



A pragmatist's guide to philosophy of science

Holly K. Andersen and Sandra D. Mitchell (eds.): *The pragmatist challenge: pragmatist metaphysics for philosophy of science*. Oxford: Oxford University Press, 2023, 214 pp, €74.90 HB

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This edited collection brings together six essays by six distinguished philosophers of science, resulting from three workshops which took place in the USA and Canada between 2014 and 2017. The volume opens with an introductory chapter by the two editors, Holly Andersen and Sandra Mitchell, in which they state that the pragmatist challenge considered in the book is not an all-out rejection of a-priori analytic metaphysics, but instead an “offering of an alternative approach to metaphysical enquiry that is closer in spirit to natural philosophy, closely integrating metaphysical and epistemological considerations” (3). The six essays of the volume are, without exception, of first-rate quality and cover a broad range of subjects in contemporary philosophy of science. As such, this volume is a great contribution that will be of particular value to anyone interested in pragmatist approaches to philosophy of science.

In the first essay, James Woodward delineates a pragmatic approach to philosophy of science, based on a distinction between ‘minimal metaphysics’ and ‘ambitious metaphysics’. The former concerns necessary claims about what the world is like and what exists, such as claims about the existence of subatomic particles and the presence of certain causal relations in nature. The latter concern appeals to special entities and relationships that are often unilluminating and seem to play no role in science, claims about what ‘really’ exists and so on. Woodward’s aim is to demonstrate how various themes in general philosophy of science, such as modal knowledge, causation, and scientific representation, can be approached by a pragmatic philosophy of science in which scientific practice plays a central role and no ambitious metaphysics are involved. Woodward also provides some concrete advice to aspiring pragmatists—e.g., by writing “when criticized by metaphysicians for failing to

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articulate proper metaphysical underpinnings for science, pragmatists should push back by demanding to be shown why, given their goals, such underpinnings are necessary” (34–5). This is, of course, just another way of formulating the pragmatist challenge.

In the second essay, Holly Andersen focuses on the role of truth in science. Andersen nicely highlights a tension between contemporary epistemological discussions about truth and discussions of truth within science and philosophy of science and argues against the separation of ‘justification’ and ‘truthfulness’ as two different necessary conditions for knowledge. Using specific examples from formal epistemology, Andersen shows that the necessary and sufficient conditions required by some theories of knowledge are rarely met when making scientific claims, despite the fact that science undoubtedly produces knowledge. She then develops a pragmatist understanding of truth in science “as a state into which knowledge products can be brought, and out of which they can fall, where truth is a process-oriented activity” (83). This pragmatic notion of truth is illustrated in terms of an analogy with the truing process of a bicycle wheel, a constant process of refinements and adjustments to bring the wheel ‘in true’. Andersen argues that, by analogy, some established scientific results should count as true, while others, are still in the truing process.

Next comes an essay by Sandra Mitchell, advancing a pragmatist form of scientific realism based on the concept of ‘affordance’, a term borrowed from ecological psychology. In this context, “the affordances of real phenomena are what they offer the scientist, what they provide or furnish to experiment and representation” (114). Mitchell draws on various themes from the philosophy of experimentation to argue that neither a bottom-up approach to realism based on entities nor a top-down approach based on structures suffice to capture the required judgments for warranting claims of realism in the scientific context. What is needed is a pragmatist alternative that jointly uses both the top-down and bottom-up strategy to warrant what is real, based on various necessary judgments regarding the reliability of experimental data, the theoretical content of our theories, and the relevant causal framework. Mitchell’s pragmatism relies on the claim that as these judgments change, so do our warrants about what is real.

The fourth essay by Edward Hall is a defence of ‘Respectful Deflationism’, a pragmatist stance towards the toleration of metaphysically loaded concepts in philosophical theorizing, such as causation, grounding, essence, laws of nature, etc. Respectful Deflationism admits that such concepts play a role in serious philosophical inquiries but denies that they mark out any distinctive kind of metaphysical structure. Rather, the point of including these concepts in our philosophical parlance is because they provide the *rationale* for various decisions depending on one’s aims. Hall demonstrates his view based on the literature on Humean accounts of laws of nature, which, according to him, has largely entrenched the philosophical mistake of taking these accounts as *metaphysical explanations* of facts about laws in terms of other, suitably non-modal facts. Instead, says Hall, these accounts should be presented as accounts “of the rationale for having a concept of law that works in a certain way to organize our empirical enquiry” (149).

In the fifth essay, David Danks challenges the seemingly widely held view that pragmatist approaches in philosophy of science are inconsistent with the unification

of scientific theories. His argument is based on the distinction between ‘philosophy of pragmatist science’ and ‘pragmatist philosophy of science’. The former involves pursuing a realist philosophy of science in which science is characterized as being deeply pragmatic, while the latter involves a philosophy of science based on pragmatic norms where one assesses whether certain philosophical approaches are fruitful towards the achievement of certain goals of scientists and philosophers. Danks argues that only the second form of pragmatism leads to disunified theories since it is premised on a drive to identify and characterize the underlying nature of the world, and thus requires that scientists reify the content of scientific theories. Contrarily, a pragmatist science is only committed to functional characterizations reflecting the scientists’ various pragmatic goals, and, as such, it is perfectly consistent with the possibility of unification of scientific theories.

Finally, the collection closes with Laura Ruetsche’s defence of a pragmatist thesis on the interpretation of quantum field theory, according to which the physical content of theories does not only reflect the way the world is, but also the aims, needs, and limitations of theory-users. This approach is developed in Ruetsche’s previous work (Ruetsche 2011), and in this chapter Ruetsche contraposes it with the view that the content of fundamental physics objectively reflects the way the world is and does not include any pragmatic dimensions. The thrust of her argument is that classical field theories are not suitably finite, and any attempt of quantization inevitably results in multiple quantum field theories whose interpretation is possible only within a pragmatic framework. She then proceeds to argue that even if one accepts that there is a possible final scientific theory that completely and adequately captures the way the world really is, such a theory is nowhere to be found in the future of science.

Overall, the six essays of the collection follow, in one way or another, the spirit of traditional pragmatists such as Charles Sanders Peirce, William James, and John Dewey and are clearly influenced by the works of more contemporary card-carrying pragmatists such as Carnap, Quine, Rorty, and especially Huw Price. While the book contains some novel philosophical ideas, e.g., Andersen’s theory of Trueing, for the most part, the book is essentially a guide on how to do pragmatist philosophy of science, as well as a demonstration of the advantages of this enterprise compared to analytic metaphysics. Nevertheless, all authors are careful enough not to dismiss the latter as purely meaningless in the spirit of early Carnap. Rather, the emphasis is placed on the merits of pursuing a more pragmatic and means/ends-based approach in philosophy of science which is closer to the scientific practice.

That being said, the value of this book is to be found not so much in the proliferation of the novel philosophical ideas it presents—but this is not the intention of the authors—but rather, in its several and clear demonstrations of how a pragmatist approach can be applied to a wide range of important and timely issues in philosophy of science, such as realism and representation, causation, grounding, modal knowledge, laws of nature, unification of science, and the interpretation of scientific theories. This book will easily find a place in the bookshelves of scholars and students who are inclined towards pragmatism and natural philosophy of science. However, the real challenge is whether the authors can indeed succeed in their goal, that is, to convince analytic metaphysicians of science to pursue a more pragmatic

approach. As one anonymous referee once wrote to me when I was promoting a pragmatic approach to philosophy of science, it is possible that the authors of this volume are merely “preaching to the converted”; however, “this is sometimes all one can achieve in philosophy, and it can still be a worthwhile achievement”.

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Reference

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