

***Emergence: A Philosophical Account***

PAUL HUMPHREYS

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The concept of emergence and the existence, or lack thereof, of emergent phenomena has seen its popularity wax and wane over the past century. In the midst of another rise in interest in emergence, Paul Humphreys, in *Emergence: A Philosophical Account*, highlights that a case for ontological emergence can be made when one considers the effects of time and temporal evolution. Humphreys provides a systematic overview of the concept of emergence including a survey of historically relevant positions that gave rise to its usage in modernity, in addition to scientific perspectives and associated philosophical perspectives on emergence. Intended for a general readership, Humphreys uses the last two chapters to elaborate on the intersection emergence has with other philosophical and scientific positions including supervenience, fundamentality, and dynamical systems.

In contrast to the synchronic accounts of emergence put forward both by the early British Emergentists and their contemporary descendants, Humphreys argues for a diachronic account of ontological emergence. He identifies four criteria by which we can identify emergent phenomena: 1) “Emergent features result from something else,” 2) “they possess a certain kind of novelty with respect to the features from which they develop,” 3) “they are autonomous from the features from which they develop, and” 4) “they exhibit a form of holism” (26). Despite the many varied uses of the term ‘emergence’ and the difficulties one would have identifying widely agreed upon necessary and sufficient conditions for cases of emergence, Humphreys nevertheless believes he has captured the four features that recur in discussions of emergence.

Yet why is emergence important? Quite simply, the success of generative atomistic physicalism (GAP), which ought to be considered a methodological approach as opposed to a metaphysical position, according to Humphreys, is not absolute. Herein lies the project with which Humphreys concerns himself over the course of the majority of this book, namely endeavouring to “give a descriptive classification of existing accounts of emergence and to show that a failure of certain aspects of GAP leads to the categories in our taxonomy” (37). Moreover, Humphreys’ classification is two dimensional capturing the “*relational dimension*” and the “*temporal dimension*” of emergent entities (38-39). He notes that the relational dimension has three divisions, ontological, inferential, and conceptual approaches, that concern the relation between the emergent entity and the entities with respect to which it is emergent. The temporal dimension of the taxonomy, in contrast to most accounts of emergence, “recognizes that emergence can occur across time ... as well as between two coexisting domains,” i.e., distinguishes between diachronic emergence and synchronic emergence (39).

From this position, Humphreys develops a compelling case for transformational emergence and fusion emergence, two accounts of diachronic ontological emergence, by providing examples of each, situating his position within the taxonomy outlined and repelling the most common criticisms of ontological emergence. For example, the problem of downward causation and its implied violation of the irreflexivity of causation “is

not obviously problematic when diachronic processes are involved,” given that it is plausible a cause that originated with a whole system can at a later time affect a component of the system (127). Indeed, Humphreys is insistent that transformational and fusion emergence is, if not an outright attractive position, compatible with narrow views on emergence, regardless of the approach one takes with respect to the relational dimension of emergence.

A central theme in this book is the interdisciplinary nature of the study of emergence. Humphreys makes liberal use of ideas and examples of emergence in the scientific literature just as much as he draws on discussions of emergence in the philosophical literature. His reasons for doing so are twofold: first to demonstrate that emergent phenomena are not as mysterious or rare as might be supposed, and second to draw attention to both the successes and failures of GAP, the methodology primarily motivating scientific investigation. Emergence, and hence the failure in some way of GAP, can be found in the preservation and formation of bird flocks over time (inferential and conceptual) and first-order phase transitions (inferential and ontological), to name two examples. By informing his philosophical investigation of emergence with scientific examples of emergence, Humphreys is able to make a powerful argument for diachronic ontological emergence grounded in empirical research, however, he is under no illusions that such phenomena may exhibit actual, i.e., ontological, emergence. In short, despite Humphreys’ attempt to demonstrate the plausibility of maintaining the ontic status of emergent phenomena, it is still of utmost importance to maintain the distinction between ontologically possible, nomologically possible, and logically possible phenomena.

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***Critique of Practical Reason. Cambridge Texts in the History of Philosophy. Revised edition.***

IMMANUEL KANT, Trans., MARY GREGOR

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The new, revised edition of the Mary Gregor’s translation of Immanuel Kant’s *Critique of Practical Reason* corrects some of the errors that unfortunately tarnished Gregor’s generally fine first translation. But, in the opinion of this reviewer, the revisions do not go far enough to warrant a clear recommendation, especially in light of the stiff competition.

Kant’s *Critique of Practical Reason*, published in 1788, is both Kant’s second *Critique* (falling between the *Critique of Pure Reason* [1781/1787] and the *Critique of Judgment* [1790]) and the second of Kant’s three major works on moral theory, next to *Groundwork of the Metaphysics of Morals* (1785) and *The Metaphysics of Morals* (1797), both of which Mary Gregor has translated for Cambridge University Press. According to Andrews Reath, author of the “Introduction” and editor of the revised edition, “This revised edition corrects a number of misprints in the translation. Several small emendations have also been made to the translation” (xli). All in all, this is a very