

Title: Laws and time in cosmology

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Abstract:

What is a law on a cosmological scale?

Can the paradigm we use for subsystems be usefully extended to the whole universe, or do we need a novel approach to explanation?^P

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Why these initial conditions?

Why are they so special?

What is the status of solutions which are not realized?

Why these laws? Why not others?

Must a cosmological theory be spatially closed?

- 2) TO WHAT EXTENT ARE TECHNIQUES (E.g. PROVERBS) OF STATE INFERENCE (BAYESIAN OR OTHERWISE) INVOLVED IN CONFIRMATION/FALSIFICATION?
- 3) TO WHAT EXTENT DO/SHOULD GLOBAL PRINCIPLES CONSTRAIN LAWS (E.G. COSMIC CENSORSHIP, MACH'S PRINCIPLE, NO CTCs, NO PERPETUUM MOBILES, ADDITIVITY P?)

Two theses:

- 1) Everything that is real or true is such in a moment, which is one of a succession of moments
- 2) There is only one universe. It is causally complete and there are no copies of it.
(Not even in mathematics)

NEWTONIAN PARADIGM: division of reasons
into laws & initial
conditions

State space
= initial conditions

LAWS ARE
TRAJECTORIES

