PHILOSOPHIA MATHEMATICA

PHILOSOPHY OF MATHEMATICS,
ITS LEARNING, AND ITS APPLICATION

PHILOSOPHIE DES MATHÉMATIQUES,
LEURS ÉTUDE ET APPLICATIONS

Offprint

Reply to Dieterle

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THE PHILOSOPHICAL JOURNAL OF
THE CANADIAN SOCIETY FOR HISTORY
AND PHILOSOPHY OF MATHEMATICS

LA SOCIÉTÉ CANADIENNE D'HISTOIRE ET
DE PHILOSOPHIE DES MATHÉMATIQUES

SERIES III

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Printed in Canada

Reply to Dieterle

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In her paper 'Supervenience and necessity: A response to Balaguer', Jill Dieterle raises an objection to certain arguments in my book, *Platonism and Anti-Platonism in Mathematics*. In particular, Dieterle argues that because I reject the notion of *metaphysical necessity*, I cannot rely upon the notion of *supervenience*. I think she is mistaken about this, and in this note, I will explain why.

I use the notion of supervenience in two places in my book. First, in arguing for the controversial thesis that there is no fact of the matter as to whether or not abstract objects exist, I rely upon the following premise:

(ii) The truth conditions of English sentences supervene upon our usage.

Dieterle points out that supervenience is a modal notion, and then she argues that I have no choice but to understand the modality involved here as a metaphysical modality, because I cannot understand it as a logical, conceptual, or nomological modality. Her entire argument in the nomological case is contained in the following sentence:

> Nomological necessity is easily ruled out as well, since Balaguer's thesis is not a matter of physical law. (p. 304)

But regardless of whether my thesis is a 'matter of physical law', I *can* understand it in terms of a nomological modality. In particular, I can take (ii) as saying that

> (ii′) Any nomologically possible world that's identical to the actual world in terms of English usage is identical to the actual world in terms of the truth conditions of English sentences.[1]

Now, it may well be that a stronger supervenience thesis holds between use and truth conditions, but I don't need any such thesis in my book, because

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[1] It might be better to formulate (ii) and (ii′) in terms of not just our usage but all of our linguistic practices, including things like our linguistic conventions and intentions. So long as we demanded that the conventions and intentions be *ours*, this would not alter my argument in any substantive way; the supervenience premise would be a bit safer, or more conservative, but the rest of the argument could be slightly altered so that the same conclusion was still motivated in essentially the same way. But I won't pursue this here, because Dieterle's objection has nothing to do with this.

PHILOSOPHIA MATHEMATICA (3) Vol. 8 (2000), pp. 310–315.

(ii′) is strong enough to do the work that (ii) needs to do in my argument. This can be appreciated very easily. In the context in which (ii) appears in my book, I am trying to argue that the sentence 'There exist abstract objects' does not have any (possible-world-style) truth conditions. I am *not* trying to argue that there is *no possible world* in which this sentence has truth conditions; I am merely trying to argue that in the actual world, it doesn't have truth conditions. I do this by arguing that (a) our usage doesn't determine (possible-world-style) truth conditions for 'There exist abstract objects'; and (b) if (a) is true, then 'There exist abstract objects' doesn't have any (possible-world-style) truth conditions. This is where (ii) comes into the argument—I use it to motivate thesis (b). But (b) is a *material* conditional about the *actual* world, and so (ii′) is clearly strong enough to motivate it. Thus, (ii′) is strong enough to do the work that I need (ii) to do in my argument.

(It is also worth pointing out here that there is nothing peculiar about this. Dieterle says (p. 302) that the modality at work in supervenience theses is 'usually understood to be metaphysical'. I think this is just false. Probably the most prominent use of the notion of supervenience is in the philosophy of mind, where philosophers try to define mind-brain materialism as the thesis that mental phenomena supervene on physical phenomena. And the standard line here is that the modality involved is a nomological one. One formulation of the thesis, from a mainstream introductory text on the philosophy of mind,[2] is as follows: any world that is a minimal physical duplicate of our world is a psychological duplicate of our world, where a *minimal physical duplicate of our world* is a world that is (a) physically identical to our world, *including its physical laws*, and (b) contains nothing more than what it must contain in order to be physically identical to our world. So there is nothing odd about understanding supervenience theses in terms of a nomological modality.)

The second place in which I use the notion of supervenience in my book is in arguing for a certain account of the applicability of mathematics to empirical science. In this context, I say that if empirical science is true, then its truth supervenes upon two entirely independent sets of facts, namely, a set of purely nominalistic facts and a set of purely platonistic facts. Now, my claim that these two sets of facts are *entirely independent* of one another is controversial, and I spend a good deal of time in the book justifying this claim. But this is not what Dieterle is worried about. As far as her objection is concerned, we can put the two sets of facts together. She is worried about the bare claim that

> (T-F) If empirical science is true (*i.e.*, if all of the currently accepted theories of empirical science are true), then its truth supervenes upon

[2] Braddon-Mitchell and Jackson [1996], p. 24.

facts.

Dieterle's objection to this is, again, that the notion of supervenience is a modal notion and that, in the present context, I have to understand it as involving a notion of metaphysical necessity.

I have two responses to this objection. First, I can say the same thing here that I said to the earlier objection: regardless of whether the supervenience thesis at work here should be understood as a 'matter of physical law', I can trade it in for a thesis that uses a notion of nomological necessity, because I do not need anything stronger to make my argument work. And second, I think that what Dieterle says about the case of conceptual necessity is misguided and that, if I wanted to, I could take the relevant sort of necessity to be conceptual necessity.

Let me begin by formulating conceptual and nomological versions of the relevant truth-fact supervenience thesis:

> ($T\text{-}F_C$) If empirical science is true (in the actual world), then there obtains a set of facts (in the actual world) such that any conceptually possible world[3] in which this set of facts obtains is a world in which empirical science is true.
>
> ($T\text{-}F_N$) If empirical science is true (in the actual world), then there obtains a set of facts (in the actual world) such that any nomologically possible world in which this set of facts obtains is a world in which empirical science is true.

Now, I believe that both of these theses are true. But all I *need*, in order to run the argument in my book, is the weaker thesis, *i.e.*, ($T\text{-}F_N$). Again, it is easy to appreciate this point. The argument in which the truth-fact supervenience thesis plays a role in my book proceeds (briefly and roughly) as follows:

> If empirical science is true, then its truth supervenes upon the existence of two entirely independent sets of facts (namely, a set of purely nominalistic facts and a set of purely platonistic facts); therefore, we can coherently believe that one of the sets of facts obtains whereas the other does not.

But this inference will clearly go through, even if we read the supervenience thesis here as a weak thesis about nomologically possible worlds; for the conclusion of my argument here is about *our* world—it is a claim about what *we* can coherently believe. (Again, if there's anything controversial about my argument, it is the claim that the two sets of facts are independent of one another, *i.e.*, hold or don't hold independently of one another. But this has nothing to do with Dieterle's objection.)

[3] The provisional definition of 'conceptually possible' that Dieterle quotes from Field is good enough for our purposes here; thus, we can say, somewhat roughly, that a world is *conceptually possible* iff the set of sentences true in that world, together with all (correct) definitions, is logically consistent.

So I do not need anything stronger than ($T\text{-}F_N$). But I think that, if I wanted to, I could also endorse ($T\text{-}F_C$), and I want to show that Dieterle is mistaken when she argues that I cannot endorse ($T\text{-}F_C$). (I will not argue here that ($T\text{-}F_C$) is true, but it does seem very plausible; for intuitively, the truth-fact link that is behind all of this seems to follow from the meanings of words like 'true' and 'fact'.)

Dieterle admits that some people might want to endorse a thesis like ($T\text{-}F_C$), *i.e.*, a truth-fact supervenience thesis that employs conceptual necessity. But she claims that *I* cannot endorse any such thesis, because (1) theses like ($T\text{-}F_C$) entail that all anti-realist definitions of 'true' (*e.g.*, coherence, pragmatist, and instrumentalist definitions) are 'literally incoherent' (p. 306); and (2) I cannot rule out anti-realist definitions of 'true', because 'Balaguer ... explicitly avoids any commitment to ... a particular definition of "truth conditions"' (p. 307).

I do not think this is a good argument. Indeed, it seems to me that both of the premises in this argument—*i.e.*, (1) and (2)—are false. My worry about premise (1) won't really matter here, but for whatever it's worth, it simply does not follow from ($T\text{-}F_C$) that anti-realist definitions of 'true' are incoherent. If a conceptual truth-fact supervenience of the sort at work in ($T\text{-}F_C$) holds across all sentences and not just empirical science, then it follows that anti-realist definitions of 'true' are *wrong*, *i.e.*, that they do not provide the correct definition of 'true'; and it also follows that those definitions are conceptually impossible; but it does *not* follow that they are incoherent, or self-contradictory. We can appreciate this by merely changing the example: the claim that 'bachelor' means 'married man' is false and conceptually impossible, but it is not incoherent; if I were just learning English, I could very easily believe that this was the definition of 'bachelor' without being incoherent or contradicting myself.

Let's move on to premise (2) of Dieterle's argument. She says here that 'Balaguer ... explicitly avoids any commitment to ... a particular definition of "truth conditions".' In the passage she is talking about, I am discussing my (admittedly controversial) thesis that the sentence 'There exist abstract objects' does not have any possible-world-style truth conditions. Before presenting my argument for this thesis, I point out that I am not concerned with the question of whether this sentence has disquotational truth conditions, that I am concerned only with the question of whether it has possible-world-style truth conditions. In this context, I make the following claim:

> Now, in saying this, I do not mean to enter into any debate on the nature of truth conditions. I am not saying that possible-world-style truth conditions are 'real truth conditions', whereas disquotational truth conditions are not, or anything of the sort. (p. 159)

That is all I say on the topic. It is an offhand remark about the logical

commitments of one of my arguments. I do not understand how Dieterle could infer from this that I cannot reject anti-realist theories of truth. This is a misrepresentation on three counts: she seems to think I am saying that *for each different passage in my book*, I *cannot* reject *anti-realist* theories of truth; but all I am saying is that *in the specific argument under discussion—i.e.*, the one concerning the sentence 'There exist abstract objects'—I *don't need to* reject the *disquotational* theory of truth. (Keep in mind here that the disquotational theory, like the correspondence theory, is a *realist* theory of truth; and moreover, it is perfectly compatible with ($T\text{-}F_C$).[4]) In any event, I certainly never suggested in my book that I did not want to take a stand on the question of whether some anti-realist theory of truth might be correct, and there is absolutely no reason why I cannot reject such theories.

(Indeed, in connection with the argument that Dieterle is worried about —*i.e.*, the argument in which the truth-fact supervenience thesis plays a role—the dialectical situation with respect to anti-realist theories of truth is very close to the exact *opposite* of what Dieterle suggests; for I explicitly say (pp. 130–131 of my book) that the argument in question here—*i.e.*, the one in which the truth-fact supervenience thesis plays a role—is premised on the assumption that some sort of realism about empirical science is true. The reason I do this is that (a) what I am trying to do in that section of the book is respond to the challenge that philosophers of mathematics have to account for the applicability of mathematics to empirical science, and (b) this challenge is itself premised on the assumption that some sort of scientific realism is true. I said a few words in the book about why I think (b) is true, but in the present context, my reasoning doesn't matter. All that matters is this: what I set out to do, in that section of the book, is explain how mathematics could be applicable to empirical science, *given that some sort of scientific realism is true.* Thus, when Dieterle suggests that in running my argument here, I cannot reject anti-realist theories of truth, she's got things almost exactly backwards.)

But in any event, the main point here is simply that, in contrast to what Dieterle says, there is nothing in my book that suggests that I *cannot* reject anti-realist theories of truth. Moreover, there's nothing in my book that suggests that I cannot endorse ($T\text{-}F_C$). But again, this does not even matter, because I do not *need* ($T\text{-}F_C$) in order to run my argument. All I need is ($T\text{-}F_N$).[5]

[4] The disquotational theory tells us that if '*S*' is an ordinary indicative sentence like, say, 'Snow is white', then it is equivalent to the sentence '"*S*" is true'. Now, imagine a disquotationalist who also endorsed the following two claims: (a) '*S*' is equivalent to 'It's a fact that *S*', and thus, given disquotationalism, '"*S*" is true' is equivalent to 'It's a fact that *S*'; and (b) these equivalences are generated by the meanings of 'true' and 'fact'. Any disquotationalist who believed (a) and (b) would almost surely accept ($T\text{-}F_C$).

[5] There is another puzzling feature of Dieterle's argument about the case of conceptual necessity: if it were cogent, then it would apply equally well in the case of metaphysical

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ABSTRACT. In this paper, I respond to an objection that Jill Dieterle has raised to two arguments in my book, *Platonism and Anti-Platonism in Mathematics*. Dieterle argues that because I reject the notion of metaphysical necessity, I cannot rely upon the notion of supervenience, as I in fact do in two places in the book. I argue that Dieterle is mistaken about this by showing that neither of the two supervenience theses that I endorse requires a notion of metaphysical necessity.

necessity (and nomological necessity). For (a) her argument is based on the (mistaken) claim that in the context of my argument, I cannot rule out anti-realist definitions of 'true'; but (b) if this were right, then I would not be able to endorse any substantive truth-fact supervenience thesis at all—regardless of what sort of modality I took it to involve. Thus, Dieterle cannot conclude, as she wants to, that I have to understand the truth-fact supervenience thesis in terms of metaphysical necessity.