

Cause and Effect

Cause and effect: every effect has a cause or every cause has an effect. The cause and effect pivot on the event. An event can have two manifestations: something changes and/or there is a binary conversion in ontological status.

Because A, B (A→B). This is an active formulation. It is also possible to formulate passively: potentially B, provided A. The difference between the two is the (tacit) recognition of *potential*. B is waiting to occur or to be, but is inhibited unless A occurs or comes into existence.

Basic and ancient classification of causes comes from Aristotle: Material, Formal, Efficient, and Final. In his words:

“Cause” means: (a) in one sense, that as the result of whose presence something comes into being—e.g. the bronze of a statue and the silver of a cup, and the classes which contain these; (b) in another sense, the form or pattern; that is, the essential formula and the classes which contain it—e.g. the ratio 2:1 and number in general is the cause of the octave—and the parts of the formula. (c) The source of the first beginning of change or rest; e.g. the man who plans is a cause, and the father is the cause of the child, and in general that which produces is the cause of that which is produced, and that which changes of that which is changed. (d) The same as “end”; i.e. the final cause; e.g., as the “end” of walking is health.

— *Metaphysics 1013a*, translated by Hugh Tredennick

We do not think of material reality when we think of cause; nor do we think of form as a cause. Rather, we subsume such things into available realities when the need may arise.

And lastly, we do not think of finality as a cause. We discount the finality into mere effect, intentional or not.

Possible Plurality: A can be a *set* of conditions or events that “cause” B, which can also be a set.

The formulation “if A then B” is “crisp” logic. “Fuzzy” logic occurs when the precedent and/or the consequent are not wholly related, but may in fact be entangled.

The formulation “if A then B” can also serve as a species of prediction or postdiction: If B then A must be in play; if A then B will be in play.

Other important causes are the necessary and the sufficient. A *necessary* cause is a precondition to an outcome, but the outcome will not necessarily arise though the precondition be met. A *sufficient* cause is a mechanism such that a predetermined outcome must result. However, the sufficient cause does not guarantee that it is unique; a result may have one or more sufficient causes, just as an effect may have an arbitrary number of necessary causes.

In formal discourse, cause and effect must be sufficiently qualified so that latent ambiguity is subject to open analysis and eventual resolution.