

REVIEWS

DEFENDING DEDUCTIVE NOMOLOGY

Stathis Psillos, *Causation and Explanation*. Chesham: Acumen, 2002.
Pp. xi + 324. £11.95 PB.

By James Ladyman

In recent years philosophy of science has seen a resurgence of interest in metaphysical issues, especially those concerning laws, causation, and explanation. Although this book takes only the latter two words for its title, it is also about laws of nature. It is divided into three sections: the first is on causation, the second is on laws, and the third is on explanation: this is entirely appropriate because the debates about them are closely related. Ever since Hume argued that causation is nothing more than regularities, laws have been more respectable than causes in philosophy. Perhaps this is also because science is replete with specially named laws which seem to play a central role in theories and explanations. Yet, as many philosophers have recently pointed out, contrary to Russell's famous pronouncement that causation is a relic of a bygone age (quoted p. 3 by Psillos), the contemporary special sciences are very much concerned with the identification and investigation of all manner of causal structures. This raises the question of whether the apparent causal powers attributed to kinds in the special sciences are anything over and above a way of talking about the result of the operations of physical laws governing their micro-constituents. Hence the logical empiricist's project of showing how the laws of the special sciences reduce to those of physics. On their view, explanation, and in particular causal explanation, is nothing more than argument using the laws of nature as premises. However, this covering-law model of explanation has been subjected to intense criticism, and there have been attempts to construct alternatives that rely on the idea that to explain an event is to cite its real cause, where this cause need not be subsumed under any law. Since the demise of logical empiricism, or at least the waning of its influence, there has been a proliferation of theories about laws, causation and explanation, many of which differ radically from one another.



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This book begins with a number of platitudes about causation to be implied by any account, and with two conflicting intuitions. One of these is the Humean intuition that causation applies between types of event that are regularly conjoined, and the other is the thought that if a brick causes a window to break, that it is a feature of that particular process and quite independent of whatever else happens. Psillos then makes three useful distinctions: first, singular versus general; second, intrinsic versus extrinsic; and third, reductive versus non-reductive. So, according to Hume, a causal relation is a regularity, that is a general feature of the world, not something that holds between a particular event and another event; it is an extrinsic relation, since it fails to be determined by the intrinsic properties of its relata, but depends also on conditions elsewhere; and his theory is reductive, because he holds that the facts about what regularities there are in the world entirely fix all the causal facts. Debate about causation, and laws and explanation, is dominated by Hume's influence in so far as the main point of contention is whether or not there are brute powers, causes, or necessary connections in nature. Among those philosophers who reject Hume's regularity theory of causation, there are those who have tried to stay true to the spirit of Hume by reducing causation to something else other than regularity, but without invoking anything like natural necessity. There are a large number of extant theories of causation, but Psillos manages to explain all the main contenders and discusses their strengths and weaknesses. He then compares them in the light of the distinctions mentioned, and this provides an illuminating view of the issues. Some of the discussion takes the reader into the metaphysics of counterfactuals and possible worlds, all of which Psillos explains beautifully.

The main difficulty for the Humean view of laws, wherein laws are nothing more than contingent regularities, is to explain the difference between a genuine law and an accidental, but nonetheless true and universal, generalisation. The former are supposed to support explanations and counterfactual conditionals while the latter do not. Humeans have generally sought to modify the naïve regularity theory, according to which a statement is a law just in case it expresses a true universal generalisation, by proposing various conditions which regularities must satisfy to be laws. One of the most popular and credible approaches is to argue that the laws of nature are those regularities which feature in the best deductive systematisation of the empirical facts about the world. Psillos defends this view against various criticisms, but explains how the problems besetting versions of the regularity theory of laws have contributed to a resurgence of metaphysical theories about laws of nature which are radically non-Humean. According to so-called necessitarians, the laws of nature are

relations between universals. They go on to argue about whether universals are immanent or transcendent, and about whether the laws of nature are themselves necessary or contingent. One advantage that necessitarians claim is that their view allows for objective counterfactual claims to be supported by laws. On the other hand, the metaphysical machinery of such theories is a big price to pay and Psillos argues that the view of laws that he defends offers an account of explanation, namely explanation is unification within a deductive nomological structure.

Explanation is the subject of the last section, but before moving on to it Psillos outlines a variety of accounts of laws including those due to all the most well-known contributors to the literature. Here, as elsewhere, the reader has reason to be grateful for his thorough research, clear exposition, and reasoned assessment of the material. In the subsequent discussion of explanation, Psillos defends the deductive–nomological account after explaining the most powerful objections to it. He then moves on to discuss statistical explanation, before considering how laws explain laws; and finally he draws everything together by arguing for his own view of the relationship between causation, laws, and explanation.

Psillos takes the reader through abstract and complex issues with a light touch and discusses much of the recent literature on his subjects. One of the many virtues of this book is that the reader really will be exposed to a wide range of arguments and theories, and the bibliography, like the book as a whole, is inclusive of the most recent developments in the literature. In many ways, this book is exemplary of good analytic philosophy and the healthy state of debate about the issues occupying it. Psillos is clear and rigorous throughout in his presentation of the main positions on each of the topics he discusses. The important components of each theory and the relevant arguments are laid out, and the reader is left to carry on the debate. Having said that Psillos is clear that he is a Humean when it comes down to it, and he offers his perspective on the issues regularly, but is admirably fair in subjecting it to critical scrutiny. The book closes with a dilemma for the Humean, based on Socrates' argument in the *Euthyphro*, between realism and transcendental idealism. Psillos opts for realism but makes it clear what metaphysical price must be paid for his choice.

In the preface, like the writers of most textbooks, Psillos confesses his desire to interest the professional academic as well as the student reader. Perhaps unlike most of his peers, he will, I am sure, find his aspiration fulfilled. There are few people who will already be familiar with all of his subject matter, and even they will be indebted to him for organising and systematising it, and making the connections between various issues so perspicuous. Furthermore, at various points Psillos offers novel arguments

that advance the debate and will be the subject of subsequent work. For those who don't specialise in the topics he discusses there is no better introduction to the issues than this, and it will certainly become a standard course text and reference work for advanced undergraduate and post-graduate students. Psillos is to be congratulated for writing an excellent book.

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