

Comments on Ethan Brauer's "Metaphysical Nihilism and Modal Logic"

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Ethan Brauer has presented a neat little argument that if one accepts metaphysical nihilism, the view that it is metaphysically possible that nothing (concrete or abstract) exists, then the correct logic of metaphysical modality is weaker than is usually supposed: not even the **D**-axiom, $\Box P \rightarrow \Diamond P$, is valid.¹ Over the course of defending the argument, numerous interesting issues arise, only a few of which I can touch on here. The argument is targeted at so-called ersatzists, or abstractionists, about possible worlds; and so targeted I think the argument is sound, at least for one way of understanding 'the logic of metaphysical modality'. On that way of understanding, truth conditions for modal operators are given from an internal perspective. But I am doubtful in any case whether the conclusion is very consequential for modal metaphysics. Moreover, because I am a modal realist who, unlike Lewis, accepts metaphysical nihilism, I am interested to see whether some version of the argument applies to my own view. It doesn't. I conclude by saying how my own view escapes Brauer's argument.

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Let me start by saying something about the conclusion of the argument (line 8) which is that **D** is not a sound modal logic. The notion of soundness that is relevant cannot be the notion from modal semantics that is relative to a class of frames, and a specification of validity in terms of

¹ Some terminology. (1) Brauer seems to use 'metaphysical modality' and 'alethic modality' interchangeably. But since alethic modality, as ordinarily understood, includes also epistemic and nomic modalities, I will stick with the former term. (2) **D** is the modal logic one gets by adding the axiom $\Box P \rightarrow \Diamond P$ to the weakest normal logic **K**. Because $\Box P \rightarrow \Diamond P$ and $\Diamond T$ are equivalent in **K**, one can instead take $\Diamond T$ to be the characteristic **D**-axiom, where T expresses the tautologous proposition true in all worlds.

those frames. Rather, I take it the notion of soundness invoked is *absolute*: **D** is *sound* iff the theorems of **D** are *really* valid, valid according to the *correct* logic of metaphysical modality. I am not sure exactly how Brauer would understand ‘really valid’, but all that we need for the argument to go through is given by line 7: if **D** is a sound modal logic, $\Diamond T$ is true in every possible world. It is a disputed matter whether truth in every possible world is, indeed, required for (logical) validity. But, setting the notion of validity aside, let me grant Brauer’s assumption that it is a necessary condition on the theorems of the correct modal logic that they be true in every possible world. I will understand Brauer’s conclusion to be: the correct modal logic does not include **D**.

Brauer assumes throughout the paper that it makes sense to speak of a “correct modal logic.” But whether this makes sense, and just what it means, will depend on one’s modal metaphysics. Those metaphysicians who take metaphysical modality to be primitive and fundamental, who attribute modal structure to reality at the fundamental level, will accept this assumption. It is a task of modal metaphysics, they say, to discover – perhaps through some combination of modal intuition and philosophical reflection – what the correct modal logic is. But as a Humean I reject primitive metaphysical modality. For me, the contours of metaphysical modality are determined by conventions of how we speak, especially conventions embedded in contemporary philosophical discourse.² (I doubt we can get any determinate notion of metaphysical modality from examining modal discourse in ordinary language.) There are no joints in reality that we are seeking to discover. Rather, the task is to show how an adequate semantics for our talk about metaphysical modality can be given in terms of an ontology

² To ward off misunderstanding, I should perhaps say that my modal realism is part of a plenitudinous realism that posits in addition to metaphysically possible worlds vastly more “world-like” objects. Our conventions select the metaphysically possible worlds from this vastly larger plurality.

accepted on independent grounds. On this deflationary approach, there may still be a determinate answer to the question: what is the correct logic of metaphysical modality? But that answer, being founded on the semantic conventions that govern our modal discourse, will not have much consequence for fundamental metaphysics. Indeed, metaphysical arguments that invoke modality should be translated, and then evaluated, in non-modal terms.

After presenting his argument, Brauer writes: “this is a surprising and somewhat unwelcome conclusion.” However, whether one takes metaphysical modality to be fundamental to reality or largely conventional (as I do), the conclusion of the argument is just what one should expect if one is an ersatzist who accepts metaphysical nihilism and analyzes possibility as an individual existential quantifier over possible worlds. An empty world has an empty domain; and the logic of quantification when the empty domain is allowed is given by so-called “inclusive logic.” Whereas in standard predicate logic, some existential sentences are valid – for example, $\exists x(x=x)$ – there are no existential validities in inclusive logic. Moreover, whereas in standard predicate logic, the conditional $\forall x\phi(x)\rightarrow\exists x\phi(x)$ is valid, in inclusive logic it is not. Now, since the box and the diamond are being analyzed as quantifiers over a possibly empty domain, it is only to be expected that $\diamond T$ and $\Box P\rightarrow\diamond P$, the characteristic **D** theorems, will not be true in every world. If Brauer is right that his result will be surprising to ersatzists who are metaphysical nihilists, perhaps they are just not paying attention.

Surprising or not, is Brauer right that the conclusion will be “somewhat unwelcome”? Perhaps, but I don’t see why it should be. It would be unwelcome to the extent that there are interesting modal arguments that depend on the logic of modality including the theorems of **D**. But as far as I can tell, no interesting modal arguments – excepting, of course, arguments about metaphysical nihilism itself – will be affected by accepting a logic that doesn’t include **D**. To

take one example where disputes over the correct modal logic have been prominent, consider the modal arguments that lead to modal paradoxes such as Chisholm's paradox. It is plainly irrelevant to these arguments whether there are empty worlds, or what is true at such worlds. Just as the switch from standard predicate logic to inclusive logic has little effect on any ordinary or philosophical reasoning because we are generally willing to condition our reasoning on the assumption that something exists, so the switch from **S4** or **S5** to a logic that does not include **D** has little effect because we are generally willing to condition our reasoning on the assumption that something exists in every possible world, or in modal terms that, necessarily, tautologies are possible.

I therefore encourage nihilist ersatzers to endorse what Brauer calls "the practical solution." It grants that the correct modal logic doesn't include **D**, but it allows that, for most of our modal reasoning, we can ignore the possibilities introduced by metaphysical nihilism and help ourselves to **S4** or **S5**. Brauer objects that the practical solution requires "abandoning the conception of modal metaphysics that takes metaphysical modality to be concerned with the entirety of modal space rather than just some portion of it." But I don't think this objection is just. The practical solution does not have us ignore any portion of modal space when laying out our fundamental metaphysical account of modality. We ignore it only when it has no practical consequences for the arguments at hand.

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Now let us take a closer look at the main argument, focusing on lines 4 to 6. I said above that, assuming the ersatzist view of possible worlds and the standard analysis of modality, I thought the argument was sound. But at line 4, whose justification is given as "possible world

semantics,” the argument takes an unusual turn. Truth conditions for sentences headed with a possibility operator are given as follows:

4. For any world w and sentence ϕ , it is true at w that $\Diamond\phi$ just in case it is true at w that there is world v such that ϕ is true at v .

Then, applying these truth conditions to $\Diamond T$ at a world u where nothing exists leads from 5 to 6:

5. It is false at u that there is a possible world v such that T .
6. It is false at u that $\Diamond T$.

The truth conditions embodied in 4 are unusual in two ways. First, there is no mention of an accessibility relation. Second, in determining whether a possibility sentence is true at w , the quantifier over worlds occurs within the scope of ‘it is true at w that’. These two changes are connected, of course. It is in virtue of giving the quantifier over worlds narrow scope that we have no need for an accessibility relation.

Contrast 4 with the standard truth conditions for possibility sentences:

- 4'. For any world w and sentence ϕ , it is true at w that $\Diamond\phi$ just in case there is a world v accessible from w such that ϕ is true at v .

Let us say that the truth conditions embodied in 4 are *internal* and the truth conditions embodied in 4' *external*. Brauer explicitly endorses the internal perspective in giving truth conditions. After presenting an illustration, he writes: “from the present point of view, the notion of relative possibility that Kripke models capture with an accessibility relation is instead captured by the possible states of affairs that exist from the perspective of a given world.” I take it that by “present point of view,” Brauer means the ersatzist view that takes possible worlds to be maximal consistent states of affairs. It is unclear, however, whether Brauer is claiming that all possibility sentences should be given internal truth conditions or just sentences of *metaphysical*

possibility. And it is unclear whether Brauer thinks his argument *requires* taking the internal perspective, that is, whether it is mandatory in considering the question, what is the correct logic of metaphysical possibility. Let me take up these questions in turn.

Some things Brauer says suggests that he thinks internal truth conditions, with no mention of an accessibility relation, should be applied more broadly than metaphysical modality. He writes: “from our ‘internal’ perspective as real agents, though, we do not have the privilege of theorizing about modality from a meta-perspective. We are invariably stuck in the situation we are trying to theorize.” This mention of “agents” confused me. The modality relevant to an “agent” making decisions is a restriction of metaphysical modality, and requires an accessibility relation to capture that restriction. And the example he gives involving the possibility of baking a cake would not normally be taken to involve metaphysical modality owing to its dependence on time. I suspect that Brauer’s claim should be put like this: truth conditions should be given internally, with the quantifiers and accessibility relation given narrow scope. In the special case of metaphysical modality, the accessibility relation can be dropped because it is the broadest modality, and therefore quantifies unrestrictedly over all possible worlds. I will suppose this going forward.

Postpone for a bit the question whether the internal perspective is the only correct perspective. First I ask: is the internal perspective needed to get Brauer’s conclusion? Or could the argument have been presented just as well from the external perspective? If we replace 4 with 4’, we can then continue the argument as follows:

5’. There is no world v accessible to u such that T is true at v .

And then we get to 6 by applying the external truth conditions given by 4’.

6. It is false at u that $\Diamond T$.

5' follows from 3 (that there is a world u at which nothing exists) if we assume:

(A) If v does not exist in w , then v is not (metaphysically) accessible from w .

(A) might initially seem plausible to an ersatzist when taking the external perspective. For the ersatzist allows that a possible world, an abstract state of affairs, can exist in another possible world, and the accessibility relation is standardly glossed as *is-possible-from-the standpoint-of*. Isn't it plausible that an abstract state of affairs is possible from the standpoint of a world only if it exists in that world? Indeed, Brauer seems to endorse something like (A), claiming that it holds from "the model-theoretic point of view." Should we conclude, then, that the argument that the correct modal logic doesn't include **D** could have been given just as well from the external perspective replacing 4 and 5 with 4', 5', and (A)?

I am inclined to think – and I suspect Brauer would concur – that taking the external perspective would undermine the argument and, indeed, any argument that the logic of metaphysical modality is not **S5**. For I take it to be constitutive of metaphysical modality that it is the broadest modality, quantifying unrestrictedly over possible worlds. Brauer respects this feature of metaphysical modality, but interprets it from the internal perspective: what is metaphysically possible at a world w is what is true at some possible world that exists in w . No accessibility relation is needed. But from an external perspective, with external truth conditions, the only way to respect this feature of metaphysical modality is to quantify unrestrictedly over all possible worlds. Which worlds exist in which other worlds is irrelevant. The external perspective leads inevitably to the conclusion that the logic of metaphysical modality is **S5**. The external version of Brauer's argument fails because (A) must be rejected: from the external perspective, all worlds are (metaphysical) accessible from all worlds.

If it matters to Brauer's argument that we take the internal perspective, that puts pressure on Brauer to defend that choice. His brief remarks were not to me very convincing. He writes: "we do not have the privilege of theorizing about modality from a meta-perspective." Perhaps. But nor do we – or anyone – have the privilege of theorizing about modality from the perspective of the empty world. There are no theorists in an empty world to do the theorizing. In fact, all of our theorizing, at least for the actualist ersatzist to whom the argument is directed, is done from the perspective of the actual world. The external perspective, with its external truth conditions, is just the actual world perspective; the worlds in the Kripke models are just the worlds that exist in the actual world. I don't see why, in theorizing about the logic of metaphysical modality, that isn't a legitimate perspective to take.

Do I then reject Brauer's argument on the grounds that it wrongly takes the internal perspective? Not at all. For as I see it, we simply have two candidates for being the notion that modal metaphysicians have taken to be metaphysical modality. For one of these candidates, **S5** is the correct logic; for the other, it is a much weaker modal logic that does not include **D**. In the contemporary discourse of metaphysicians, I find evidence for both candidates. I am content, then, to say that the question – what is the correct modal logic given an ersatzist account of worlds? – has no determinate answer. First, we need to disambiguate. And failing to disambiguate creates more heat than light.

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Let me end by saying something as to how Brauer's discussion relates to my own view. From the second paragraph on, Brauer's paper is directed at an ersatzist view of possible worlds because, as he says, "the standard view is that (PN) [that it is metaphysically possible that nothing exist] is not compatible with modal realism." Indeed, this is certainly true of Lewis's modal realism. For

Lewis, worlds are mereological sums and what exists at a world is, at the very least, that world and its parts. So at no world is it true that nothing exists. Since Lewis also endorses the standard analysis of possibility, that a proposition is possible if and only if it is true at some possible world, it follows that for Lewis's modal realism it is not possible that nothing exist.

Now, I am a modal realist at least to this extent: I accept that worlds are mereological sums, and that there is no world at which nothing exists. But I also accept (PN), that it is possible that nothing exist, indeed, nothing concrete or abstract. How do I square these beliefs? – By rejecting the standard analysis of modality. I agree with the standard analysis that modal operators are quantifiers over possible worlds, but I take them to be plural rather than individual quantifiers. Perhaps the quickest way to motivate my view is to consider Leibniz's God surveying the possible worlds and deciding which worlds to actualize. On the standard conception, God must actualize one and only one world. But this imposes a restriction on God's power to choose. Why can't God choose two or more worlds, thus making actual the possibility that there are island universes, multiple worlds spatiotemporally and causally isolated from one another? On a modal realist conception of worlds – in contrast to an ersatzist conception – there is no contradiction in saying that multiple worlds are actualized. Or, why can't God choose to actualize no world, thereby making actual the possibility that nothing exists? If this possibility were actual, all existential propositions would be false. But tautologies would still be true; following Leibniz, I do not cede to God any power over that. Now, this range of choices for what worlds God could actualize – all, some, or none – can be captured by a plural quantifier over worlds that, on my view, gives the correct analysis of metaphysical possibility.

Call the relevant plural quantifier the "choice quantifier" because 'chooses' is a paradigm example of a predicate with a plural argument where one can distinguish between the predicate

applying to the “null plurality” and the predicate not applying at all. It is one thing to choose nothing, another thing not to choose. Similarly, I claim, one can distinguish between a proposition being true at the null plurality – or, as I say, true at nothing – and a proposition being true at no world. For example, as noted above, tautologies are true at nothing, but it is not the case that tautologies are true at no world. Note that, on this approach, the predicate ‘true at’ takes a plural argument in its second place: sentences are true or false relative to pluralities of worlds, including the null plurality. Moreover, note that one does not need to hypostasize some entity, a null plurality, in order to give sense to the phrase ‘choose nothing’ or ‘is true at nothing’ (though in giving a semantics for the choice quantifier, one may opt to represent the “null plurality” by the null set). Now, with the choice quantifier in hand, we can give truth conditions for possibility sentences either externally or internally. Let us express the choice quantifier over worlds by “for some choice of worlds.” Then,

External Truth Conditions. It is true at w that $\diamond\phi$ iff for some choice of worlds v , ϕ is true at v .

Internal Truth Conditions. It is true at w that $\diamond\phi$ iff it is true at w that for some choice of worlds v , ϕ is true at v .

The quantifier ‘some choice of worlds’ differs from the plural quantifier ‘some plurality of worlds’ by ranging also over the null plurality.

Let me return to the question: what is the correct logic of metaphysical modality? I argued above that, even on the standard analysis of possibility, one can maintain that it is **S5** if one takes the external perspective. But suppose we grant with Brauer that the question should be answered by taking the internal perspective. What then happens if we switch to my analysis of possibility as a choice quantifier? Perspectives are relative now not to individual worlds, but to

pluralities of worlds, including the null plurality. Even from the perspective of the null plurality, the null plurality is possible, that is, within the range of the choice quantifier. And since at the null plurality, T holds, we can say that even from the perspective of the null plurality, $\diamond T$ is true. So we do not have a violation of the axioms of \mathbf{D} at the null plurality, or at any plurality of worlds. I argued above that it would not be so bad to have to say that the correct modal logic doesn't include \mathbf{D} . But to those who disagree, I can say this. If you do not want to reject \mathbf{D} but think it possible that nothing exist, you have the following option: accept modal realism with my non-standard analysis of modality. Are there any takers?