Emergence in Mind
EDITED BY CYNTIA MACDONALD AND GRAHAM MACDONALD
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Emergence in Mind consists of an introduction by the editors and nine main essays, seven of which are followed by brief commentaries. As the book’s title indicates, most of the papers are concerned with debates about emergence in the philosophy of mind. However, several contributors discuss emergence as it relates to other topics, such as chemistry, free will, and group agency.

As Macdonald and Macdonald note ‘there are a variety of ways in which emergence has been, and can be, conceptualized’ (139). Notably, many writers distinguish between weak and strong emergence. Paul Noordhof, Achim Stephan, and the Macdonalds discuss this distinction in their contributions, and they all seem to agree that only strong emergence has interesting metaphysical implications. (Cf. O’Connor and Wong 2009, who distinguish between epistemological and ontological emergence.) Roughly, a strongly emergent property is ‘a new type of property’ (Macdonald and Macdonald: 142), one that has ‘distinctive, new, causal powers not possessed by any properties on which it supervenes [or by Boolean combinations thereof]’ (ibid.: 146). By contrast, weakly emergent properties are merely properties of complex systems that are unpredictable or unexpected, even given complete knowledge of the features of, and laws governing, those systems’ parts (ibid.: 140-42).

In the remainder of this brief review, I use the term ‘emergence’ to refer to strong emergence. I will focus on two related topics that are discussed in several of the essays: (i) the relation between emergence and physicalism and (ii) the bearing that emergence has on the causal efficacy and causal relevance of psychological and other ‘special science’ properties.

Traditionally, emergence has been thought to be incompatible with physicalism. As Tim Crane remarks, ‘… whatever emergentism is, it is not physicalism’ (23). However, Macdonald and Macdonald depart from this tradition and defend a view according to which mental properties are strongly emergent but where this emergence is allegedly ‘suitable for … a physicalist position on the nature of the mind’ (145).

Their account of events, according to which ‘an event can be a single exemplifying of both a mental property and a physical property,’ (153) plays a central role in their theory. In short, according to the Macdonals, the causal efficacy of mental events (i.e., instances or exemplifying of mental properties) is preserved because they are identical to physical events.

What about the causal relevance of mental properties? Does a given event sometimes cause some effect in virtue of exemplifying a mental property? The alleged upshot of Jaegwon Kim’s ‘causal exclusion argument’ is that the answer is no; mental properties must be identified with physical properties on pain of embracing their causal irrelevance (154-55). The Macdonalds claim that this argument is unsound because it illegitimately slips between talk of the causal power of properties and that of their instances. The most that Kim’s argument supports is the ‘unremarkable’ fact that there is no downward causation between instances (156) and the ‘uncontroversial’ claim that identical instances have identical causal powers (157). To conclude that mental properties are causally irrelevant Kim needs the additional assumption that two properties that share an instance have the same causal powers. However, this assumption is dubious since the causal powers of the mental and physical properties at issue are determined by their other instances, as well (157-58).
This response seems incomplete to me. Something like the Macdonalds’ argument may be enough to defend a non-emergentist physicalist view that nevertheless denies that mental properties are identical to physical ones (perhaps because the causal profiles of mental properties are proper subsets of the causal profiles of their physical realizers). Yet it does not explain how the existence of emergent mental properties with new and independent causal powers is compatible with physicalism, given that the latter doctrine includes a commitment to the causal completeness of physics. (In his commentary on the Macdonalds’ paper, Peter Wyss also questions whether their version of emergentism is compatible with physicalism, focusing on the tensions he sees in the claim that emergent properties are realized by physical properties (174-76).)

A related point applies to the view of mental causation defended by Peter Menzies and Christian List. They argue for ‘The Causal Autonomy of Mental States: For some mental property M and physical property P, where an instance of property M is realized by an instance of property P, the causal powers of the M-instance are not a subset of those of the P-instance’ (111). However, their argument for this claim is, surprisingly, based on the very same proportionality considerations that are also endorsed by those who adopt the denial of causal autonomy—what Menzies and List call ‘the Physical Determination thesis’. The disagreement here seems to hinge on a (terminological?) dispute about how to assign causal powers to properties. Those who accept the Physical Determination thesis tie the attribution of causal powers to claims about causal sufficiency and use proportionality to argue that in some cases (an instantiation of) a mental property, but not its physical realizer, is ‘the cause’ of a given effect, even though both are causally sufficient for it. (Ausonio Marras and Juhani Yli-Vakkuri make a related, but slightly different, point in their comments, arguing that Menzies’ and List’s interventionist proposal is a necessary condition for causal explanation rather than a necessary and sufficient condition for causation (134-35).)

Despite this reservation, I think that Menzies’ and List’s paper demonstrates the benefits of adopting a naturalistic approach to the mental causation debate and of not relying on allegedly a priori metaphysical principles (cf. Marras and Yli-Vakkuri: 129). Robin Hendry’s excellent discussion of emergence in chemistry also exhibits this virtue. He argues that molecular structure is ontologically emergent with respect to quantum mechanical systems of nuclei and electrons (212-15). If this is correct, then it casts empirical doubt on the completeness of physics, both by positing causal powers (such as acidity) that are conferred by molecular structure but not its physical basis (215) and by undercutting the empirical argument for completeness (216-17). This is naturalistic philosophy at its best, and physicalists need to respond to Hendry’s argument—perhaps by arguing that completeness itself is more complicated than many of its proponents have assumed (cf. Haug 2009, esp. pp. 390ff.).

In the past two centuries, many scientists and philosophers have advocated for emergent properties. Unfortunately, debates about emergence have often been fraught with conceptual and empirical confusion. If the next 200 years are anything like the last, many researchers will continue to be intrigued by the possibility of emergent phenomena. They would be well-advised to take the lead from the essays in this volume: it is only such clear, well-argued, and scientifically-informed discussion that will shed light on the prospects and problems of emergence.

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References
Haug, M.C. 2009. Two kinds of completeness and the uses (and abuses) of exclusion principles. 

Philosophy. ed. Edward N. Zalta. URL =