



## James Woodward: Causation with a Human Face: Normative Theory and Descriptive Psychology

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There are normative and there are descriptive approaches to causal reasoning. Normative approaches are concerned with how we *ought to* reason about causal relationships. Descriptive approaches, by contrast, concern how we actually *do* reason about them. In *Causation with a Human Face*, James Woodward proposes a *functional* approach to causation that integrates descriptive and normative aspects. The idea is that we need to look at the goals and purposes of causal reasoning in human activity to understand causation. The book thereby develops further an idea that has already been central to Woodward's influential *Making Things Happen* (2003), where he argues that concepts of 'manipulation' and 'control' are key to an understanding of causation and causal explanation.

Woodward's new book brings together ideas from a variety of disciplines including statistics, computer science, philosophy and empirical work on causal cognition. It develops a new vision for causation research that widely extends the boundaries of these disciplines and will certainly have a major impact on further research in future years. The book also spells out in detail a wide range of important consequences of that vision. It thereby convincingly shows that the proposed research program pays off by significantly advancing discussions that have a long history in the philosophy of causation. In what follows I will provide a roadmap through the overall structure of the book, and towards the end I will raise two issues that may merit further discussion.

The first Chapter introduces the functional approach and relates it to normative and descriptive accounts of causation. The functional approach is based on the idea "that causal cognition or thinking in causal terms is at least sometimes useful or functional in the sense of successfully serving various goals and purposes that we human beings [...] have." (p. 28). More specifically, the approach involves empirical claims about features regularly exhibited by causal cognition. It also involves normative claims to the effect that these features at least sometimes contribute to achieving certain goals and that achieving such goals counts as success. From this one may conclude, according to Woodward, that causal cognition is successful *because* it exhibits such features.

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One might worry that this involves a naturalistic fallacy. That people do reason in certain ways does not imply that they ought to reason in such ways. But Woodward is cautious to avoid this conclusion. First, Woodward indicates that empirical results may *suggest* (rather than necessitate) possible normative ideas. Moreover, he acknowledges that significant numbers of causal reasoners may fail performing specific tasks. But rather than undermining the functional project, such variations can be of interest for further theoretical investigation.

Chapter 2 is advertised as an overview of extant theories of causation: regularity, counterfactual, interventionist, and process theories. But the chapter provides more than just an overview. Woodward puts to work the methodological distinction between descriptive, normative and functional approaches, and he argues that the interventionist account of causation is preferable from the functional perspective. Consider Lewis's counterfactual analysis of causation. It is known to face difficulties as a descriptive account of causal reasoning. However, even if Lewis's analysis proves successful in this regard, a question still remains: *why* should our causal reasoning conform to the Lewisian analysis? The interventionist account gives an answer to this kind of question. We are interested in causal relationships because they are exploitable for manipulation and control: if C causes E, then manipulating C in the right way will enable us to control E. The exact relation between such manipulations and causal relationships is spelled out in terms of a technical notion of intervention that, in turn, is made precise with a formal framework of causal models (Woodward 2003).

Chapter 3 expands the methodological reflections. Alongside a more detailed discussion of the functional approach, this Chapter contains a critical discussion of linguistic intuitions that theorists often invoke to infer what causation really *is*. Woodward argues that such intuitions should rather be seen as indicating empirical claims about shared practices of causal reasoning. While intuitions can be helpful in this regard, they should be taken with caution because they are prone to error. Better evidence is available from studies that don't just focus on verbal reports but investigate test subjects' activity in an experimental environment.

Such empirical evidence is discussed in Chapter 4. Woodward concedes that most causal reasoners do not explicitly endorse a full technical notion of 'intervention.' But experiments with complex causal structure suggest that causal reasoners still employ the kind of counterfactual reasoning that is a hallmark of the normative theory of interventionism. For example, a study by Schulz et al. (2007) presented children with a gear toy with interlocking gears and an additional switch. The study found that the children were able to learn about the causal structure of the toy from knowledge of interventions and even employed the kind of *combinations* of interventions that have been key in defining causal concepts in normative theories of interventionism.

The primary target of many theories of causation is to delineate causal relationships from non-causal relationships. But in recent years there has been an increased interest in drawing distinctions *among* causal relationships. Here the interventionist framework has proven exceptionally fruitful, as a growing body of literature indicates. The second part of the book is concerned with such distinctions, specifically those related to invariance and proportionality. These distinctions have important consequences for our understanding of causal reasoning, and at the same time they can be seen as case studies that nicely illustrate how Woodward's functional approach can be put to work.

To be exploitable for manipulation and control, relations between variables need to be stable at least for a minimal range of interventions. This basic kind of invariance needs to be fulfilled for a relationship to count as causal at all. But beyond that, Woodward argues, we do and should prefer those relationships that are more invariant than others. This is

again related to functional considerations. The more invariant a type-causal relationship is, e.g., under changes of background conditions, the more kinds of situations there will be in which the relation can be exploited for manipulation and control.

After surveying the many ways in which a causal relationship can be invariant (Ch. 5), Woodward applies the idea of invariance to address theoretical challenges (Ch. 6), such as those pertaining to the causal role of absences and omissions. Chapter 7 discusses empirical results that support Woodward's ideas regarding invariance, for example, regarding cases involving double prevention. Double prevention means that some event *d* would have prevented event *e*. But there is another event *c* that prevents event *d*. Does event *c* thereby cause event *e*? On the one hand, there is a relation of counterfactual dependence between *e* and *c*. On the other hand, *c* and *e* can be extremely remote. Empirical studies by Lombrozo (2010) show that there is substantial variation in the evaluation of double prevention cases. For instance, causal reasoners more easily identify those double prevention relations as causal that involve intentional action than those that happen accidentally. This is the case, according to Woodward's approach, because intended double prevention relations are typically more invariant under changes in background conditions than accidental ones.

Chapter 8 discusses the proportionality of causal relationships. A standard example (see Yablo 1992) involves a pigeon that is trained to peck at targets of any shade of red and only such targets. Stating that the red color of the target causes the pigeon to peck seems an appropriate way of describing what happens in this scenario. By contrast, stating that the *scarlet* color of the target causes the pigeon to peck seems to be problematic. The claim involves an overly specific description of the cause. According to Woodward, the problem here is that there is a mismatch between potential variations in the cause variable (color of the target) and the effect variable (whether the pigeon pecks). Such considerations of proportionality are important in the context of scientific explanation: psychological phenomena are not always best explained at a fine-grained level of neurobiology but rather by referring to other high-level phenomena. Some theorists have argued that considerations related to proportionality are a matter of 'mere' pragmatics. Woodward, instead, contends that considerations of proportionality are justified because they may play important roles for the goals of causal thinking.

Woodward's overall objective in this book is to "open up" discussion and his standard of success is the fruitfulness of his research program, not the elimination of every potential problem or counterintuitive implication. So, it is a strength rather than a shortcoming that the book gives rise to many questions that would deserve further investigation. One such question concerns the concrete consequences of the normative aspect of Woodward's functional project for our practices of causal reasoning. More specifically: what should we do if there is a mismatch between our practices of causal reasoning and the assumed purpose of that reasoning?

For instance, think of late preemption. Billy and Suzy each throw a stone at a bottle. Suzy's stone hits the bottle and shatters it. Billy's stone arrives moments later but would have destroyed the bottle if it hadn't been hit by Suzy's stone. It is a largely uncontroversial feature of our causal reasoning that we identify Suzy's throwing her stone as a cause of the bottle's shattering, but not Billy's throwing his stone. More generally, it is a general feature of our causal reasoning that we identify preempting factors as causes but not preempted factors.

However, it seems unclear how the distinction between preempting and preempted factors contributes to the goal of manipulation and control. If we wish to prevent the bottle's shattering, we need to intervene on both Suzy and Billy. If we want to make changes to the specific way how the bottle is being shattered, Suzy's stone might *prima*

*facie* be the best intervention target. But given that Suzy's and Billy's stone arrive almost at the same time, most of the changes will also be possible through manipulations of Billy's stone.

So, there seems to be a mismatch between our common practice of reasoning about preemption cases and goals associated to manipulation and control. Now, what does this imply for the distinction between preempting and preempted factors according to the functional approach? Does this mean that the distinction is not valuable? Or should we even revise our practices of causal reasoning such that they match more closely the requirements of interventionist reasoning?<sup>1</sup>

A related issue is the following. Woodward usefully describes causal reasoning as a tool or technology. "Cause" like "screwdriver," according to Woodward, is a classification that picks out a function. Screwdrivers have in common that they serve the purpose of turning screws with slotted heads. Likewise, causal reasonings have in common that they identify relationships that are exploitable for manipulation and control. However, a more adequate metaphor, I believe, is that of a multitool such as a Swiss Army knife, including not just a knife blade but also a screwdriver, bottle opener, wire stripper and other tools. Such a multitool is suited for many purposes. But even an excellent Swiss Army knife will not match any of these purposes perfectly. Yet redesigning the Swiss Army knife, e.g., for screwdriving, gets the idea of the multitool wrong if it comes at the cost of hindering the bottle-opening function. Likewise, an evaluation of causal reasoning that just focuses on manipulation and control may give a distorted picture: we *do* care about the difference between Billy and Suzy because only Suzy can be held responsible for destroying the bottle.<sup>2</sup>

This being said, it is one of the great strengths of Woodward's book that it conveys a clear idea why causation matters to us. The book's appeal to the purposes of causal reasoning gives important guidance for addressing both theoretical and empirical questions and shows how such questions can fruitfully interact with each other. The strong methodological focus of Woodward's book may not always make it an easy entry point for newcomers to the causation literature. But at least for those interested in contributing to future research on causation (in philosophy and beyond) the book is an absolute must-read. The degree of reflection exhibited by Woodward's account and the detailed discussion of its consequences will be a shining example for how to advance causation research for a long time to come.

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<sup>1</sup> Considerations of preemption pertain to issues of 'actual' or 'token' causation but not to type-causal relations, which are the focus of Woodward's approach. But, arguably, considerations of actual causation play important roles for manipulating and controlling actual outcomes. If reasoning regarding actual causes needs a different treatment, are there systematic reasons for the difference?

<sup>2</sup> See Fischer (2023) for a more detailed discussion on the issue of actual causation.

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## References

- Fischer, E. 2023. Actual causation and the challenge of purpose. *Erkenntnis*.
- Lombrozo, T. 2010. Causal-explanatory pluralism: How intentions, functions, and mechanisms influence causal ascriptions. *Cognitive Psychology* 61: 303–332.
- Schulz, L., A. Gopnik, and C. Glymour. 2007. Preschool children learn about causal structure from conditional interventions. *Developmental Science* 10: 322–332.
- Woodward, J. 2003. *Making things happen: A theory of causal explanation*. New York: Oxford University Press.
- Yablo, S. 1992. Mental causation. *Philosophical Review* 101: 245–280.

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