

Review of Andrew Melnyk *A Physicalist Manifesto: Thoroughly Modern Materialism*, Cambridge University Press, Cambridge 2003 ISBN 0-521-82711-6 hardback

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Andrew Melnyk's physicalism is the sort which interests philosophers of science as well as philosophers of mind: it equates the subject matters of biology, chemistry, psychology, folk psychology, economics and all the rest with the subject matter of physics. That's to say, every actual, contingent event, object and property instance either belongs to a physical kind, or else is physically realised. In the course of his manifesto, Melnyk explicates key notions like 'physical' and 'realised' (chapter 1), then argues that his account of physicalism is not inferior to supervenience accounts (chapter 2), that he is committed only to an acceptable degree of reductionism (chapter 3), and that his physicalism entails neither problematic epiphenomenalism nor causal overdetermination (chapter 4). Having thus cleared away philosophical objections to realisation physicalism, Melnyk hunts for empirical evidence against his thesis (chapter 5), and empirical evidence in favour (chapter 6), concluding that the latter outweighs the former.

This is impressively thorough work: Melnyk drives his physicalism forwards, anticipating and forestalling possible objections, distinguishing his view from less plausible ones which are superficially similar, and giving emphasis throughout to the contingent, *a posteriori* status of many claims. Although this review will focus on the earlier, more conceptual chapters, the final chapters on empirical evidence are very valuable.

So: a token is physical iff it belongs to a physical type, and (roughly) a type is physical iff it features in current physical theories. A couple of points arise immediately. First, tying physicalism to the content of current physics seems risky. Melnyk argues that physicalists should take the same attitude to physicalism as do scientific realists to current science, regarding it as objectively superior to genuine alternatives. While this manoeuvre solves part of the problem, it doesn't seem to account for the fact that physicalists are, presumably, committed to adopting the new brand of physicalism which will become available when new physical theories emerge.

Second, physics is quite broadly construed to include, for example, condensed-matter physics: Melnyk-style physicalists need not claim that everything is fundamentally *microphysical* (although we might discover empirically that this is so). On the one hand, this is welcome liberality. But on the other hand, it makes for a riskier thesis because the dividing line between physics and the rest looks less significant than that between microphysics and the rest. If we concede that microphysics alone doesn't capture everything, how likely is it that the various disciplines which have historically managed to acquire the honorific label 'physics' should have as their collective subject matter all the fundamental existents?

Tokens which are not directly physical are physically realised; this notion must carry a lot of weight for Melnyk.

"Token x realises token y iff (i) y is a token of some functional type, F, such that, necessarily, F is tokened iff there is a token of some or other type that meets condition, C; (ii) x is a token

of some type that in fact meets C; and (iii) the token of F whose existence is logically guaranteed by the holding of condition (ii) is numerically identical with y.” (p. 21)

And:

“A token x of a functional type, F, is physically realized iff (i) x is realized by a token of some physical type, T, and (ii) T meets the associated condition for F solely as a logical consequence of the distribution in the world of physical tokens and the holding of physical laws.” (p.23)

Very roughly, *a* physically realises *b* iff *a* is physical, and *a*'s existence guarantees *b*'s existence, given the way the physical world is. Realisation is a relation of physical necessitation amongst tokens. It is looser than identity or logically necessary coexistence, and yet tighter than mere coincidence. It is looser than logically necessary coexistence, because if the laws or the realising type had been different its tokens might not have been suitable realisers (and, perhaps, because the realised and realising tokens might have belonged to other types). And yet it is tighter than mere coincidence because, given that the realising token belongs to a type with certain features, and given the physical laws, the existence of the realised token is guaranteed.

Realisation physicalism is at heart a thesis about tokens, but special scientific types are retained in the ontology iff they can be identified (*a posteriori*) with functional types whose instances are physically realised; the relationship between functional type and realising physical types may be one-many. Melnyk in fact believes (and argues) that many special scientific types can thus be saved, and so his physicalism is ‘retentive realisationist’.

This view captures physicalist intuitions better than mere supervenience claims, argues Melnyk: if the link between the physical and the subject matter of the special sciences is one of brute necessitation, then this doesn't seem to ensure that the special scientific stuff is really physical, instead of just correlated with the physical. But the only plausible way to supplement supervenience physicalism with an explanation of this correlation will lead back to realisation. In particular, supervenience physicalism cannot simultaneously satisfy physicalist intuitions and yet avoid the reductionist commitments of realisation physicalism.

These reductionist commitments are not so very bad. Realisation physicalism doesn't entail the pointlessness of the special sciences. And, because it eschews type-identity claims, it doesn't entail that special scientific laws are deducible from physical laws plus bridge principles. It does entail that for each instance of a special-scientific type, its existence can in principle be deduced from, and thus explained by, the existence of a physical instance, plus physical laws and *a posteriori* identities between functional types and special-scientific types. Via explanation of their instances, special-scientific regularities are thus subject (in principle) to physical explanation.

This sounds strong, but Melnyk is adamant that the universal availability of such explanations rules out neither explanation nor causation at the biological/psychological/economic level, for there's nothing wrong with multiple explanations of the same token. Special scientific tokens and special scientific types may be ‘causally relevant’, not epiphenomenal, and yet this doesn't mean that the special-scientific domain is overdetermined by the physical. Melnyk

can be laid-back about overdetermination and the like because he adopts a Humean, regularity-based account of causation, involving no necessity in the world: no surprise if a single instance fits more than one regularity. Those who prefer a non-Humean account will still feel concerned about the widespread overdetermination this physicalism commits us to.

Melnyk's rejection of epiphenomenalism depends on his locating the realisation relation between identity on the one hand and brute correlation on the other. A world in which (e.g.) mental events were correlated with physical events due to brute psycho-physical laws would be one in which the mental was epi-phenomenal. But if mental events are physically realised, then the connection between mental and physical is not due to brute psycho-physical law. Instead, it arises out of physical laws and facts. This is supposed to integrate mental events with the causal network, roughly because it guarantees causal-looking counterfactual correlations amongst mental events.

Finally, Melnyk turns to empirical arguments for and against retentive realisation physicalism. Psychology might have supplied such evidence if paranormal phenomena had been widespread, or if the brain had turned out to be a simple organ, but in fact it doesn't. Nor does biology tell against physicalism, either through function-talk, or Dupré-style anti-essentialism about biological kinds. Lots of work is done here by Melnyk's claims (a) that the identification of special-scientific types with functional types is *a posteriori*, and (b) that functional types need not be identified with (non-disjunctive) physical types. Sometimes Melnyk becomes eliminativist: if it really seems plausible that a special-scientific type cannot be identified with any functional type, so much the worse for that special-scientific type.

Melnyk finds empirical evidence in favour of his physicalism in a number of places, providing very useful levels of chemical, biological and physiological detail. Generally speaking, there are many cases in which the best explanation of various facts is that some special scientific type is identical either with a physical type or with a functional type all of whose tokens are physically realised. (It's harder to make the case for physicalism about the mental than it is about the non-mental, but nevertheless there's a case to be made.) Physicalist explanations are best because they are more economical than those which merely posit a correlation between the physical and (e.g.) the chemical. (Oddly, Melnyk argues that physically realised tokens are not 'logically additional' to the realising tokens, despite being distinct from them.) And enumerative induction will take us from the many identities to the universal claim of physicalism.

This book embodies a challenging, stimulating defence of a strong, sophisticated thesis, and it should be taken very seriously by both supporters and opponents of physicalism. Moreover its reflectiveness and clarity about argumentative structure make it well worth reading for those interested in methodological questions both in science and in philosophy.

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