

the chief editor with a historical survey of various views of the nature of philosophy and concludes with a short glossary of philosophical terms and a chronological table of memorable dates in philosophy and other arts and sciences from 1600 to 1960. The various chapters, with few exceptions, show a consistent fluency, clarity and readability. They are, in the main, conventional, orthodox, traditional, neutral, impartial, fair and safe, though, naturally, the expert reader will have disagreements with specific points. Usually a clear distinction is made, where appropriate, between analytic and normative considerations of the topic and something is said on each. There is only a little overlap between chapters.

The title is misleading. Innumerable topics are not discussed at all. No essay is devoted to any philosopher, major or minor, as such, though frequent references are made to many in passing, since, in fact, the vast majority of the chapters consist of semi-historical, semi-critical surveys of the standard views on the topic under consideration. This fault might be remedied by using the book in conjunction with the well known *Critical History of Western Philosophy* edited by O'Connor. The book lacks the vast range of Edwards' *Encyclopaedia of Philosophy*; and, though each chapter is usually longer and more widely cast than most of his entries, the total is far less comprehensive. Just because each chapter tries to cover too much ground in too wide a sweep, I doubt it will be very intelligible as a reference book to the class of reader – "the general reader . . . the sixth former . . . university students of philosophy . . ." (p. ix) – at whom it is specifically aimed. It would function better as a revision book to refresh the memory of the experienced student. The best chapters are probably those with a narrow topic, such as memory, behaviour, punishment, though even here very little is offered more than Edwards'. Some chapters with an ostensibly broad title betray a distortingly narrow approach, for instance those on knowledge, probability, philosophy of science.

A more appropriate title for the book would be 'Some Topics in Philosophy'. To think of it as an encyclopaedia leaves it open to Dr. Johnson's criticism of a woman's preaching or a dog's standing on its hind legs.

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*Causation: A Realist Approach*

By MICHAEL TOOLEY

Oxford University Press, 1988. xiv + 360 pp. £32.50

This is a hard and sometimes frustrating book, making a large number of points relevant to a large number of philosophical issues. It is written as an exposition of a theory of physical law and of causation within the framework of a roughly Armstrongian realism about universals. In fact, the early sections of the book are devoted to a defence of a more Platonic realism about universals than Armstrong's. Readers interested in laws and causation but indifferent to issues about universals may well think that the book has no interest for them. To correct this impression I begin my review with a list of

important issues discussed in it, which can be disentangled from the realism theme.

The most important of these is one on which Tooley puts very little emphasis. Tooley treats the claim that a proposition, either a quantified statement or a claim about probabilities, is a law as a further explanatory hypothesis, with the capacity to explain things that the basic proposition cannot. For example if we have various samples of objects belonging to a class *A* and in all of them the proportion which are also in a class *B* tends to be *k*, then we may hypothesise that it is a (probabilistic) law that the probability of a randomly chosen *A*'s being a *B* is *k*. Or we may make the weaker hypothesis that there is a *p* such that it is a law that the probability in question is *p* and that *p* is not far from *k*. Why not simply hypothesise that the probability of a randomly chosen *A* being a *B* is *k*? Because, says Tooley, if I am following him, one would have no reason to suppose that there is a long-run clustering of the *B/A* ratio around *k* unless one thought that the observed ratios were near *k* for some reason. So the probabilistic hypothesis only explains the data if one also hypothesises that it is a law. (For more examples see in the index under 'inference to the best explanation'.)

There are interesting criticisms of probabilistic theories of causation. One of them amounts to saying that if causation is positive statistical relevance then to determine whether *e*<sub>1</sub> causes *e*<sub>2</sub> we have to know the prior probability of *e*<sub>2</sub>, and this depends on knowing how *e*<sub>2</sub> events are distributed among other kinds of events, and thus on the relative probabilities of yet other kinds of events. Unfortunately Tooley does not work out the objection with examples so that one can see whether this would really be as implausible as he supposes. His other objections to probabilistic theories of causation mostly consist in arguments that such theories give counterintuitive results in worlds which are rather different from the actual world, either because they are much simpler or because their laws are rather different. A probabilistic theorist might well reply that it is only because our world is roughly the way it is that we can apply the idea of cause.

There is a novel causal theory of time, according to which temporal relations between events are defined in terms of causal relations between regions of spacetime. This contrasts with the usual causal theories of time whose aim is to eliminate the need to postulate regions of space or time.

The central arguments of the book, though, develop definitions of 'law of nature' and 'cause' motivated by the conviction that laws assert relations between universals. The strategy in both cases is to list essential properties of the definiendum and then to produce a Ramsey-Lewis definition: it is the unique property of or relation between universals satisfying the stated conditions.

The definition of law of nature applies this strategy in the form of a series of definitions of different relations between universals appropriate to different forms of law-statements. In the simplest case the law-statement is of the form 'all *As* are *Bs*' and the relation to be defined is that of nomic necessitation, which holds between universals *A* and *B* when everything falling under the one must as a matter of law fall under the other. Nomic necessitation is

defined as (roughly) the unique relation whose holding between two universals logically entails that everything satisfying the first satisfies the second and whose holding between universals is not logically equivalent to any facts about particulars. This definition worries me by its apparent quantification into a quotation-context. And moreover it seems to me to be satisfied by the relation of inclusion, which holds between any two universals when one applies to everything the other does. That would make all true inclusion-statements laws.

More complex definitions apply to law-statements of more complex logical form, and Tooley gestures towards a theory of law applicable to arbitrarily complex propositions. My worry is that through a combination of problems about intensionality and failures of uniqueness all truths or none will turn out to be laws. Tooley acknowledges that there is a serious and interesting problem about laws expressed in mathematical form, which he tries to solve by suggesting that a Hartry Field-like reformulation of mathematical laws in non-numerical form will allow them to be seen as asserting extremely high-order relations between universals.

To take these definitions seriously you do not have to take a position in the debates about universals. You just have to admit the legitimacy of expressions defining a predicate expression in terms of a third-order existential quantification. There are a number of ways of making sense of such expressions and you can keep an open mind about which one to choose while evaluating the analysis of laws of nature. Not that theories of higher-order quantification and theories of natural law are completely independent of one another. For example my objection to Tooley's definition of nomic necessitation, that the inclusion relation satisfies it, might be countered by arguing that the inclusion relation is not a legitimate third-order predicate.

There could be set-theoretical reasons for arguing this, but in the present context the argument is more likely to be that the inclusion relation is not a physically genuine universal. And there is something intuitively right about this line of reply. For the classification of truths into laws and accidents is closely related to the classification of predicates into those whose extension is determined by fundamental reasons and those whose extensions are irreducible facts. An example, discussed by Tooley, is given by the possibility of singular causation. Suppose that the only way to state what seems to be a fundamental law of nature involves referring to a particular object. (Suppose life evolves readily on planets of our sun, but cannot happen elsewhere, and no more fundamental reason than the presence of this particular star can be found.) Then we count the property of being that particular object ('solarity') as being among the basic quantities of the universe, even though it has only one instance.

Note though that even in this case we are not forced to say that properties that are not linked to laws of nature do not exist. We don't have to get involved with Plato, Aristotle and Armstrong. And to reinforce this agnosticism consider that lawfulness is a matter of degree. The fact that objects fall downwards at  $980 \text{ cm/sec}^2$  is certainly to some degree lawful, but it depends on the accidental fact that the mass of the earth has the exact value

that it does. Nearer to complete lawfulness are principles of gravitational attraction, but even they may well have a partially accidental character. Ultimately fundamental laws may well be beyond our powers of expression. On the one hand considerations like this make one wary of theories that make lawfulness depend on criteria that do not admit of degrees, such as the existence of universals. But on the other hand they encourage a realism about law and its objectivity and suggest that in fact questions of lawfulness do depend on the nature of the physically significant relations between the physically significant properties referred to in statements of natural regularities.

In the second half of the book Tooley defends a definition of causation against some rivals. His aim is to give an account of causation which minimises assumptions about temporal order, spatial continuity, and physical situations in general. The theory would then not beg questions about, for example, temporally backwards causation. Tooley's account is centred on three definitions of causation, one to fit each of three rather different approaches to causation and all using the Ramsey-Lewis technique. The basic idea is that the information that one event is a cause of another pushes the probability of the effect event towards the value of the cause event. Tooley therefore states several sets of postulates expressing this basic idea – one for each of the three possible approaches to causation – and then defines the causal relation as that relation between universals which satisfies the postulates.

What is sensible and admirable here is the technique of avoiding the problems of giving a set of necessary and sufficient conditions by isolating core characteristics of causation and then saying that causation is whatever satisfies them. In short, the Ramsey-Lewis strategy. What worries me most about Tooley's use of the strategy is the fact that the characteristics he fastens on depend essentially on the idea of probability, in fact on logical probability. So again we have a higher-order quantification into a quotation-context. This is sure to generate ambiguities or contradictions at some point.

In any case none of the definitions Tooley gives will help distinguish causes from background conditions or predisposing from precipitating causes, or untangle problems about causal overdetermination, or tell whether the extinction of the dinosaurs is a cause of my falling off my bike last week. Consider for example a problem about overdetermination. Events A and B each would be sufficient for an effect of type C. C does result. Is B a cause of C, given that C would have happened without it? On Tooley's account we must ask whether the knowledge of the relation between B and C makes the probability of C approach that of B from its a priori value. Does it? Suppose that before either of A, B occurs the probability of A is 0.9, and that of B is 0.1. And suppose that the probability of C, again before either of A, B occurs, is 0.91. It is easy to think of situations in which these probabilities would be plausible. Then the probability of C, given just the information that B were it to occur would be related in a determining way to C, seems to be 0.1, like that of B. But given the information that were either of A, B to occur C would

follow the probability of D seems to be 0.91, its a priori value. So when we use Tooley's theory to see whether C causes D we get different answers depending on what information we allow to determine the probabilities. And that is unfortunately what one would expect, since although causality is an objective relation between events probability is relative to information.

I found this a difficult book to read and the review difficult to write. The argument is usually pretty intricate and I am sure I have misunderstood some important points. Moreover I am not at all convinced that the main theories work. Nevertheless it is a very stimulating work, often on a sufficiently novel and promising course to challenge the reader to try to do better.

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*An Essay on Facts*

By KENNETH RUSSELL OLSON

Center for the Study of Language and Information, Lecture Notes Number 6, 1987. vii + 105 pp. £19.25 cloth, £9.50 paper

Olson's *An Essay on Facts* is published in the CSLI 'Lecture Notes' series, whose aim is to "report new developments in the study of language . . . [the] aim is to make new results, ideas and approaches available as quickly as possible". It is not clear to me what Olson's intended audience is, or what he hopes to achieve in this short study.

Much of this short book reads like a set of only partially edited lecture notes, that jump rather quickly from topic to topic. For example, on p. 16, in 32 lines, mention is made of Geach, Austin, Mill, Peirce, Bradley, Plato, Aristotle and Hacking; on p. 20, in 29 lines, there is reference to Ockham, Aristotle and Russell. To my mind, much of the historical material in the book, which is contained in three of its four chapters, reads like a magical mystery tour. I cannot imagine what students listening to these lectures would make of them, unless additional information amplifying the written text was introduced in the lectures themselves. Longer and more detailed discussions of Frege and Bradley escape this criticism.

The main topic of the study is facts, understood as in some sense "parts of the real world" (p. 2), whose constituents include things, properties and relations. "Facts belong . . . to the world itself, and not merely to the apparatus by means of which we represent it" (p. 1). The main philosophical problems with facts so conceived are introduced only in Chapter 4. Olson discusses well-known arguments by Church (p. 66) and by Davidson (p. 84), which, if sound, would show that any two true sentences refer to, or correspond to, the same fact.

Naturally, friends of facts are keen to avoid this collapse of facts into the one Great Fact, within which further discriminations are unavailable. Olson briefly discusses the 'structuralist' response to these problems offered by Barwise and Perry, and in particular their rejection of various assumptions, like the co-referentiality of logically equivalent sentences, on which the