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L. A. Paul and Ned Hall. *Causation: A User's Guide*,  
Causation: A User's Guide by L. A. Paul; Ned Hall

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*Philosophy of Science*, Vol. 82, No. 1 (January 2015), pp. 149-152

Published by: [The University of Chicago Press](#) on behalf of the [Philosophy of Science Association](#)

Stable URL: <http://www.jstor.org/stable/10.1086/678957>

Accessed: 15/09/2015 07:20

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## BOOK REVIEWS

L. A. Paul and Ned Hall, *Causation: A User's Guide*. Oxford: Oxford University Press (2013), 259 pp., \$35.00.

The cover of *Causation: A User's Guide* sports a photograph of an archer who has just let a bolt fly. Who is the target audience of this engaging volume?

The book is designed as a textbook for advanced undergraduate or introductory graduate courses. It is synoptic: L. A. Paul and Ned Hall are not primarily concerned to articulate and defend a particular position. Rather, they sketch the contours of the philosophical debate about causation by comparing and contrasting several different reductive theories. Furthermore, they want to carefully consider the justification and limitations of the method of counterexample: confronting a given account with concrete cases about which we have strong intuitions. As the topic is causation, many such concrete cases are either constructed or illustrated using neuron diagrams, which are networks of “cells” that can “fire” and send either “stimulatory” or “inhibiting” signals to other cells. Given the rules governing the firing of the cells, it is easy to determine which subjunctive conditionals (and hence which counterfactuals) hold for such a network. We often have robust intuitions about which cell firings or cell non-firings count as causes of others. Thus, neuron diagrams provide a proving ground for approaches to the analysis of causation that rely on subjunctive conditionals. They provide a less hospitable environment for testing conserved-quantity approaches to causation but are not entirely useless for that purpose.

We have already ventured into complex and troubling waters. One question arises: when describing the cells in a neuron diagram, must we already necessarily use causally loaded vocabulary? The phrase “stimulatory signal” certainly has causal overtones: stimulating another cell to fire sounds like a way of causing it to fire. The same goes for “inhibiting”: an inhibitor only inhibits an event if it plays a causal role in preventing the event from happening. This issue becomes more fraught in the later parts of the book, where the neurons become fancier. For example, when introducing neuron diagrams for switching cases, a new sort of neuron is described as follows: “Let us stipulate that *C* [i.e., the event of neuron *C* firing] acts as a ‘switch,’ causing the signal leaving *B* to travel on the upper path rather than the lower path” (232). The explicit use of “causing” in the description raises the problem cited above: can a neuron diagram so described help us in a reductive account of causation if causal locutions are used in specifying the component parts of the diagram?

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There are two options here. One is to grant the point but insist that there is still an important reductive program, namely, the reduction of “macrocausation” (the causal relations among distantly related events in the diagram) to “microcausation” (the causal structure of the individual neurons). That would already be a highly nontrivial task. The other option is to maintain that the causal structure of the individual cells is simple enough to yield unproblematically to a reductive analysis, for example, in terms of subjunctive conditionals that are transparently supported by physical law. The reduction of macrocausation to microcausation would then just be one step in a fully reductive program.

Notice that we have left the precincts of a vanilla advanced-undergraduate text for the roiling waters of fundamental philosophical debate. Can the concept of causation be fully reduced to noncausal concepts? What does “fully reduced” mean here? What role do “intuitions” play in justifying or criticizing an offered account? Are there objective facts about causation at all? If so, what are the relata of the relation? If not, what is the aim of a philosophical “analysis” of causation?

The second target audience of Paul and Hall’s book, then, is the community of philosophers with interests in causation, which means just about every philosopher. But their goal is, as noted, not to defend a particular account, or even just to provide a common framework for evaluating competing accounts. Rather, they also invite us to step back and consider the methods and aims of contemporary “analytic” philosophy and whether those methods and aims fit each other well. As such, the book serves to promote a discussion about basic methodological principles that has ramifications for every philosophical discipline. This is a deep and important conversation, and *Causation: A User’s Guide* provides a challenging and philosophically central test case. This is not a book just for students: it is an important methodological treatise in its own right.

Reductive accounts of causation aim to provide necessary and sufficient conditions for a causal relation to hold couched in terms that are (1) not themselves causal and (2) objective. By the latter, one means that the truth values of claims in the reducing vocabulary are unproblematically settled by description in physical terms and by the laws of nature. Given a completed physics, precisely framed subjunctive conditionals can be evaluated (at least if the physics is deterministic). The language of physics can also be used to follow various conserved quantities such as energy and momentum in a conserved-quantity approach to causation. The question is whether one can parlay these resources into an all-purpose account of the causal relation.

Paul and Hall devote most of their attention to minimal sufficiency accounts of causation and to various forms of subjunctive dependency accounts. Minimal sufficiency approaches look for minimal conditions that imply—together with some laws—that the effect will occur, while sub-

junctive dependency theories focus on some sort of counterfactual variation of the effect with variation of the cause. In cases of symmetric overdetermination, minimal sufficiency approaches will judge that both of the overdetermined initiators are causes (since each is individually sufficient for the effect), while subjunctive dependency accounts will be inclined to denominate neither as a cause (since the effect would have occurred even had one not occurred). Subjunctive dependency accounts further subdivide by which conditions are held fixed under a subjunctive variation and how the counterfactual contrasts are specified. Particular attention is paid to theories developed by David Lewis, Steven Yablo, Christopher Hitchcock, and Jonathan Shaffer, as well as proposals by Paul and Hall themselves.

As an example of the way proposals in the same family can differ, start with the basic idea of subjunctive dependency:  $C$  causes  $E$  if  $E$  would not have happened (or would not have happened as it did) had  $C$  not happened (or not happened as it did). In order to evaluate the counterfactuals, one has to specify what is to be held fixed and how the things that are allowed to vary are changed. Different implementations of this basic idea lead to quite different concrete results. Furthermore, the problem of causation among distant events can be solved either by taking the ancestral of a basic causal relation or by applying the same condition of counterfactual dependency directly to the distant events. This yields many variations on the basic idea.

Successive chapters of *Causation* confront these various theories with problem cases: early preemption, late preemption, overdetermination, double prevention, causation by omission, switching cases, and so on. In some instances we have strong intuitions about which events do or do not count as causes, and approaches that clear one hurdle easily often run into later problems generated by the very features that saved the day earlier. One more novel idea considered is the requirement that causation be intrinsic to situations, in the sense that two circumstances that are exactly matched (in some sense) in a region must support the same causal claims in that region, even if the rest of the world differs outside. Intrinsicity in this sense crosscuts issues about subjunctive dependency and minimal sufficiency and so may account for the difficulty in reconciling theory with intuition.

*Causation: A User's Guide* would be an ideal component of any course that delves into the approaches to causation we have considered. Having the various problem cases rendered in the common format of neuron diagrams makes the discussion and analysis elegant and fluid. The methodological observations are equally valuable. They engage fundamental questions about the aims and methods of philosophical analysis more generally. And lurking just below the surface is another foundational issue: when should reductive accounts of a relation or entity even be sought? Paul and Hall are committed to the objectivity of the causal relation and hence to the existence of necessary and sufficient conditions for causation couched in terms of fundamen-

tal ontology. But they are also aware of alternatives that eschew reduction, either by positing an irreducible objective relation of causation or by regarding the concept of causation as too inflected by diverse parochial concerns (such as assigning praise and blame to agents) to admit of any clean analysis. Hence, the first-order methodological concerns can quickly blossom out to consideration of when reduction is a reasonable goal to pursue at all. These are the sorts of basic questions that every philosophical project ought to confront directly, and Paul and Hall have given us a bracing exemplar of how to pursue the discussion.

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Adrian Bardon, *A Brief History of the Philosophy of Time*. Oxford: Oxford University Press (2013), 200 pp., \$19.95.

Adrian Bardon's recent book *A Brief History of the Philosophy of Time* offers a historical, scientific, and philosophical exploration of some of the key issues in philosophy of time, joining the ranks of *Travels in Four Dimensions* by Robin LePoidevin (Oxford University Press, 2003) and *Everywhere and Everywhen* by Nick Huggett (Oxford University Press, 2010). It provides a good introduction to traditional topics such as Zeno's paradoxes, McTaggart's paradox, temporal passage, and the arrow of time while indicating their relation to broader issues such as the nature of experience, moral responsibility, and personal identity. It also manages to initiate its readers into some of the most interesting contemporary debates in the field. Throughout the book, both historical and contemporary positions are categorized in terms of three recurrent and evolving positions: idealism, realism, and relationism.

The book begins by introducing the connection between time and change—a common point of entry both historically and intuitively. He begins with a discussion of Zeno's paradoxes of motion (and the resulting idealism) and Aristotle's relationist response, along with a brief description of how contemporary mathematics contributes to the debate. This is followed by an examination of a lovely fragment from Parmenides, which presents the case for the illusoriness of change. Bardon analyzes this in terms of temporal passage and an event's evolution from *being future*, to *being present*, to *being past*, foreshadowing issues raised in chapter 4 concerning temporal passage and McTaggart's paradox. The chapter concludes with a discussion of Augustine, who is sympathetic to idealism yet perplexed by the origin of our ideas of past, present, and future.

In the second chapter, we are introduced to Locke's empiricism and the trouble it poses for his temporal realism. Since change requires two differ-