

Anthropic Explanations in Cosmology

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Abstract

The claims of some authors to have introduced a new type of explanation in cosmology, based on the anthropic principle, are examined and found wanting. The weak anthropic principle is neither anthropic nor a principle. Either in its direct or in its Bayesian form, it is a mere tautology lacking explanatory force and unable to yield any prediction of previously unknown results. It is a pattern of inference, not of explanation. The strong anthropic principle is a gratuitous speculation with no other support than previous religious commitment or the assumption of an actual infinity of universes, for which there is no the slightest empirical hint. But even assuming so much, it does not work. In particular, the assumption of an infinity of different universes is no guarantee of finding among them one like this one. The loose anthropic way of reasoning does not stand up to the usual methodological standards of empirical science. And it does not signal any anthropocentric turn in contemporary science.

Keywords: anthropic, principle, explanation, cosmology, multiverse, inference, possible worlds, prediction, anthropocentrism, coincidence

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