JASSS

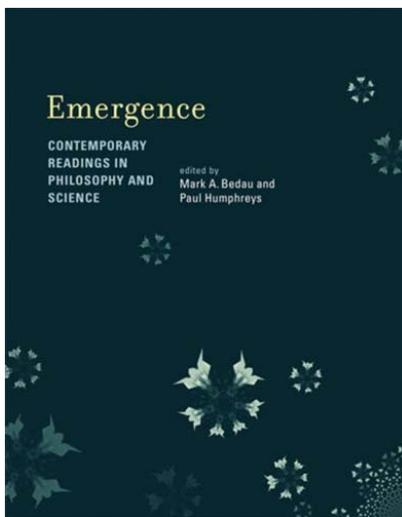# Emergence: Contemporary Readings in Philosophy and Science (Bradford Books)

Bedau, Mark A and Humphreys, Paul (Eds.)
MIT Press: London, 2007
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Emergence is a controversial topic. In recent years, many books and journal special issues on this topic have been published in many fields. As JASSS readers know very well, 90% of papers on complexity and social simulation explicitly refer to emergence, i.e. emergent processes, properties, dynamics, and patterns. Some scholars suggest that emergence is no more than an epistemological concept, that is, a metaphor to grasp macro patterns that result from micro dispersed interactions, something merely in the eye of the beholder (i.e., Epstein 2006). Others argue that emergence refers to ontological properties of the social life that are not reducible to micro properties, that is, something that really exists in itself, no matter if individuals, who have yielded it, may recognise it or not (i.e., Sawyer 2005). In philosophy and epistemology, there is an ongoing large debate that sets supporters of emergence against reductionists, not to mention the standard debate between supporters of the methodological individualism and advocates of social ontologies in the social sciences.

Given the increasing interest in this hot issue, one could be surprised to find that nobody, before Mark A. Bedau and Paul Humphreys, has ever thought to put together a comprehensive and complete collection of contributions on this topic. This is a first merit of this book. The 24 readings (see the table below) are the most representative and excellent papers on emergence that have been published in the last 40 years in philosophy, epistemology, physics, and artificial intelligence. The reader can find in the same book some famous contributions by Hempel and Oppenheim, Nagel, Searle, Simon, Schelling, Fodor, and Dennet, among others, as well as the famous 'More is Different' by P. W. Anderson that has been so influential in promoting the complexity field in the 1970s.

The book chapters are put into context by an introduction where the editors summarise all of the most relevant and disputed issues on emergence. They focus on some issues that seem particularly pressing, in particular on the definitional controversy, where attention is paid on how emergence should be defined, as well as tested and measured, the articulation of static and synchronic vs. dynamic and diachronic approaches to emergence and the attempt to combine them, and the problem of how to identify hierarchical levels in the reality.

As the editors argue in their introduction, most of these controversial issues can be summarised in the idea of a dispute between the so-called 'sparse view' on emergence and the radical view. According to the first one, 'if emergence exists at all, it appears only in unusual types of phenomena that tend to fall outside the scope of normal science', such as in case of consciousness and other 'exotic phenomena' (p. 12). On the contrary, the radical view states that emergence is far from being an exception, or a room where to collect a list of exotic

phenomena. Rather than being rare, emergence is something common and clearly reveals the pitfalls of normal science. All the chapters of this book roughly fall within such opposite positions.

Reading the chapters of this book, the JASSS reader can find a lot of intuitions and suggestions that can strengthen his/her view on emergence. For instance, what I have found really interesting is the chance to read or reread some classical contributions by Hempel and Oppenheim, Nagel, Simon, Dennet, as well as some interesting contributions from physicists that I must confess I was unaware of. I guess that JASSS readers interested in emergence could find some powerful references to be used in their research works, at least to improve the 'philosophical dignity' of their contributions.

Nevertheless, it must be said that the arguments of the more philosophy and metaphysics oriented accounts on emergence are beyond all understandings from a social science perspective. The idea that philosophical accounts should describe how emergence *could* occur, that is, at best a potential dimension of the reality with no interest in the concrete existence of real cases, is beyond the scope of any reasonable social scientist. The evidence that the world does not contain any concrete example of the type of emergence on which philosophy and metaphysics endlessly argue can not be walked away from or easily dismissed. This is the reason why a 'pure' debate on emergence without modelling and empirical evidence has little meaning for social scientists. In my view, this is exactly where social simulation makes a difference. Social simulation models can help illustrate and explain emergent patterns so that theoretical discussion and empirical evidence can be fruitfully connected. If this is true, the book leaves the social simulation reader even more confident on the relevance of what he/she is doing than before.

Finally, one could be disappointed by the fact that there is no trace of contributions from social simulation and agent-based social science literature. Paradoxically, this does not reduce the value of this book for JASSS readers, who are already well acquainted with emergence in social simulation and perhaps can be interested in understanding what is the debate in a more philosophy or complexity oriented field.

In conclusion, JASSS readers should not approach this book searching for the solution of the emergence puzzle. What we can found therein is a collection of stimulating readings that can help us setting our arguments and improving our knowledge on the implications of emergence. For instance, young social simulation researchers can find a lot of added value in this book. They can find the chance to familiarise with emergence and complexity fields. Perhaps to come back to social simulation issue with new ideas and renewed enthusiasm.

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