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erties and governed by a few laws of motion” (18), and gives a sophisticated account of “Mechanized body, embodied mind” (304). A concluding overall assessment of Descartes’s legacy is thorough, balanced, and convincing. There are also some unusual gems, such as a discussion of “Descartes’s theory of hugging,” coupled with an affecting passage about the loves of his life. (329–30). Only one episode is flawed: Descartes’s second causal argument for God’s existence doesn’t turn on the idea that “the existence of any finite being can be explained only if there exists an infinite creative power” (165) (though Descartes eliminates the possibility that he is self-caused on roughly this ground), but rather on the idea that only God could create a finite being who possesses the idea of an infinite being.

GEORGES DICKER

SUNY Brockport

Notes

¹I pursue this defense in my *Descartes: An Analytical and Historical Introduction* (New York: Oxford University Press, 1993), 137–41.

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Andrew Melnyk, *A Physicalist Manifesto: Thoroughly Modern Materialism*. Cambridge: Cambridge University Press, 2003. Pp. xii, 327.

Physicalism is the thesis that, in some sense, physical nature is basic nature: everything is dependent on the physical. But dependent how? In this provocative and challenging book, Andrew Melnyk defends the claim that the non-physical—by which he means to include special sciences such as meteorology, geology, biochemistry, and psychology, in addition to “honorary sciences” such as folk psychology and folk physics—depends on the physical by virtue of being *realized by* the physical. Melnyk calls his thesis *retentive realization physicalism*. It is an important thesis for several reasons. First, it constitutes the most thorough exposition and defense of the notion of realization that I am aware of in the literature. Second, it is unabashedly a posteriori in nature, claiming among other things that while every psychological token ψ is realized by some physical token ϕ , *which* particular token ϕ realizes ψ is not knowable a priori. And third, it represents a welcome alternative to supervenience physicalism, which has become, almost by default, the orthodox view in contemporary discussions of physicalism in the philosophy of mind. For these reasons alone, Melnyk’s book deserves serious attention.

The book has six chapters and is divided into two parts. Part I, comprising the first four chapters, constitutes the properly philosophical part of the book, in which Melnyk articulates the thesis of retentive realization physicalism and

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discusses potential philosophical problems with it. Part 2 constitutes the empirical defense of the philosophical thesis. The thesis of retentive realization physicalism contains three component notions, namely *retention*, *realization*, and *physicalism*. I will discuss each notion in turn. First, physicalism. As Melnyk notes, any definition of physicalism must yield a thesis “(i) that is not obviously false, (ii) that is not analytic or in any other way trivial, and (iii) that possesses content determinable now by us” (11–12). Melnyk’s response to this challenge is to identify the physical with current physics, where current physics is comprised of those theories “that are the object of consensus among current physicists” (15). While this definition is admittedly vague and has some peculiar consequences—according to it, Hobbes was not a physicalist—it is not implausible, and to be fair, nobody else’s definition of ‘physical’ can claim to be much better.

Next, realization. According to Melnyk, realization is a relation that holds between two tokens of distinct types. Thus:

Token x realizes token y if and only if (i) y is a token of some functional type, F , such that, necessarily, F is tokened if and only if there is a token of some 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 .

Melnyk calls the condition C in the above definition the functional type’s *associated condition*: “it is the condition, C , such that, necessarily, there is a token of that functional type iff there is a token of some other type that meets C ” (20). Moreover, to say that a token y is physically realized is to say that y is realized by a token x of some physical type, T , and that T meets the associated condition C “solely as a logical consequence of the distribution in the world of physical tokens and the holding of physical laws” (23).

Finally, retention. A version of physicalism is retentive if “it does not require denying the existence of tokens of special-scientific or honorary-scientific types” (32). Thus, to call realization physicalism retentive is to say that according to it a psychological token ψ ’s being realized by a physical token ϕ does not entail the elimination of ψ .

This yields the thesis of retentive realization physicalism:

- (R) Every property instance is *either* an instance of a physical property *or* a physically realized instance of some functional property; every object is *either* an object of some physical object kind *or* a physically realized object of some functional object kind; every event is *either* an event of some physical event kind *or* a physically realized event of some functional event kind.

To see what this amounts to, consider a particular token of my belief that grass is green. Call that token ‘B’. While B is arguably not a physical token—because no purely *physical* conditions entail that B is a *belief* token—it is plausible to suppose that B is a token of a functional type, since it is plausible to sup-

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pose that something is a belief just in case it plays a certain causal role in our psychological lives. Call that associated role 'C'. According to retentive realization physicalism, then given that B exists, there will be some physical token S, distinct from B, that plays the associated role C such that, necessarily, whenever S is tokened, so is B. This is what it means for B to depend on the physical: it is realized by the physical. And what goes for B goes for all other tokens, objects, and properties of all other functional types.

The overall picture drawn by Melnyk is an appealing one. The idea that the nonphysical is realized—in Melnyk's sense of the term—by the physical makes sense of the physicalist intuition that everything depends on the physical; it accords with the suspicion, shared by many philosophers, that there is no a priori entailment of the nonphysical by the physical; and it allows for the commonsense view that psychological nature is a genuine aspect of the actual world. Unfortunately, it is not without problems. I will highlight one that strikes me as being particularly troubling. Note that in Melnyk's definition of retentive realization physicalism, the tokens that are physically realized are tokens of some functional type. But what if not all psychological tokens are tokens of functional types? For example, consider qualitative or phenomenal psychological tokens, such as my being in pain on Wednesday morning. It is arguable that such tokens are not functional in nature, since their defining characteristic is not their causal role as such, but is instead their qualitative or phenomenal feel. And if these tokens are not functional tokens, then it isn't clear how they can be physically realized on Melnyk's view.

To be fair, Melnyk is not unaware of this problem. In response, he suggests that there are no principled reasons why being a center of consciousness, say, should not turn out to be a posteriori identical with being a token of such-and-such functional type. But surely there *are* such principled reasons: the conceivability of zombies, say, suggests that what it's like to be conscious isn't a functional property at all, since it suggests that functional duplicates needn't be duplicates with respect to consciousness. Melnyk will argue, no doubt, that this is precisely the sort of a priori objection that he rejects. But Melnyk's reasons for doing so are unpersuasive. Although he refers to several physicalist accounts of phenomenal properties in the literature, he makes no attempt to establish that they are consistent with retentive realization physicalism. (Is a view that says that phenomenal property Q is a nonfunctional property that is a posteriori identical with some physical property P compatible with Melnyk's view?) And his attempts to question the relevance of a priori considerations such as the conceivability of zombies, although suggestive, are incomplete at best. To take but one example, Melnyk argues that on his view conceivability is no guide to possibility, not even a *prima facie* one (37). But does he really wish to claim that the fact that it is conceivable that I might have been taller than I am gives me *no* reason to believe that I might have been taller than I am? In short, what is wanted is a discussion of properties that are not paradigmatically

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functional in nature, and an argument that tokens of such property types could be physically realized in Melnyk's sense of the term. But this is precisely the sort of argument that Melnyk fails to give.

While I have highlighted one potential source of worry, there is much about Melnyk's thesis that is attractive, and much more to be said about the arguments and considerations he marshals in its support. Indeed, I have barely scratched the surface of Melnyk's nuanced view, and I have in no way attempted to convey the depth and breadth of his discussions of realization, supervenience, reduction, causation, and epiphenomenalism, among other topics. Still, readers should beware: although this is a rewarding study, it is not an easy read. Melnyk covers an enormous amount of material, and the argumentation can be dense at times. Nonetheless, for philosophers who are interested in a sophisticated and challenging defense of a nonsupervenience-based version of a posteriori physicalism, this is an excellent place to begin.

ANDREW BOTTERELL

Sonoma State University

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David-Hillel Ruben, *Action and Its Explanation*. Oxford: Oxford University Press, 2003. Pp. x, 240.

David-Hillel Ruben makes a worthy contribution to the literature on contemporary action theory. The book will be required reading for those doing scholarship on action and action explanation, and is an excellent choice for graduate seminars on action theory. The final chapter will be of interest to anyone with an interest in explanation more generally. Ruben addresses a range of questions and issues that have been given considerable attention over the past four decades, surveys much of the canonical material in the relevant area, and makes insightful and original contributions to the field. The discussion divides into six chapters, each more or less able to stand alone. The self-contained nature of the chapters is both a merit and a shortcoming of the book. It's a merit because it means that, assuming the reader already has a background in this literature, she or he can jump in at almost any point without feeling lost. It's a shortcoming because it leaves it up to the reader to piece together how, for just one example, the discussion of Cambridge actions, figuring centrally and foundationally in chapter 1, informs the rest of the book. Ruben's main opponent in the heart of the book (chapters 3 and 4) is the Causal Theory of Action, according to which basic actions are "rationalized and caused in the right way" by our mental states (85). Subsequently (chapter 5) he addresses two versions of the Agent Causalist Theory, according to which actions are the