Modal Fictionalism—A Happy Ending?

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Modal Fictionalism, Possible Worlds Semantics and Quasi-Truth 

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Introduction

Gideon Rosen, in his provocative work [1990], has triggered a lively discussion about how to reconcile two straightforward thoughts: that in the discussion of modality the talk of possible worlds is illuminating, and nonetheless that for many people it is also a matter of make believe (see Rosen [1995], p. 67). The main idea is to devise a strategy in which the analysis of modal discourse supplied by an appropriate theory of possible worlds, such as Lewis’s modal realism (see his [1986]), can be adopted, but without the burden of its ontological cost, that is, without the commitment to the existence of non-actual worlds. This strategy, and its companion philosophy, is suitably denominated ‘modal fictionalism’.

But how is it accomplished? Basically, by the introduction of a fiction operator, or a story prefix, as Rosen calls it – namely, ‘In the fiction F, ...’ –, before the modal realist’s analysis of modal claims. According to the modal realist, such claims are paraphrased by the following biconditionals:

(A) Possibly P is true iff there is a world at which P is true.
(B) Necessarily P is true iff at all worlds P is true.

Given these biconditionals, the modal fictionalist will simply advance the parasitic analysis:

Possibly P is true iff according to the many-worlds fiction, there is a world at which P is true.
Necessarily P is true iff according to the many-worlds fiction, at all worlds P is true.

As a result, no ontological commitment to possible worlds is required. Indeed, the claims made by the fictionalist are about the content of a fiction (the

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possible worlds story), whose truth is not presupposed, and thus no belief in the items described in such a fiction is demanded (see Rosen [1990], p. 338). Where the modal realist analyses a sentence such as 'There might have been blue swans' in terms of the existence of a non-actual world in which there are blue swans, the modal fictionalist simply asserts the uncontroversial claim that, according to the possible worlds fiction, there is a world in which there are blue swans. Hence, as its author insists, the fictionalist's employment of the possible worlds idiom is nothing but 'an ontologically innocent façon de parler' (Rosen [1993], p. 73).

This is an ingenious, simple and provocative idea. If it works out, one can claim to have 'all the benefits of talking about possible worlds without the ontological costs' (Rosen [1990], p. 330).

Not surprisingly, however, difficulties were soon to emerge. The proposal has received two kinds of criticisms: (i) those concerning the nature of the account to be advanced (in particular, its coherence), and (ii) those concerning the project that it was meant to accomplish (its adequacy). With regard to (i), we have the charge that, despite the initial intention, modal fictionalism is actually committed to the existence of possible worlds (see Brock [1993] and Rosen [1993]). However, this charge is not decisive, since a modified version of modal fictionalism can be advanced where no such a commitment is found (see Noonan [1994], and Rosen [1995], p. 68). On the other hand, it has also been argued that the fictionalist is led to a dilemma once one asks whether he or she takes the realist's ontological hypothesis about the plurality of worlds as necessarily false or only contingently false (see Hale [1995a]). In both cases, it is claimed, the fictionalist runs into trouble. But, again, the difficulty does not seem to be conclusive. The fictionalist takes the realist's hypothesis as being necessarily false, but does not accept the assumptions that Hale assigns to fictionalism in order to generate the dilemma (see Rosen [1995], pp. 69-70; see also, however, Hale [1995b]).

Up to this point, the fictionalist seems to be doing well: with less ontological costs, he or she claims to be able to earn all the advantages supplied by the use of possible worlds. That this may not be really so is the outcome of the criticism of type (ii). This point is forcefully made by Divers with his claim that modal fictionalism cannot deliver possible worlds semantics (see his [1995]). This is a different kind of criticism, as Divers himself makes clear, since instead of emphasising the costs of the fictionalist programme, it stresses that the programme cannot supply the benefits it was supposed to offer. This is an important point, and if established, would undermine much of the rationale for developing the kind of fictionalism Rosen is concerned with. After all, the fictionalist, despite the disbelief in non-actual worlds, does not wish to lose the gains offered by the semantics formulated in terms of them.

The aim of the present paper is to discuss the charge put forward by Divers, pointing out (in section 1) that it is not so decisive as it appears at first sight.
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The attractive feature of a semantic theory' ([1995], p. 89). The fictionalist, I believe, accepts that, especially in Rosen's case, whose analysis is not meant to be reductive: there is a primitive modal element in it — the fiction operator (see Rosen [1990], pp. 344-349). It is, thus, deliberately intensional. Indeed, this is a strong feature of modal fictionalism: it means that, at least in principle, the modalities that one is trying to accommodate are taken seriously. They are not simply explained away by an extensional reduction — which, by its very nature, is inappropriate to represent the modalities under consideration (for a discussion, see Rosen [1990], p. 348, and for supporting arguments, see Stalnaker [1984]).

But of course Divers's charge is that, if this is so, the modal fictionalist is unable to deliver a possible worlds semantics, given that a distinctive trait of this semantics is the extensional analysis it offers. But against that, the fictionalist has a second strategy to analyze modal arguments, which will offer the semantics in question. Divers himself, before presenting his second criticism which is precisely addressed to this strategy, summarizes the latter nicely.

Let us say that an argument that has a form whose validity can be demonstrated by first-order (and so extensional) methods has feature $E$. Assume, then, that the genuine modal realist is entitled to assert

$$(MR2) \quad [P_1, \ldots, P_n; \text{so } C] \text{ has } E.$$  

The problem with the direct fictionalist strategy is that it does not provide the fictionalist with a warrant to assert the appropriate instance of $(MR2)$. Now on the indirect fictionalist approach, when the modal fictionalist wants to determine the validity of an ordinary modal argument such as $[P_1, \ldots, P_n; \text{so } C]$ he will map it onto [the standard modal realist interpretation of that argument] and assess [such an argument] by first-order methods. Thus, the modal fictionalist may, so to speak run the semantics just as the genuine realist would, deploying realist versions of premises and conclusions. The fictionalist may then join with the genuine modal realist in issuing tokens of $(MR2)$ subject to the standard pragmatic defence that when he (the fictionalist) does so, the proposition that he intends to express is that given explicitly by

$$(MF2) \quad \text{According to PW, } [P_1, \ldots, P_n; \text{so } C] \text{ has } E.$$  

So, by applying the indirect strategy, the modal fictionalist is entitled to assert the sentence $(MR2)$. (Divers [1995], pp. 85-86)

As we shall see, the modal fictionalist can endorse all of this, except the last sentence.

The point of the second strategy is to provide a possible worlds semantics for a modal language, and this strategy is actually opened to the modal fictionalist. The main aspect to observe is that when mapping his or her analysis of modal claims onto the modal realist's, the modal fictionalist is not using the

claims spelled out in terms of the modal realist's analysis, but only referring to them, in order to establish whether certain modal claims follow from others. In other words, the modal fictionalist is concerned with studying the logical consequence relation between modal claims (analyzed in terms of the modal realist's talk). Now, the study of logical consequence is a metalogical study, and thus although it may commit the modal fictionalist to mathematical structures (given that logical consequence is usually spelled out in terms of mathematical models), it certainly does not commit him or her to possible worlds. Indeed, this study involves no claim about the existence of such worlds, but only claims about logical relationships between certain structures — the models of the sentences in question — in order to determine which sentences follow from which.

Now, what the modal fictionalist is fictionalist about are possible worlds. Thus, modal fictionalism as such is not necessarily committed to a fictionalism about mathematical structures. In this way, when providing a semantics, the modal fictionalist is allowed to use the model-theoretic account of logical consequence. Hence, the second strategy is a viable option for him or her.

After determining whether a modal claim follows or not from a set of modal claims by extensional methods, the modal fictionalist maps back the (modal realist's analysis of the) argument under consideration to his or her own account in terms of the fiction operator. After all, it is when modal claims are actually used that the fiction operator is introduced, in order to avoid the ontological commitment to possible worlds. Thus, a two-step strategy is involved here. (1) When used (and not only mentioned), modal claims are spelled out in terms of the modal realist's analysis plus the fiction operator. (2) When mentioned, in order to determine the consequence relation between modal claims, such claims are mapped onto the modal realist's account; but here, since these claims are not used, there is no commitment to possible worlds. To sum up, the modal fictionalist needs the fiction operator in order to assert (conveniently analyzed) modal claims without ontological costs. But in order to determine what inferences hold between such claims, he or she is free to use the model-theoretic account of logical consequence with no recourse to possible worlds.

At this point, Divers puts forward two criticisms. This second strategy produces semantic theories that, according to the fictionalist point of view, (i) 'misperrepresent' the semantic structures of object-language sentences' and (ii) 'repre-

According to the model-theoretic account of logical consequence, a sentence $\alpha$ is a logical consequence of a set of sentences $\Gamma$ if all models of $\Gamma$ are models of $\alpha$.  

This is a remarkable asymmetry between Rosen's modal fictionalism and Field's mathematical fictionalism (see Field [1989]), since the latter is not entitled to adopt the model-theoretic approach, given the commitment it brings to mathematical structures. If the modal fictionalist wishes to embrace mathematical fictionalism, he or she will have to adopt (with Field [1989]) appropriate object-language surrogates for the notion of logical consequence. Divers acknowledges and elegantly explores this point in support of modal fictionalism (see his [1998]).
sent many (prima facie) true sentences of the object-language as falsehoods' ([1995], p. 86). However, neither of the criticisms follow from the second strategy, given the remarks about logical consequence just made. Strictly speaking, this strategy is neither concerned with the representation of semantic structures of sentences, nor actually leads to wrong assignments of truth-values to the sentences which are analysed. Its point is to allow the evaluation of modal arguments in a fictionalist way, exploring the resources of modal realism without undesirable ontological commitments. Let me spell this out.

With regard to (i), there is no misrepresentation, from the fictionalist viewpoint, of the semantic structures of object-language sentences. As we saw, when modal sentences are used, their semantic structures are precisely those supplied by modal realism, but appropriately 'fictio nalised', that is, prefixed by the fiction operator. Without this operator, such sentences are never used; at best, they are referred to for the purposes of evaluating modal arguments. If there is any misrepresentation in this move, it should be traced back to the modal realist, who relies on the existence of non-actual worlds in order to accommodate modal claims. Put in other words, there is no more misrepresentation of the semantic structures of object-language sentences in the fictionalist view than in

the modal realist proposal, since the former is nothing but a claim about the latter. Someone may complain that to explain modal assertions in terms of possible worlds – given the weirdness of the latter – is a misrepresentation of the former. But again this is a criticism of modal realism, although perhaps not a very compelling one (see Lewis [1986], pp. 133-135).

Divers's argument for (ii) is an example. In his view ([1995], p. 86), the fictionalist interprets the (prima facie) true sentence

1. There might have been blue swans

as

2. (\exists x) (Wx & (\exists y) (Lyx & Sy & By))

which, of course, would be false from the fictionalist point of view. (In the fictionalist picture, there is no non-actual world.) However, the fictionalist's analysis of (1) – when (1) is actually used, asserted – is not the one presented by Divers, but runs as follows:

3. According to the many-worlds fiction, ([\exists x](Wx & (\exists y)(Lyx & Sy & By)).

And (3) is, of course, true from the fictionalist's perspective, since (2) – the main component of (3) – is in fact true according to the possible worlds hypothesis. So, as one would expect, it has the same truth-value as the sentence it analyses, namely, (1). Thus, as opposed to Divers' claim, the fictionalist does not represent (prima-facie) true sentences of the object-language as falsehoods.

Now, Divers has presented this argument because, in his view, the fictionalist, in following the second strategy, is committed to assert to (MR2), instead of (MF2). As opposed to this, we should notice that if a sentence follows from the modal realist extensional framework, according to the modal realist point of view, it then follows from the modal fictionalist's proposal, given the parasitic way in which the latter was formulated. As we saw, with the second strategy, the fictionalist does not need to run the extensional semantics herself. She simply maps (her analysis of) the modal argument onto the modal realist's analysis, and evaluates the argument by extensional methods – which does not require, as we saw, the use of the sentences which constitute the argument. In doing so, the fictionalist does not need to 'assert to the sentence (MR2)' ([1995], p. 86), but only to the ontologically weaker (MF2). Indeed, if the modal realist is able to derive P*\textsubscript{n} from P*\textsubscript{1} ... P*\textsubscript{n-1} (where each P*\textsubscript{i} is an appropriate version, in terms of possible worlds, of the modal claim P), the modal fictionalist is entitled to assert to 'According to the modal realist fiction, P*\textsubscript{n} follows from P*\textsubscript{1} ... P*\textsubscript{n-1}'. And given the second strategy, this is of course enough for the modal fictionalist to provide the required semantics.

One may argue, however, that the modal fictionalist owes us an explanation of why this manoeuvre works.\textsuperscript{6} Consider, for instance, a fictionalist about mathematics such as Hartry Field. It is not enough for his fictionalism just to introduce an appropriate fiction operator before each mathematical claim; for example: according to arithmetic, 2 + 2 = 4. Field has to explain, and actually show, that mathematics is conservative in order to assert that it can be good although not true (since there is no commitment to the existence of numbers, functions etc.).\textsuperscript{7} In other words, Field has to present an explanation of why mathematics, being only a fiction, is still good and useful. Now, Divers points out, the modal fictionalist has also to present a similar explanation.

This is a fair point, but one that the modal fictionalist can meet easier than Field (since the former can rely on all the work that the latter has already done). Indeed, what the fictionalist has to establish is that the possible worlds talk (that is, what his or her fictionalism is about) does not have to be true to be good: it only has to be conservative with respect to modal claims. (I shall call this feature m-conservativeness.) More clearly, and adapting Field's remarks (see his [1989], p. 58), a possible worlds theory PW is m-conservative if it is

\textsuperscript{5} As we saw, when mapped onto the modal realist's analysis, as part of the evaluation of a modal argument, neither (1) nor (2) are used; at best, they are referred to. Therefore, no commitment to possible worlds is involved here.

\textsuperscript{6} This point was made by Divers in a personal communication (see also Divers [1998]).

\textsuperscript{7} See Field [1989], pp. 4 and 54, note 2.
consistent with every internally consistent set of modal claims. From this it follows that PW is m-conservative if and only if for any modal assertion A and any body M of such assertions, A does not follow from M + PW unless it follows from M alone. (A proof of this result can be found in the appendix below.) Thus, if the possible worlds theory is m-conservative, the modal fictionalist, just as the mathematical fictionalist with respect to mathematics, is entitled to use the possible worlds talk only to facilitate inferences involving modal claims.\textsuperscript{8} The point is that it is because the possible worlds semantics is nothing but an 'extensional translation' of modal claims that it is m-conservative. Thus, in reply to Divers, the modal fictionalist has an explanation to support his or her proposal.

I conclude that Divers has not shown that the fictionalist cannot deliver possible worlds semantics. And so, given the second strategy, the fictionalist can still claim to be able to supply such a semantics without incurring ontological costs. Now, it may well be that modal fictionalism cannot provide other putative benefits associated with possible worlds, or even that it faces some other decisive predicaments. Nevertheless, at least with regard to this particular issue, the modal fictionalist is in a rather good shape.

Let us suppose, however, that Divers showed that there is no possibility for the modal fictionalist to put forward this semantics. Would it then follow that no version of modal fictionalism can be developed, and that the programme is a non-starter? Of course not. One can always devise a distinct version of it. The purpose of the next section is to suggest a different formulation of modal fictionalism – one, in particular, which is not subject to the usual criticisms that have been addressed to Rosen’s thus far.

2. Modal Fictionalism and Quasi-Truth

In the last ten years, Newton da Costa and Steven French have been developing a programme of interpretation of science whose main pillars are the notions of partial structures and quasi-truth (as first introduced in Mikenberg, da Costa and Chuaqui [1986]). Several problems in the philosophy of science can be seen in a new light when considered from this perspective: from the interpretation of probability theory to the logic of induction (see da Costa [1986], and da Costa and French [1989]), from the role of models in science (see da Costa and French [1990]) to the formulation of criteria of acceptance of theories (see da Costa and French [1993]). The main idea involved in the new version of modal fictionalism to be presented here, is to extend da Costa’s and French’s partial structures approach in such a way that modalities can be explicitly taken into account. In order to do so, I shall present very briefly the main formal features of their approach.

\textsuperscript{8} See also McGinn [1981] (for a critique, see Papineau [1986]).

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Da Costa’s and French’s main idea is to put forward a weaker notion of truth, quasi-truth, appropriate for the ‘partialness’ and the ‘openness’ typically found in science and in everyday life. In fact, we hardly have at our disposal complete information about any particular domain of inquiry. This epistemic predicament can be formally represented with the introduction of partial structures. A partial structure is a set-theoretic structure \( A = \langle D, R_{\text{def}} \rangle \), where \( D \) is a non-empty set and \( (R_{\text{def}})_{\alpha \in I} \) is a family of partial relations; such relations are partial in the sense that they are not necessarily defined for every \( n \)-tuples of objects of \( D \).\textsuperscript{9} Given a partial structure \( A \), we say that a structure \( B \) is an \( A \)-normal structure if the relations in \( B \) extend the partial relations in \( A \) to total ones (and thus \( B \) contains exclusively total relations). Of course, given a partial structure \( A \), there may be several distinct \( A \)-normal structures \( B \) that extend \( A \) to a total structure. (Necessary and sufficient conditions for the existence of \( A \)-normal structures can be found in Mikenberg, da Costa and Chuaqui [1986].) A sentence \( S \) will then be quasi-true in a convenient partial structure \( A \) if there is an \( A \)-normal structure \( B \) in which \( S \) is true (in the Tarskian sense). In terms of this notion of quasi-truth, here presented very roughly, a formal framework, appropriate to consider all those problems mentioned in the last paragraph, can be advanced.

A new approach to modal fictionalism can then be articulated in terms of this setting. This will be done in two steps. We first introduce an analysis of modal claims in terms of partial structures. Having done that, since no commitment to possible worlds was assumed throughout the analysis, there is enough room left for a modal fictionalist case. The plausibility of the first step derives from the fact that, although there is no quantification over possible worlds in the definition of quasi-truth (but only over set-theoretic structures), it is possible, for heuristic considerations, to identify an \( A \)-normal structure with a Kripke structure, given the similar role played by the former in the definition of quasi-truth and by the latter in the formulation of a semantics for modal sentences (see da Costa, Bueno and French [1998]). By construction, an \( A \)-normal structure can be viewed as being constituted by maximally consistent sets of sentences, and in this sense – and I insist, for heuristic considerations – it can be identified with a possible world. The idea is that the process of ‘extending’ a partial structure \( A \) into an \( A \)-normal, full structure can be viewed (heuristically) as the construction of a possible world. And it is this idea that motivates one to advance an analysis of modalities in terms of partial structures.

The main point is that modal discourse does not have to be true to be good,

\textsuperscript{9} More formally, an \( n \)-place partial relation \( R \) can be viewed as a triple \( \langle R_1, R_2, R_3 \rangle \), where \( R_1, R_2 \), and \( R_3 \) are mutually disjoint sets, with \( R_1 \cup R_2 \cup R_3 = D^2 \), and such that \( R_1 \) is the set of \( n \)-tuples that belong to \( R; R_2 \) the set of \( n \)-tuples that do not belong to \( R; \) and finally \( R_3 \) of those \( n \)-tuples for which it is not defined whether they belong or not to \( R \). (If \( R_3 \) is empty, \( R \) is a normal \( n \)-place relation that can be identified with \( R_1 \); see da Costa and French [1990], p. 255, note 2.)
but only quasi-true (and in this sense, this is a deflationary programme). Having said that, we can now present the truth conditions:

Necessarily $P$ ($\Box P$) is quasi-true (in a partial structure $A$) iff for all $A$-normal structures, $P$ is quasi-true.
Possibly $P$ ($\Diamond P$) is quasi-true (in a partial structure $A$) iff there is some $A$-normal structure in which $P$ is quasi-true.

Three points should be noticed here. The first is that, although from the fact that a sentence $P$ is quasi-true it does not follow that it is true (after all, there might be a distinct $A$-normal structure in which it is not true), if $P$ is quasi-true in all $A$-normal structures, then it is true. Therefore, in the analysis just presented, if $\Box P$ is quasi-true, then $P$ is quasi-true — in fact, in that case, $P$ is true. Thus, just as in the classical case, the following scheme holds: $\Box P \rightarrow P$. The second point is that, from the fact that $\Diamond P$ is quasi-true, although we can actually conclude that $P$ is quasi-true, because quasi-truth does not imply truth, we cannot conclude that $P$ is true. So, we are not led to the modal fallacy of inferring (the truth of) $P$ from (the truth, let alone the quasi-truth, of) $\Diamond P$. These two comments supply some plausibility for the adequacy of the analysis presented. Finally, it is worth noticing that throughout the analysis no quantification was made over possible worlds. Modalities were understood as properties of our structures. In this sense, a truly fictionalist account of modalities has been suggested. Just as the notion of quasi-truth represents the idea that it is just as if a sentence were true (such a sentence is considered in a certain domain, represented by a partial structure), the analysis of modalities just introduced is meant to represent the idea that our modal claims are nothing but an exploration of our models and structures, and no reification of, nor even reference to, possible worlds is required to accommodate this talk.

Although there is much to be said on the suggestions advanced here (and still more to be developed), I would like to close by mentioning some advantages of the present version of modal fictionalism. (a) Due to the use of set-theoretic structures, its expressive power is tremendous; in fact, it is as expressive as the language of modal realism (see Rosen [1990], p. 345, note 24). (b) There is no commitment to possible worlds; indeed, they are not even formulated in the theory presented here. As a consequence, (c) none of the problems addressed to modal fictionalism thus far can be even formulated in the present context, since most of them — especially the type (i) criticisms — are stated in terms of the talk of possible worlds. The upshot of Brock’s, Rosen’s and Hale’s critiques of modal fictionalism is precisely that the modal fictionalist is in one way or another committed to the existence of non-actual worlds. The fact that such issues do not even arise in the present structural proposal supplies, of course, a further argument for it.

(d) With regard to the type (ii) criticism, especially Divers’s point, although the present version of modal fictionalism is not concerned with supplying a possible world semantics (and in this respect it takes a different line from Rosen’s), given the closeness between partial structures and Kripke’s structures, from the formal point of view, it is possible to supply an analysis structurally similar to the one developed in terms of possible worlds. Thus, we can gain the benefits we expect from such a semantics. However, since no talk of worlds is to be found, and no quantification over them is employed, there is no commitment to them. (e) Given that this is a different sort of fictionalism (in comparison to Rosen’s), and we are not employing any kind of fiction operator, there is no explanation to be given about why such an operator works (something that led us to $m$-conservativeness in Rosen’s case). But something has to be said about why the general approach to modal claims in terms of quasi-true works, at least in principle. I will mention just one point: partial structures supply a rich framework to express the most varied sorts of claims (including modal ones, if appropriately analysed), and this framework is intuitively illuminating, since it allows us to represent the process of “building a world” as a process of extending partial structures to total ones.

For what has been said, it seems appropriate to claim that, in one version or another, modal fictionalism is still quite alive — and well.

Appendix

I shall prove here the $m$-conservativeness result referred to in section 1. First let me recall the two main definitions. (1) According to a possible worlds theory $PW$, the following valuations $v$ for a modal language hold:

$v(\forall \alpha) = 1$ iff $\exists w \ v(\alpha) = 1$
$v(\exists \alpha) = 1$ iff $\forall w \ v(\alpha) = 1$

(where the right-hand quantifiers range over non-actual worlds). These truth-conditions have been stated in the metalanguage of the modal language under consideration. But they have obvious object-language counterparts, namely

$\exists \alpha \leftrightarrow \exists w \ \alpha$
$\forall \alpha \leftrightarrow \forall w \ \alpha$.

A possible worlds theory $PW$ is characterised here by these object-language axiom schemes. (2) A possible worlds theory $PW$ is $m$-conservative iff for every consistent set $M$ of modal claims, there is a model of $M + PW$; in other words, for every set $M$ of modal claims, if $M$ is consistent, so is $M + PW$.

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10 These considerations mesh nicely with van Fraassen’s view about modality (see his [1989]).
What we have to establish now is the following characterisation theorem. A possible worlds theory PW is m-conservative iff for every set M of modal claims and every modal claim α, if α is a logical consequence of M+PW, then α is a logical consequence of M alone.

The left to right implication goes as follows. Suppose that PW is m-conservative and that α is not a consequence of M. I shall show that that α is not a consequence of M+PW. Since α is not a consequence of M, there is a model of M (let us call it ‘Mod’) according to which ν_{Mod}(α)=0. However, since PW is m-conservative, given the model Mod of M, there is a model of M+PW. Let us call such a model ‘Mod^#’. I shall show that ν_{Mod^#}(α) = 0. Indeed, since α is a modal claim, either it is of the form ∃β or of the form ∃β. In the former case, we have that ν_{Mod}(α) = ν_{Mod}(∃β) = ν_{Mod}(∃β). But ν_{Mod}(α) = ν_{Mod}(α), since PW is a conservative extension of M, and ν_{Mod}(α) = 0. Therefore, ν_{Mod^#}(α) = 0. The latter case (in which α is of the form ∃β) is treated similarly.

Thus, α is not a consequence of M+PW.

The right to left implication goes as follows. Suppose that PW is not m-conservative. I shall show that for some M and some α, α is a consequence of M+PW, but α is not a consequence of M. Since PW is not m-conservative, there is a consistent set M of modal claims such that there is no model of M+PW. Since M is consistent, there is a model of M. Let us call it ‘Mod’. Let α be a modal sentence such that that ν_{Mod}(α) = 0. Thus, α is not a consequence of M. But α is a consequence of M+PW, since there is no model of M+PW in which ν(α) = 0. This concludes the proof.

References

On a Good Reason to Believe in Possible Worlds

ADRIANO PALMA

The issues surrounding the metaphysics of possible worlds are murky. One of the reason is quite simple: the only access we have to possible worlds is conceptual. The epistemology of possibilities has nothing to do with causal chains. The only rock bottom constraint on the existence of an alleged possible world is logical consistency. What we cannot bar is the world in which Adriano is a pumpkin, or in which ‘adriano is a pumpkin’ is true, nor we can bar the world in which Adriano is not a pumpkin; it does look safe to claim that we can bar the world in which adriano is and is not a pumpkin, dubbing it an impossible world.

I suggest then that we are dealing here with a clash of metaphysical sensibilities. Possible world realist hold that we need a metaphysics encompassing the entire logical space and that cannot be limited to actual states of affairs and sentences expressing them, and related propositions, etc. since we want to be able to distinguish the truth value of ‘Adriano is a pumpkin’ from that of ‘possibly, Adriano is a pumpkin’; and, if we care to, to be able to claim that while ‘seventeen is a prime number’ is true, we also want besides that to be able to state that there is no conceivable set of circumstances under which ‘seventeen is even’ is true. This in turn is deemed by many to be in turn needed when we need to state laws whose semantics is often taken to be supporting counterfactuals, as the saying goes.

Metaphysics is, I fear, one of the few areas in which no experiments are feasible. What we can do is assess the pros and cons of a positions, knowing beforehand that the best result will be an increase in plausibility and nothing else. Metaphysics is at a fundamental level ambiguous. More about that anon.

The debate on possible worlds zeroes in on a desideratum variously expressed as the need for applications of Ockam’s razor, simplicity, robustness of our sense of reality, etc. I present what I take to be the three most important positions and add some comments.

The realist (in its plain expression David K. Lewis is the only realist in this sense) takes it as axiomatic that we must be honestly Quinean. If we take out existential quantifiers as what they are, they are existential, indeed anytime one says something like „things could have turned out in such a way that Adriano would not be in Praha in September“, one is thereby committed, by plain logic, to deduce from that „there is way things could...“, and if there is a way, there is a world in which Adriano is not in Prague in September. That is not (I think) the