

R E V I E W

PHIL DOWE AND PAUL NOORDHOF

Cause and Chance: Causation in an Indeterministic World

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Jonathan Schaffer

*Department of Philosophy, University of Massachusetts, Amherst,
USA*

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This is an excellent anthology. The contributors are first-rate, the contributions are state-of-the-art, and the content is highly unified. The introduction further connects the essays and succinctly articulates the main themes. What results will be of interest to anyone interested in the contemporary discussion of causation.

Here I will offer a brief summary of the contributions, and conclude with a few reflections about where this line of research might be heading.

1 Summaries

The contributions begin with Edgington's 'Counterfactuals and the benefit of hindsight.' Edgington provides an account of counterfactuals that makes crucial use of the notion of causal independence, by holding fixed those facts about the future (e.g. indeterministic outcomes) that are causally independent of the antecedent. She connects this to an elegant account of the role counterfactuals play in empirical inference and Bayesian reasoning. This essay, being more focused on counterfactuals than causation, is actually a slight outlier here (especially because the other essays are so clustered in their central focus). But it presents a strong (and to my mind convincing) challenge to conceptual analyses of causation in terms of counterfactuals.

Next is Dowe's 'Chance-lowering causes,' which focuses directly on the relation between cause and chance. Dowe provides several nice examples of causes that lower the chances of their effects. He then develops a 'path-specific solution' to the relation between causation and chance, where the idea is that causes raise the component chance of their effects along the actual causal path,

which is cashed out in terms of causes raising the chance of their effects at the nearest possible world in which the actual path is the only potential path. He further motivates this idea by connecting it to intuitions about the intrinsicness of causation.

Beebee's 'Chance-changing causal processes' is third. Beebee defends a hybrid account of causation, in two respects. First, she defines causal relatedness as the conjunction of process connection and probabilistic relevance. Second, she distinguishes two species of causal relatedness—causation and hindrance—by whether the probabilistic relevance involved is positive or negative. Along the way, she disputes the details of Dowe's path-specific solution. She also contests intuitions about allegedly chance-lowering causes, labeling these hindrances rather than causes. She allows that chance-lowerers can be causally related to effects, but only in a negatively relevant way. On her account, the effect occurs *despite* the chance-lowerer, not because of it.

Fourth is Ehring's 'Counterfactual theories, preemption and persistence,' which focuses on a devious kind of preemption case ('occurrent preemption'). He argues that this case is a counterexample to counterfactual-based approaches, and to approaches involving processes understood in generalist terms. He concludes that accounts of causation need to take into account a singularist component, involving the endurance of a particular trope through time. This is not a full-fledged defense of the existence of enduring tropes (especially since the preemption case motivating this already builds in claims about which trope endures to motivate its causal verdict), but is perhaps best understood as showing (convincingly, I think) that *if there are enduring tropes*, then such creatures must figure in an account of causation.

Tooley's 'Probability and causation' follows. It contains a host of objections to Humean accounts of causation (including cases of chance-lowering causes, issues about the direction of causation, problems of underdetermination, *inter alia*). It also represents Tooley's non-reductionist view of causation, theoretically defined as the relation that enters into laws that satisfy certain postulates about logical probability. Causes do turn out to raise the probability of their effects on his view, but only in the sense that the logical probability of the effect is increased given that it is a law that events like the cause give rise to it, with some probability greater than zero. This essay, being focused on metaphysical as much as semantical issues, and also tying into issues on the direction of causation and of time, is a slight outlier as well. But it presents strong challenges to the ontological reduction of causation in the Hume–Lewis tradition.

Next, and sixth overall, is Barker's 'Analyzing chancy causation without appeal to chance-raising.' Barker presents a counterfactual analysis based on embedded counterfactual dependency relations (in the tradition of Lewis's quasi-dependence and Ramachandran's M-sets), which leads him to the idea

of a causal path. He then understands causation in terms of further embedded counterfactuals, with the idea being that, had the cause not occurred, then the disposition manifested by the actual causal path would not have been manifested. One noteworthy feature of this account (advertised in the title of the piece) is that it makes no mention of chance. Another noteworthy feature is that it attempts to ground the distinction between non-causal path-switching and causal preemption, by whether or not the same causal path-disposition is manifested.

Hitchcock's 'Routes, processes and chance-lowering causes' appears seventh. Hitchcock provides an account of process connections via counterfactual structure, building on Pearl's seminal work in causal modelling. On Hitchcock's account (like Dowe's), causes raise the component chance of their effects along the actual causal path, but Hitchcock (unlike Dowe) spells this out in terms of causes raising the chance of their effects at the nearest possible world in which all the events off the causal route are fixed at their actual states. Hitchcock compares his account with Dowe's, arguing that his offers a clearer conception of how to individuate processes, in a way that proves essential to distinguish the structures of causal preemption and non-causal hindrance cases (such as Cartwright's defoliant case). Along the way, Hitchcock disavows attempts at reductive analysis, hints that we may have many concepts of causation, and provides handy rules-of-thumb for deciding which causal models are apt for which situations.

Moving on, Ramachandran's 'Indeterministic causation and varieties of chance-raising' further develops the style of counterfactual analysis that Ramachandran (alongside Ganeri and Noordhof) has been developing over the last decade. The core idea remains the use of counterfactuals to isolate distinct causal processes, and then the use of further counterfactuals to test which processes run to completion, with causes being identified with events on complete processes. The developments include the consideration of further difficult cases, and an integration of chance-raising, with special attention to the precise time appropriate for chance assessment. At the conclusion, Ramachandran acknowledges that he still needs to make more modifications, but suggests that his account may be the closest yet to an adequate counterfactual analysis.

Kvart's 'Probabilistic cause, edge conditions, late preemption and discrete cases' forms the penultimate contribution. Kvart further develops his own sophisticated account involving conditional probabilities. On this account, indeterministic causation requires the existence of a stable increaser plus causal relevance. Without going too deeply into the (considerable) details, an increaser is an intermediate event, conditionalization on which shows that the cause increases the chance of the effect. Such an increaser is stable if there is no further intermediate event (a decreaser) that reverses the chance-raising.

Causal relevance is probabilistic relevance (some change in the chance-value) plus the absence of a causal relevance neutralizer. Much of the essay goes into the details of characterizing causal relevance neutralizers, which turn out to be 'lean stable screeners' not themselves caused by the cause (this approach is then shown not to be circular). The remainder of the essay wields the account to resolve some difficult problem cases.

The tenth and final contribution to the anthology is Noordhof's 'Prospects for a counterfactual theory of causation.' Here Noordhof further develops his account of causation (which subtly differs from Ramachandran's). En route, Noordhof discusses Edgington's views on counterfactuals, suggesting that an account of counterfactuals might invoke probabilistic independence in place of causal independence. Noordhof also discusses transitivity problems, and a range of objections to associating causation with chance-raising. He concludes in a hopeful vein: 'the prospects of a counterfactual theory of causation are good, contrary to the claims of some recent critics' (p. 200).

2 Reflections

I think that the prospects for a conceptual analysis of causation are dim (whether in terms of counterfactuals, conditional probabilities, process connections, or whatnot). My suspicions derive from the following four considerations. First, conceptual analyses seem to fail generally. The last 50 years of analytic philosophy provide inductive evidence that analyses of concepts like knowledge, goodness, and causation are doomed. Second, causation itself is conceptually central. So even if there were to be some successful analyses among the nomic concepts, it seems more likely that causation would feature as a conceptual primitive. Third, causation itself is well-explored. The inference rule 'Lewis was unable to do a philosophical task, so the task cannot be done' provides strong (albeit defeasible) evidence that the analysis of causation cannot be done. Fourth, intuitions about causation prove pliable. Indeed, there is disagreement over virtually all the major problem cases under discussion, such as chance-lowering cases, trumping, hasteners, transitivity cases, and overdetermination (as well as further cases such as those involving absences). So if an analysis is to be judged by whether it comports with our intuitions about cases, it is not clear how to even judge a proposal.

So one of the morals that I would draw from this excellent anthology is further evidence that a conceptual analysis of causation is not on the cards. Edgington and Tooley provide further reasons for worrying about circularity; Dowe, Hitchcock, and Kvat (in various ways) expressly move away from the project of conceptual analysis; Beebe, Ehring, and Barker (respectively) explicitly contest intuitions about chance-lowering causes,

trumping, and hasteners; and Ramachandran and Noordhof (respectively) admit that problems such as trumping and the causal asymmetry remain.

Of course, those hopeful of a conceptual analysis of causation (whether in terms of counterfactuals or otherwise) will find several worthy proposals here. Perhaps one of these proposals—or some descendant of it—will prove successful. I certainly cannot rule that out. And the proposals are often quite interesting even if they do fail. It is often interesting to see which sort of problems prove systematic. For instance, it is interesting that preemption cases should prove so difficult, just like it is interesting that Gettier cases should prove so difficult for an analysis of knowledge.

Still, I would suggest that philosophers take a hint from semanticists, and abandon the attempt at giving an informative account of the meaning of the concept. Perhaps the most we can expect to say about ‘causation’ is that it means causation.

Why were we interested in a conceptual analysis of causation? Perhaps we were just directly interested in the semantic question of what ‘causation’ means. But then what is wrong with the answer that ‘causation’ means causation? Perhaps we were hoping for a more informative answer. But we cannot presuppose that such exists. In any case, we all have the concept of causation—it is not as if we were trying to teach the concept to a creature lacking it—so it is not clear why that answer is not perfectly informative *for us*.

I suspect that many philosophers have really been interested in a conceptual analysis of causation because they thought the issue was of ontological moment. In particular, they thought that the question of whether there was an (informative, non-circular) analysis of the concept in our minds, bore on the question of whether there is a basic causal relation in the world, or whether the relation is derivative. They associated conceptual un-analysability with ontic irreducibility.

I would suggest that we separate conceptual analysis from ontological reduction. The conceptual order—the order of definitions in our minds—need not match the ontological order—the order of dependencies in nature. Here we ought to follow Aristotle, in distinguishing priority in definition from priority in nature.

(Perhaps the conceptual order is largely unstructured, with a sea of conceptual primitives and a few small eddies of inter-definables. But the ontological order may be far more structured—it may even have a narrowly Humean basis.)

Here a number of the essays point forwards. To pick out one example, Tooley raises concerns about supervenience that are independent of any would-be conceptual analyses, which penetrate to the underlying ontological issue here. So my hope is that the contemporary discussion of causation is heading towards an explicit consideration of these sorts of issues.

In summary, *Cause and Chance: Causation in an Indeterministic World* does an excellent job of displaying the two faces of the contemporary discussion of causation. It will be of interest to those interested in the semantic question of the meaning of the concept, and to those interested in the ontological question of the reducibility of the relation. It will also be of interest to those interested in teasing these questions apart.