contingents can be argued for *via fatalism*. To recap, the reasoning went as follows. MA and FEM entail fatalism, a doctrine which is often considered untenable. Moreover, fatalism clashes with claims like the one mentioned by Lukasiewicz in the quote above. At this point, one willing to accept such claims has two strategies available. Either rejecting MA, or rejecting FEM. I here showed how a rejection of FEM can motivate the third truth value view and the all-false view. In short, I showed how claiming that the quasi-instance of FEM (2) is false can set in motion a reasoning that motivates the two views. Then, by relinquishing bivalence, we end up claiming that future contingents take the third truth value. By retaining bivalence, we have the all-false view.

Although this paper had mostly an elucidatory goal, a final general philosophical remark can be made. Someone willing to avoid fatalism is not forced to give up FEM and hold MA. Another option available is to reject MA and hold FEM. FEM is certainly more plausible than MA on an intuitive basis, and this gives us *prima facie* reasons to prefer FEM over MA. It is true that MA follows as theorem from the 4 axioms seen in section 1. Yet, this way of obtaining MA parallels the reasoning the (informal) Main Argument makes. And,

¹⁴I thank an anonymous referee of the journal *Analytic Philosophy* for helpful comments on this part.

¹⁵Both the third truth value view and the all-false view face the so-called prediction problem. Suppose someone said in 1930 that Lukasiewicz will be in Warsaw one year hence. Assume then that when 1931 comes, Lukasiewicz as a matter of fact finds himself in Warsaw. It seems correct to say that what has been claimed in 1930 was true. But this is not what the two views say. According to the third truth value theorist, what was said wasn't true because it was neither true nor false. According to the all-false theorist things are even worse, because what has been said was literally false. This problem can be, and has been, addressed in several ways. Given that I am here concerned with how the two views can be motivated via fatalism, I set this problem aside.

the Main Argument is at best highly controversial and at worst sheer sophistry. Moreover, I showed that there are at least three ways to oppose the (informal) Main Argument: claiming that the proposition used in the Main Argument have a truth value *simpliciter* rather than at a time, Ockhamism, and Mutable Futurism. Ockhamism and Mutable Futurism also offer us reasons to discard at least one of the 4 axioms which together entail MA — under Ockhamism, A3 does not hold, whereas under Mutable Futurism, A1 and A2 do not hold. Therefore, we have at our disposal at least two strategies to reject MA and hold FEM without running into the threat of fatalism. This should incline us to prefer these ways of escaping fatalism, ways that leave in tranquility the law of the future excluded middle.

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