

Grounds for Copernican over Ptolemaic: A Principle from Philosophy of Science

A theoretical proposal put forward as an answer to some one why-question gains support when it provides, as corollaries, answers to why-questions regarding other phenomena.

Harman: “inference to the best (total) explanation”

A possible rationale for this interpretation of the principle: Any complex phenomenon exhibits many *prima facie* distinct features. A (total) explanation of it is less satisfying (1) the more of those features require explanations that are independent of the explanations of other features, and in this respect can be said to *ad hoc*; and (2) the more of those features that are attributed to mere coincidence, and in this respect can be said not to be providing information about why the phenomenon occurs at all. Conversely, therefore, the more *prima facie* distinct features of the phenomenon that become explained for free, so to speak, by an explanation of any one of them, the more satisfying an explanation is of the overall phenomenon. This rationale, as stated, is a comment about what we want in the way of explanations of phenomena, not a comment about the world. One way to link it to the world is through some version of the thesis that “nature is simple,” in particular a version claiming that phenomena in nature do not arise from manifold, independently acting causes. Notice, however, the extent to which this thesis amounts to *wishful thinking* on the part of those engaged in research, for the more independent causes contributing to phenomena, the more difficult it is to develop decisive empirical evidence establishing theoretical claims about them. A good reason, accordingly, for researchers to respond favorably to a proposed explanation meeting the stated principle is the *prima facie* promise any such proposal offers that the relevant phenomena are going to be amenable to sustained empirical investigation.

Popper: more opportunities to falsify the proposal