

The Modal Argument Improved

1. Introduction

Perhaps the most important argument against materialism is the *modal argument*. In its standard form, the modal argument relies on a compatibility thesis along the following lines (here ‘P’ stands for the conjunction of all physical truths):

(Compatibility) P is compatible with the absence of consciousness. That is: $\Diamond(P \ \& \ \text{there is no consciousness})$.

In some formulations of the argument, Compatibility is treated as a premise directly supported by modal intuition. In other formulations, it is derived from a further premise about conceivability together with some principle linking conceivability to possibility. In others, it is derived from the premise that the phenomenal truths are not deducible from P, together with a principle linking deducibility to possibility. But these differences will not matter much for our purposes.

The route from Compatibility to the falsity of materialism is fairly straightforward. Although there are delicate questions about how to define materialism, it is generally agreed that materialism entails a modal thesis to the effect that every (positive) truth is metaphysically necessitated by the conjunction of physical truths. That consciousness exists is, I shall assume, a (positive) truth about our world. Thus, if P is compatible with the absence of consciousness, it follows that P fails to metaphysically necessitate some positive truth about our world, so materialism is false. We’ll call this the ‘standard modal argument’.¹

In this paper, I propose an alternative modal argument that relies on a somewhat different modal premise. Instead of a compatibility thesis, my argument relies on an *incompatibility* thesis:

¹ For classic presentations of the modal argument in roughly this form, see Campbell 1970, Kirk 1974, Kripke 1980, and Chalmers 1996.

(Incompatibility) The existence of consciousness is incompatible with the *completeness* of the physical truths. That is: $\Box(P \text{ is complete} \supset \text{there is no consciousness})$.

The notion of completeness can be understood either modally or ground-theoretically. In the modal sense, a class of truths is complete, or amounts to a ‘complete description of reality’, iff its members jointly entail (metaphysically necessitate) all positive truths. In the ground-theoretic sense, a class of truths is complete iff every positive truth outside that class is fully grounded in members of that class. The ground-theoretic definition gives a somewhat stronger notion of completeness, at least given the orthodox assumption that (full) grounding entails metaphysical necessitation (Rosen 2010, Fine 2012). The ground-theoretic definition may also have some minor advantages over the modal definition. For example, it may better capture the intuitive notion of a ‘complete description of reality’, and it yields a logically weaker and slightly more plausible Incompatibility thesis – a fact that will have some relevance in §3. However, the differences between the two definitions will not matter a great deal for our purposes, and to simplify our discussion, I shall use ‘completeness’ in accordance with the modal definition unless otherwise specified, mentioning the ground-theoretic notion only where the differences matter to the argument.

As with the standard modal argument, the route from our modal premise to the denial of materialism is straightforward. As we’ve seen, materialism is standardly taken to entail that the physical truths are (modally) complete. Hence, given Incompatibility together with the modest assumption that consciousness exists (the same assumption needed to bridge the logical gap between Compatibility and the falsity of materialism), we may conclude that materialism is false.² We’ll call this the ‘revised modal argument’.

² If completeness is taken in the ground-theoretic sense, we will also need the (fairly innocuous) assumption that materialism entails that phenomenal truths are either physical truths or grounded in physical truths.

I take Incompatibility to have a great deal of intuitive support. Tell me whatever you like about the way particles and fields are distributed across space and time. There is a powerful intuition that, if any such description amounted to an *exhaustive* characterization of the world, there would be no consciousness. But it is not my purpose to persuade anyone of the truth of Incompatibility or the falsity of materialism. My goal is rather to show that the revised modal argument is strictly superior to the standard modal argument in the following sense: Anyone who accepts the premises of the standard modal argument must accept the premises of the revised modal argument, but not vice versa. Since the only difference between the two arguments lies in their modal premises, this amounts to the claim that everyone who accepts the modal premise of the standard modal argument (Compatibility) must accept the modal premise of the revised modal argument (Incompatibility), but not vice versa. More specifically, I show that there are several anti-materialist views, including reasonable versions of idealism, Russellian monism, interactionist dualism, and theism, that are inconsistent with the modal premise of the standard modal argument but perfectly consistent with the premises of the revised modal argument. Those who accept, or are merely unwilling to rule out, any one of these views cannot endorse the standard modal argument, but can happily endorse the revised modal argument.

Now, this result might be insignificant if accepting Incompatibility necessarily came with a commitment to Compatibility, as would be the case if the only possible reason for accepting Incompatibility were a prior acceptance of Compatibility. But there is no reason to think this is true. As we'll see, one *can* derive Incompatibility from Compatibility, so a prior acceptance of Compatibility *could* be one's reason for accepting Incompatibility. But one could also accept Incompatibility simply because the existence of consciousness seems to one clearly to conflict with the idea that the physical truths exhaustively describe reality. And one could coherently

make this judgment while denying or remaining neutral with respect to Compatibility (perhaps because one accepts, or is merely unwilling to rule out, one of the views described in §3). By analogy, consider a similar pair of claims about geometry and colour. Letting G stand for the conjunction of all purely geometric truths, we can distinguish two modal theses:

(G-Compatibility) G is compatible with the absence of colour. That is: $\diamond(G \ \& \ \text{nothing is coloured})$.

(G-Incompatibility) The completeness of G is incompatible with the existence of colour. That is: $\square(G \ \text{is complete} \supset \text{nothing is coloured})$.

One might accept G-Incompatibility just because the existence of colour seems to one clearly to conflict with the idea that the geometric truths constitute an exhaustive characterization of reality. But suppose one also accepts, or is merely unwilling to rule out, Berkeley's thesis that nothing can have extension without having some colour or other. Then one must reject, or be agnostic about, G-Compatibility (since G logically implies the existence of extended things). There does not seem to be anything incoherent or epistemically unstable in this combination of attitudes.

Or consider an analogous pair of modal claims concerning the 'Humean' truths (truths about the distribution of local categorical qualities across space and time) and the existence of causation. Letting H stand for the conjunction of Humean truths, we can distinguish two modal theses:

(H-Compatibility) H is compatible with the absence of causation. That is: $\diamond(H \ \& \ \text{there is no causation})$.

(H-Incompatibility) The completeness of H is incompatible with the existence of causation. That is: $\square(H \ \text{is complete} \supset \text{there is no causation})$.

Again, one might accept H-Incompatibility just because the existence of causation seems to one clearly to be incompatible with the idea that the Humean truths provide an exhaustive account of reality (*pace* Lewis 1986: ix-x). But suppose one also accepts, or is merely unwilling to rule out, a version of the principle of sufficient reason that denies the possibility of uncaused property instantiations. Then one must reject, or be agnostic about, H-Compatibility (since H logically implies that there are property instantiations). Again, there does not seem to be anything incoherent or epistemically unstable about this combination of attitudes.

2. Everyone who accepts Compatibility must accept Incompatibility

Here's a quick proof that Compatibility entails Incompatibility: Suppose Compatibility is true. We'll let w be an arbitrary world at which P completely describes reality (if there are no such worlds, then Incompatibility is vacuously true), and we'll assume for *reductio* that consciousness exists at w . Since P is a complete description of reality at w – that is, since P entails every (positive) truth that holds at w – it follows from this assumption that P entails that consciousness exists. But the claim that P entails the existence of consciousness is equivalent to the negation of Compatibility. Thus, given Compatibility, it follows that any world at which P is complete is a world without consciousness. In other words, it follows that Incompatibility is true.

3. Not Everyone who accepts Incompatibility must accept Compatibility

While everyone who accepts Compatibility must accept Incompatibility, the converse doesn't hold. I myself, for example, accept Incompatibility, but I am agnostic about Compatibility. In accepting Incompatibility, I accept that if there are any possible worlds in which P completely describes reality, these worlds are devoid of consciousness. Hence, I accept

that if P *could* be complete, Compatibility is true.³ But I am agnostic about Compatibility, in part, because I have no idea whether P could be complete. More precisely, I am agnostic about Compatibility because, for all I know, (i) P couldn't be complete, and (ii) for any proposition Q such that the conjunction of P and Q could be complete, P and Q jointly necessitate the existence of consciousness.

To make this a bit less abstract, it will be helpful to describe some specific philosophical views such that, if one accepts them or merely refuses to rule them out, one can accept Incompatibility, but not Compatibility. I state four such views below, all of which implicitly deny the possible completeness of P. Each is described from the point of view of an imaginary proponent, named 'the idealist', 'the Russellian monist', 'the interactionist dualist', and 'the theist'. (To be clear, the views described below are logically stronger than the general theses normally labeled 'idealism', 'Russellian monism', and so forth. They are, rather, specific versions of these general theses.)

The Idealist: Necessarily, all physical truths (e.g., truths about the existence of tables, rocks, and electrons) are grounded in phenomenal truths (e.g., truths about table appearances, rock appearances, and appearances of electron-detection equipment). Moreover, the physical truths are, at least to a limited extent, multiply realizable with respect to underlying phenomenal truths, so the physical truths of our world might have been grounded in a slightly different pattern of phenomenal truths (e.g., a pattern of

³ A quick proof that Incompatibility plus the possible completeness of P entails Compatibility: let w be a world in which P is complete. From Incompatibility, we get that $\sim C$ holds at w . Thus, w verifies $P \& \sim C$, which establishes Compatibility.

experiences just like those in the actual world, but in which one visual sensation is slightly blurrier than in actuality).⁴

On this view, physical truths are necessarily underwritten by consciousness, so P could not hold in the absence of consciousness. This view is therefore inconsistent with Compatibility. But it is consistent with Incompatibility. Indeed, it entails Incompatibility, for it entails that P could not be complete. Those who accept, or are merely unwilling to rule out, this form of idealism can therefore accept Incompatibility, but must be agnostic at best about Compatibility. Thus, those who wish to attack materialism while endorsing or remaining neutral on this alternative to materialism cannot use the standard modal argument, but can use the revised modal argument.

The revised modal argument enjoys a modest additional advantage if we adopt the ground-theoretic definition of completeness. The points above would then also apply to a variant idealist view that denies that P could be grounded in a different set of phenomenal truths. Both idealist views are inconsistent with Compatibility. And given the asymmetry of grounding, both views entail that P couldn't be ground-theoretically complete (the physical truths cannot ground their own phenomenal grounds), so Incompatibility comes out vacuously true.

The Russellian Monist: Physical truths like P are entirely truths about *structure and dynamics* – truths concerning the causal, spatiotemporal, mathematical, and logical relations among entities, and the way these relationships evolve over time. But structural truths must have some non-structural, quidditative ground – some kind of intrinsic or categorical underpinning. In my view, the categorical underpinnings of the structural truths play an indispensable role in grounding consciousness.⁵ Now, the structural truths

⁴ Idealist views along these lines are defended by Adams (2007), Foster (2008), Yetter-Chappell (2017), and Segal and Goldschmidt (2017).

⁵ For discussion of Russellian monist views along these lines, see Stoljar 2001, Alter and Nagasawa 2012, Chalmers 2015, and Goff 2017.

discovered by physics are, at least to a limited extent, multiply realizable. That is, the same physical truths could be grounded in a slightly different set of categorical qualities. But in my view, any set of quidditative truths sufficient to ground P would also suffice to ground consciousness of the kind we enjoy.

Again, this view is inconsistent with Compatibility, for it implies that P could not hold in the absence of an appropriate quidditative basis, where any appropriate quidditative basis for P would suffice to ground consciousness. But it is consistent with Incompatibility. Indeed, it entails Incompatibility, for it entails that P could not be complete. Those who accept, or are merely unwilling to rule out, this form of Russellian monism can therefore accept Incompatibility, but must be agnostic at best about Compatibility. Thus, those who wish to attack materialism while endorsing or remaining neutral on this alternative to traditional materialism cannot use the standard modal argument, but can use the revised modal argument.

Again, the revised modal argument enjoys a modest additional advantage if we adopt the ground-theoretic definition of completeness. The points above would then apply also to a variant Russellian monist view that denies that P could be grounded in a different set of quidditative truths, as some Russellian monists do (Coleman 2015: 94-5, Strawson 2017: 186, Hassel Mørch forthcoming.) Both Russellian monist views are inconsistent with Compatibility. And given the asymmetry of grounding, both Russellian monist views entail that P could not be ground-theoretically complete (the physical truths cannot ground their own quidditative grounds), so Incompatibility comes out vacuously true.

The Interactionist Dualist: Consciousness is a non-physical process, but it has a (non-redundant) causal influence on physical processes in our brains. Now, I accept a version of the principle of sufficient reason according to which the actual physical effects of

conscious states could not occur uncaused, though they could have had different conscious causes. Since (on my view) there are only two possible types of events, physical events and conscious events, the physical events that occur in human brains *cannot* occur in the absence of either a physical cause or a conscious cause.

This view also is inconsistent with Compatibility. For assume the view is correct. Now consider some physical event in my brain – say, an electron swerve – that is (non-redundantly) caused by a conscious state, and let us suppose for *reductio* that there exists a possible world w that duplicates all the physical truths of our world but is devoid of consciousness. Since w duplicates all the actual physical truths, w includes the electron swerve. Moreover, in w , the swerve will lack a physical cause – because the swerve lacks a physical cause in our world, and w is exactly like our world in physical respects. And, of course, it will also lack a conscious cause, since w is stipulated to be devoid of consciousness. Now, according to the view described above, the only possible kinds of occurrences are physical occurrences and conscious occurrences. Since neither type causes the swerve in w , the swerve must be uncaused in w , contradicting the view's commitment to the principle of sufficient reason. The view described above is therefore inconsistent with Compatibility. But it is consistent with – and, indeed, entails the vacuous truth of – Incompatibility. Those who accept, or are unwilling to rule out this form of interactionist dualism, can therefore accept Incompatibility, but must be agnostic at best about Compatibility. So, as before, those who wish to attack materialism while accepting or remaining neutral on this alternative to materialism cannot consistently use the standard modal argument, but can use the revised modal argument.

Again, the revised modal argument enjoys a modest additional advantage if we adopt the ground-theoretic definition of completeness. The points above would then also apply to *any* form

of dualism (whether epiphenomenalist or interactionist) that endorses necessitarianism about the psychophysical laws, so that the physical events mentioned in P necessarily *cause*, but do not *ground*, consciousness of exactly the kind we find in our world. Each of these forms of dualism is inconsistent with Compatibility. And each entails that P cannot be ground-theoretically complete (since they entail that physical truths can't ground consciousness and that P cannot hold without consciousness), so Incompatibility comes out vacuously true.

The Theist: God exists necessarily, and necessarily, all contingent facts are caused by God's creative activity. Because God is essentially good and wise, there are certain conceivable scenarios that are impossible only because it would be contrary to God's goodness and wisdom to create them. For example, a scenario in which a virtuous person suffers forever, with no greater good arising from her suffering, is perfectly conceivable, but is impossible, because it is contrary to God's essential goodness to create it.⁶ The same goes, in my view, for a scenario in which P holds in the absence of consciousness. Truths about consciousness are neither identical to nor grounded in any physical truths, and a zombie world of this sort is perfectly conceivable. But it is not possible, because God would not create it. After all, a universe without consciousness, a universe with only unthinking and unfeeling matter, would be a universe without any meaning or value. Such a universe would be profoundly pointless, a kind of cosmic farce, and it is unbecoming of God's goodness and wisdom to create such a world.

This view, again, is clearly inconsistent with the Compatibility.⁷ But it is consistent with Incompatibility, and in fact entails the vacuous truth of Incompatibility given the assumption that

⁶ Closely related claims are defended in Morris 1987, Plantinga 2004, and Kray 2011.

⁷ There may be a trivial sense in which theism by itself, without any assumptions about what God would or wouldn't create, conflicts with Compatibility, at least if God himself is necessarily conscious. If God is necessarily conscious, it follows trivially that P couldn't hold in the absence of consciousness. But this is a fairly uninteresting point of

some positive truths about God, or some specific phenomenal truths about his creation, can vary across worlds while holding P fixed. Those who accept, or are unwilling to rule out, this form of theism, can therefore accept Incompatibility, but must be agnostic at best about Compatibility. Thus, those who wish to attack materialism while accepting or remaining neutral on this theistic view cannot use the standard modal argument, but can use the revised modal argument.

Once again, the revised modal argument enjoys a modest additional advantage if we adopt the ground-theoretic definition of completeness. The points above would then apply also to a variant form of theism according to which P necessitates (but doesn't ground) all positive truths, including all truths about God and all specific phenomenal truths. Both forms of theism are inconsistent with Compatibility. And each entails that P couldn't be ground-theoretically complete (since each implies that the truths about consciousness – and presumably also the truths about God – couldn't be grounded in the physical truths), so Incompatibility comes out vacuously true.

It's worth noting that some of the views above require the assumption that P is compatible with the falsity of some actual phenomenal truths, even if it is not compatible with the absence of consciousness altogether. This is clearest in the case of the idealist, who assumes that we can hold P fixed while making small changes to its phenomenal basis. She will therefore accept a weaker compatibility thesis, according to which P is compatible (not with the falsity of C, the proposition that consciousness exists, but) with the falsity of C*, the conjunction of all actual phenomenal truths. In fact, the idealist *must* accept the possibility of P&~C* if she wishes to accept Incompatibility on its modal construal (that is, with 'completeness' understood modally rather than ground-theoretically). If the idealist held that P&~C* is impossible (say, because she

conflict between theism and the standard modal argument, which can be sidestepped simply by changing the compatibility premise to something like 'Possibly, P and there is no non-divine consciousness.'

thought that P couldn't be grounded in a different set of phenomenal truths), it would presumably follow that P is (modally) complete, and hence that Incompatibility is false. Something similar arguably goes for the interactionist dualist. If she claims that $P \& \sim C^*$ is impossible (as might be the case if the causal roles played by our phenomenal states couldn't be played by different phenomenal states, or if necessitarianism holds for the psychophysical laws), this would arguably commit her to the claim that P is (modally) complete, and hence that Incompatibility is false. Thus, while proponents of these views will not endorse the standard modal argument, they may have to endorse a variation on it that replaces Compatibility with the weaker compatibility thesis that $P \& \sim C^*$ is possible – at least if they wish to accept Incompatibility on its modal construal.

Still, the revised modal argument retains significant advantages even over this variation on the standard modal argument. First, the idealist and the dualist are only committed to the possibility $P \& \sim C^*$ if they wish to accept the *modal* construal of Incompatibility. There are versions of idealism and dualism, already mentioned above, that reject the possibility of $P \& \sim C^*$ while endorsing the *ground-theoretic* construal of Incompatibility – for example, dualist views that accept necessitarianism about the psychophysical laws, and idealist views that deny that P could have been grounded in a different set of phenomenal truths. (The same goes, of course, for the theist who embraces necessitarian dualism, and the Russellian monist who denies that P could have been grounded in a different set of quidditative truths. Both deny the possibility of $P \& \sim C^*$ while accepting the vacuous truth of the ground-theoretic reading of Incompatibility.) This highlights an advantage of the ground-theoretic construal of the revised modal argument over the modal construal: The former relies on a logically weaker Incompatibility premise, one that can be accepted with fewer commitments regarding the exact modal relationship between the physical and the phenomenal.

Second, not all the views above require the possibility of $P \& \sim C^*$ even to accept the *modal* construal of Incompatibility. For example, the Russellian monist does not need to accept the possibility of $P \& \sim C^*$ to accept Incompatibility on its modal reading. She can hold that P is compatible with some variation in the quidditative truths (so P won't be modally complete), but not with any variation in the phenomenal truths (so $P \& \sim C^*$ will be impossible). This is consistent so long as the quidditative truths – the base-level truths with respect to which our conscious states are multiply realizable – are merely 'protophenomenal' rather than phenomenal. Likewise, the theist does not require the possibility of $P \& \sim C^*$ in order to accept the modal construal of Incompatibility. For example, she might combine necessitarian dualism (which implies the impossibility of $P \& \sim C^*$) with the claim that P couldn't be (modally) complete (which implies Incompatibility), perhaps on the grounds that God's own positive properties can vary across worlds that hold fixed the truth of P.

4. Conclusion

To summarize: I've argued that the revised modal argument is strictly superior to the standard modal argument, in the sense that the key modal premise of the revised argument is more modest – logically weaker – and is consistent with a range of reasonable anti-materialist views that are ruled out by the standard modal argument. Those who accept, or are merely unwilling to rule out, any one of these views cannot make use of the standard modal argument in their objections to materialism. But they may avail themselves of the revised modal argument.⁸

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