

# CAUSATION (Part II), Lecture I

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**1. The notion of a cause.** In this course we will (a) consider different theories of causation, and we will (b) evaluate these in terms of how well they deal with the fact that causation is asymmetric. Recall, to talk about a cause is to talk about an explanation. When you read that global warming *caused* the sea level to rise more than average in 2016, you are being offered an explanation for something that happened. The present debate about causation is about what Aristotle called *efficient* causation. Efficient causation is standardly associated with physical processes in the world: processes that can happen quite independently of our doings. Typically, and in its simplest form, causation is understood to be a relation between two events, the cause and the effect.

**2. Directionality of causation.** Paradigm cases of cause-effect relations suggest that the causal '*oomph*' flows in one direction only. The stone hits the glass, the window breaks. The stone's hitting the glass caused the window to break, and not the other way round. Unless a situation is more complicated, with multiple causal interactions taking place, we find that whenever A causes B, B does not cause A. Causation is an asymmetrical relation ( $\forall x \forall y Rxy \rightarrow \neg Ryx$ ). This fits with the observation that causes are explanations. It also seems that when A explains B, B does not also explain A.

**3. Causation and Time.** We find that causes precede their effects, at least in many paradigm cases. When the window broke and you want to know what caused it, you are going to look at what happened beforehand. It's bizarre to expect to find a causal explanation in terms of an event that happened after the window broke. So not only do we find that there's an asymmetry to the causal relation itself, we also seem to find that the direction of causation follows the temporal arrow, instead of running in the other direction. Is this a coincidence? Many agree that it is not. But then, what explains it?

**4. Hume's conventionalism.** According to Hume's "first" definition (arguably his official view), our concept of causation can only be that of constant conjunction. Constant conjunction is clearly a symmetrical relation. Many have read Hume of taking the cause-effect asymmetry to flow simply from our conventional definition of 'cause'. "We may define a CAUSE to be an object precedent and contiguous to another, and where all the objects resembling the former are plac'd in like relations of precedency and contiguity to those objects that resemble the latter." (*Treatise* 1:III:§XIV)

**5. Against conventionalism.** Despite Hume's influence on the debate about causation, there is reason to be dissatisfied with any merely definitional or conventionalist explanation. The following three phenomena have convinced many that the direction of causation and its close alignment with the temporal arrow require a metaphysical explanation: (i) Simultaneous Causation; (ii) Backward Causation; (iii) Deliberation.

**5i. Simultaneous causation.** In Hume's account, the order of causation is the temporal order just by convention. But this cannot be right if some cause-effect pairs are not temporally ordered. This can happen if they occur simultaneously. Is simultaneous causation possible? This is a live debate, and the answer is at least not obvious.

**5ii. Backwards causation.** Backward causation would occur if there were causes that temporally succeeded their effects. Alleged examples are cases of *precognition* (where present mental states are influenced by future events) and *travel back in time* (where what you do now influences what you did earlier). Are such cases conceivable? Also the answer here is at least not obvious.

**5iii. Deliberation and causation.** When we want to change the world by preventing something from happening, then we act on its causes, and not on its effects. To borrow an example from Field (2003, 441), if one wants to avoid lung cancer it is a good idea to stop smoking, because smoking causes cancer. But if the goal is to stop smoking, we would not normally consider taking a cancer-preventing pill, because lung cancer isn't a cause of smoking. On Hume's approach this would be a mere convention, yet it clearly has a deeper explanation.

**6. Eliminativism.** One radical option is to adopt an eliminativism about causation. Russell (1913) goes so far to say that the notion of causation just doesn't have a place in a description of the physical world; "the law of causality, as usually stated by philosophers, is false, and is not employed in science." Russell's objection is that the physical theories we now regard as fundamental dispense with the notion of causation. But this would result in an error theory of our ordinary causal explanations. Moreover, the concept of causation seems needed to distinguish effective and ineffective strategies for manipulating the world (Cartwright 1979).

**7. Primitivism.** Another radical option is to assume that causation, and hence its asymmetry, is a primitive feature of reality, and so irreducible. Michael Tooley (1987, 1990) defends this view. This would amount to a form of 'non-physicalism' about causation. Why? You are a physicalist about causation if you assume that interactions between bodies, including our own abilities and restrictions to move and change the world, are determined ultimately and completely by the facts of fundamental physics. Those facts, it seems, do not determine the direction of causation (see Price & Weslake 2010). Many find a departure from a physicalism about causation unacceptable. It would seem to make causation epistemologically inaccessible, at least if we take knowledge here to be scientific knowledge. Moreover, the primitivist makes causation practically irrelevant, given that all explanations of the motions and changes in nature can (at least in principle) be given without it (assuming that fundamental physics does not need the concept of causation).

**8. Three desiderata.** The limitations of Humean conventionalism bring into focus three general desiderata for an adequate account of the causal relation: (a) It should account for the asymmetry of causation in a non-trivial way; (b) It should explain the fact that the direction of causation is strongly aligned with the direction of time (in our world), but without making this alignment an obviously necessary fact; (c) It should explain that we can act for future ends but not past ends (at least in normal circumstances). In the next three weeks we will consider counterfactual theories of causation, interventionist (or 'agency') theories of causation, and powers-based theories of causation, and see whether they live up to these standards.