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Review of Polger & Shapiro's *The Multiple Realization Book* (2016, OUP)

Reviewed by Umut Baysan

When fish propel their bodies under water in order to travel from one place to another, are they doing the same *kind* of thing that we do when we swim? If swimming is to be identified with exactly the kind of thing that we do when *we* swim, we should seriously consider the following question: Do fish swim? Believe it or not, how you think about these questions bears relevance to what you will make of this book's central arguments against the multiple realization thesis in philosophy of mind. As Polger and Shapiro report, the conventional wisdom in philosophy of mind is that psychological kinds are multiply realized (and if not, they are multiply *realizable*) by different physical kinds; therefore we shouldn't expect to find identities between psychological kinds and physical kinds. Polger and Shapiro oppose exactly this conventional wisdom and use their opposition to support what they take to be a modest version of identity theory: 'important mental state kinds are characterised with the proprietary resources of the neurosciences' (25). In so doing, they turn questions about multiple realization into questions of the sort that I asked about fish and swimming.

Polger and Shapiro suggest that 'the question of multiple realization is a question about actual sciences, and it is always specific and contrastive' (64). So, instead of asking if a kind *K* is multiply realized, we should ask if *K*, as construed by a science *S*₁, is multiply realized by kinds *K*₁ and *K*₂, as construed by a science *S*₂. According to the revisionary treatment of multiple realization given in the book – 'the official recipe' (67) as the authors call it – the question of whether a psychological state *M* is multiply realized in, say, human beings and otters by different neurophysiological states is turned into four sub-questions. First, is *M* really a state that a human being and an otter can be in as far as psychological taxonomy is concerned? Second, are neurophysiological realizers of *M* in human beings and otters really different as far as neurophysiological taxonomy is concerned? Third, are these neurophysiological kinds in question different from each other in a *relevant* sense so that their variation makes a difference as to how *M* is brought about? Fourth, supposing that a human being's instantiation of *M* and an otter's instantiation of *M* can be somewhat different – despite both being instances of *M* – is the variation between these instances distinct from the variation between their realizers? If (and only if) these four questions are answered affirmatively, we can say that *M* is multiply realized in human beings and otters by different neurophysiological kinds. That is the central claim of the book at any rate.

By offering an original recipe of multiple realization as such, Polger and Shapiro carry out an impressive task in debunking nearly all well-known (and also some less known) putative examples of multiple realization. Neural plasticity and evolutionary convergence on psychological similarity through different physiological solutions are sometimes cited as actual examples of multiple realization. By giving a clear and instructive account of what these phenomena are, Polger and Shapiro argue that neither neural plasticity (90-98) nor evolutionary convergence (136-146) can give us genuine multiple realization. Other clearly presented and very interesting case studies they cover include: face recognition in honeybees (47-50), an uncommon anatomic condition known as 'situs inversus' (86-87), ferrets whose brains are 'rewired' (92-98), electric fish that try to avoid 'jamming' each other (117), so on

and so forth. If you are interested in the issue of multiple realization and lack scientific examples for illustrative purposes, this should be your reference book – despite the authors’ arguments that we shouldn’t think of these as cases of multiple realization. For even if you are not persuaded by their official recipe, you can easily help yourself to some of these really fancy examples.

Roughly, the book’s dialectic is as follows. First, the authors construe functionalism as the view that *all* psychological kinds are multiply realized or realizable. This renders all non-reductive physicalist views as functionalist, although Polger and Shapiro think that this is acceptable because they understand the notion of ‘function’ very broadly, thereby don’t commit non-reductive physicalism to any specific brand of functionalism (12, 22-23, and elsewhere). Then they contrast functionalism with the identity theory, which, according to their understanding, holds that there are *some* identities between psychological kinds and neurophysiological kinds (25, 35, 51, 130, and elsewhere). By analysing multiple realization in their own distinctive way (67 onwards), they argue that nearly all putative cases of multiple realization fail to satisfy their criteria, as illustrated above. They claim that paucity of actual multiple realization supports the identity theory, not functionalism. They then ably respond to objections that their view implies a form of eliminativism (Ch. 9) and suffers from an explanatory exclusion problem (Ch. 10). They end the book with a revisionary sketch of how different sciences relate to one another (216-219).

Despite being beautifully written and being beset with very nice and clearly presented examples, the book failed to persuade me about some of the essential points in the aforementioned dialectic. First, we aren’t really given an argument that multiple *realizability* (i.e. the *possibility* of multiple realization) is not an option for the considered psychological kinds. On this point, the authors are rather dismissive about their opponents’ metaphysical intuitions. They are right that ‘the best evidence for the multiple realizability of psychological states is their actual multiple realization’ (52; see also 80), but surely this is hardly any news. It is a truism that actuality of something entails its possibility. Apart from actual instances, what could support the possibility of something? Polger and Shapiro don’t offer an answer to this question. Instead they make some very uncontroversial statements, such as: ‘in the absence of evidence of actual multiple realization, we should be very cautious indeed about insisting that mental states are nevertheless multiply realizable’ (53; see also 57). This makes it rather difficult to evaluate their case against the multiple *realizability* of psychological kinds and also some of their claims including the one that the ‘possibility of evidence is not evidence of a possibility’ (147). They say that they don’t endorse ‘as a general principle that absence of evidence is evidence of absence’ (53, fn 11); however, I am not persuaded that they actually abide by this non-endorsement, especially when they take the absence of actual multiple realization to support the identity theory.

Second, there is a sense in which Polger and Shapiro are changing the rules of the game when they dismiss metaphysical possibilities as relevant for identity claims. For example, they employ (51) Ned Block’s ‘Disney Principle’, which originally states that ‘laws of nature impose constraints on ways of making something that satisfies a certain description’.¹ Although Polger and Shapiro omit Block’s mention of ‘laws of nature’, I believe that they convey Block’s idea well (51, see also 140). If the Disney Principle is true, then there are

¹ Block, N. 1997. Anti-reductionism Slaps Back. *Noûs* 31:107-132.

certain constraints on how a functional kind can be implemented in any given *nomologically* possible world. But note that the principle is silent as to what we should expect to find in nomologically impossible (but *metaphysically* possible) worlds. And as far as the *identity* of psychological kinds and neurophysiological kinds is concerned, metaphysical possibilities matter. As far as I can see, the authors could say that their methodology is naturalistic so they are not interested in metaphysical possibilities. But given that many philosophers who are working on these issues are indeed interested in such possibilities, I am not sure how satisfactory that response would be.

Finally, Polger and Shapiro are changing the rules of the game once more when they formulate functionalism and the identity theory in non-standard ways. Functionalism is presented as a *universal* thesis, whereas the identity theory is presented as a modest *existential* thesis (25, 35, 51, 130, 155, and elsewhere). I have my doubts that they have a persuasive argument even for the modest existential thesis (for the reasons mentioned in the previous two paragraphs). But even if we were to be persuaded by those arguments, surely we can still ask: why should we agree with Polger and Shapiro that this is how we should carve the logical space?

That said, this is a beautiful book and I very much enjoyed reading it. Polger and Shapiro's writing is clear and engaging, and their presentation of philosophical problems and scientific cases is very illuminating. From the opening page, they make it clear that they see 'philosophy of mind as a species of philosophy of science' (3), and the result is a very nice and empirically informed philosophy of science book.