Causation

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Philosophical work on causation in Australasia has been extraordinarily rich and diverse, and in a brief survey much important work must remain unmentioned. Here I provide a selective overview, designed to highlight particularly influential work and to indicate the diversity of the contributions made by Australasian philosophers.

Regularity Theories

I begin with the regularity theory of causation defended by **J. L. Mackie** (1965, 1974). According to Mackie, *c* is a cause of *e* just in case *c* is an insufficient but nonredundant part of an unnecessary but sufficient condition for the occurrence of *e*. This is often abbreviated as the claim that *c* must be an INUS condition for *e* (a term suggested by David Stove). This is a regularity theory because sufficiency is analysed in terms of causal laws, understood as a species of universal generalisation.

Mackie's account has a number of problems. First, the account assumes, contrary to empirical evidence, the truth of determinism. Second, as Mackie himself recognised, the account does not provide an account of the direction of causation, since under the assumption of determinism if *c* is an INUS condition for *e* then *e* is also an INUS condition for *c*. Third, for related reasons also appreciated by Mackie, the account has problems discriminating events that are correlated because related as cause and effect, and events that are correlated because related as effects of a common cause. Finally, the account raises a puzzle concerning our knowledge of causal relations. Surely we are not in general in a position to know any of the conditions sufficient for a given event; but then how do we know that a given event forms part of such a condition?

Difference Making Theories

There is a natural move to make in response to these sorts of difficulties with regularity theories. Instead of analysing causation in terms of complicated regularity-involving conditions, analyse it instead in terms of the idea that causes *make a difference* to their effects. There are two main ways this basic idea has been pursued: (i) in terms of the idea that causes *raise the probability* of their effects; (ii) in terms of the idea that effects *counterfactually depend* on their causes. Both ideas have been pursued in great detail in the literature, but they face a number of problems.

First, there is the problem of pre-emption, involving cases in which there is a non-active backup cause, the existence of which shows alternatively that (a) the effect does not counterfactually depend on the actual cause, or (b) the probability of the effect is lowered by the actual cause, or (c) the probability of the effect is raised by the non-active backup cause.

Michael McDermott (1995, 2002) examines the pre-emption problem in the context of the counterfactual analysis of causation, and proposes a version of the counterfactual analysis that builds on the basic idea of the Mackie account. According to McDermott, a direct cause is a part of a minimal sufficient condition for an effect, as with Mackie. But a sufficient condition is analysed not in terms of causal laws but rather counterfactually, as a condition such that the effect would have occurred even if any other actual events had not occurred. Causation is then defined in terms of causal processes, which are in turn defined in terms of chains of direct causation.

Peter Menzies (1996), on the other hand, decisively raised the pre-emption problem for probabilistic theories of causation. The solution Menzies adopts is that the causal relation is to be theoretically identified as 'the intrinsic relation that typically holds between two distinct events when one increases the chance of the other' (p. 101). So on this view the difference-making relation is not definitive, but rather a defeasible marker, of the presence of the causal relation. One problem with this view is that it seems to rule out cases of causation by double prevention, in which causation seems to both depend on *extrinsic* facts and to occur independently of the existence of a *physical relation* between cause and effect.

A different problem concerning difference-making theories has been pressed by **Huw Price** (1992, 1996). Price argues that neither counterfactual nor probabilistic accounts of causation can ground the direction of causation, since the time-symmetric nature of the fundamental physical laws means that difference-making is symmetric in microphysics. Price argues that the best account of causation is instead an *agency theory*, according to which *c* causes *e* just in case bringing about *c* would be an effective means for an agent to bring about *e*. A similar account had been earlier defended by Douglas Gasking (see Oakley and O'Neill 1996). This account is defended against standard objections by Menzies and Price (1993). In subsequent work, both Menzies and Price have argued that causation is not purely objective, Price (2007) on grounds that it is constitutively connected with the time-asymmetric perspective of agents, and Menzies (2004, 2007a) on grounds that the most plausible counterfactual theories of causation require a contextually determined set of background conditions and default states against which difference-making counterfactuals are to be evaluated.

Process Theories

Appealing to a notion of causal process, as both McDermott and Menzies do, has been a popular way of responding to the pre-emption problem. Phil Dowe (2000) has elevated this idea into an analysis in defending a process theory of causation, on which causal relations between events are derivative on causal processes. Process theories of causation require a distinction between pseudo-processes and genuine processes, and an account of causal relevance. Dowe prefers accounts of these that rely on the notion of a process involving a conserved quantity. Process theories also require a distinction between causes and effects, and it is an issue with these theories that the resources required to make this distinction cannot be found among the phenomena with which they are centrally concerned. Dowe, for instance, prefers an account in terms of probabilistic relations that are only contingently satisfied by actual causal processes. There is also the question of how to reconcile the theory with our ordinary causal judgements, which seem to be justifiably made in the absence of evidence that would support any claim concerning conserved quantities. Finally, one of the central problems with any process theory is how to account for prevention, and causation by absence. Dowe (2001) claims that apparent causation by absence really involves a different relation, *quasi-causation*, defined in terms of counterfactuals. Among other problems,

the question arises why, since quasi-causation plays the same role as causation in practical inference and explanation, it doesn't count as real causation. If so, then Dowe has at best stated an interesting empirical fact about certain cases of causation, rather than an analysis of causation in general.

Non-Reductionist Theories

One of the intuitions behind process theories is that causation is an intrinsic relation. This intuition has been defended in a different form by **D. M. Armstrong** (1999). According to Armstrong, the concept of causation is a primitive. Causation is, however, to be empirically identified with the instantiation of a universal necessitation relation between states of affairs. Armstrong has also, famously, argued that causation may be perceived. Like Dowe, Armstrong has a *prima facie* problem handling cases of prevention and causation by absence, since he denies the existence of negative states of affairs. In response, he endorses Dowe's appeal to quasi-causation.

Causation as Explanation

Finally, Michael Strevens (2004, 2007, 2009) has defended an interesting inversion of the standard view of the relationship between causation and explanation. The standard view of those who defend causal theories of explanation is that we first have a complex difference-making theory of causation, and then a simple theory of explanation according to which explanation involves citing causes. According to Strevens, causation is a relationship between basic physical events that may be analysed either in terms of a Dowe-style process view or a difference-making view restricted to maximally fine-grained events. Explanation, on the other hand, involves abstracting away from these causal details in various ways, in order to identify difference-makers. The abstracting procedure is similar to Mackie's criteria for identifying causes (2004). Strevens goes on to claim that we can understand causal claims of the form c causes e as elliptical for claims of the form c causally explains e. Moreover, Strevens claims that this account solves traditional problems for difference-making accounts, such as pre-emption (2007). If so, then perhaps Mackie was on the right track after all.