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GLOBAL SPACETIME STRUCTURE

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Abstract: This exploration of the global structure of spacetime within the context of general relativity examines the causal and singular structures of spacetime, revealing some of the curious possibilities that are compatible with the theory, such as “time travel” and “holes” of various types. Investigations into the epistemic and modal structures of spacetime highlight the difficulties in ruling out such possibilities, unlikely as they may seem at first. The upshot seems to be that what counts as a “physically reasonable” spacetime structure in modern physics is far from clear.

Keywords: spacetime, causality, singularities, underdetermination, extendibility

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