

Relationism Rehabilitated? II: Relativity

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Abstract

In a companion paper (Pooley & Brown 2001) it is argued that Julian Barbour's Machian approach to dynamics provides a genuinely relational interpretation of Newtonian dynamics and that it is more explanatory than the conventional, substantival interpretation. In this paper the extension of the approach to relativistic physics is considered. General relativity, it turns out, can be reinterpreted as a perfectly Machian theory. However, there are difficulties with viewing the Machian interpretation as more fundamental than the conventional, spacetime interpretation. Moreover, this state of affairs provides little solace for the relationist for, even when interpreted along Machian lines, general relativity is a substantival theory although the basic entity is space, not spacetime.

Keywords: relationism, substantivalism, space, spacetime, geometrodynamics, Barbour, Belot, Earman

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