Time and Structure in Canonical Gravity

Rickles, Dean (2004) Time and Structure in Canonical Gravity.

Abstract

In this paper I wish to make some headway on understanding what \emph{kind} of problem the ``problem of time'' is, and offer a possible resolution---or, rather, a new way of understanding an old resolution. The response I give is a variation on a theme of Rovelli's \emph{evolving constants of motion} strategy (more generally: correlation strategies). I argue that by giving correlation strategies a \emph{structuralist} basis, a number of objections to the standard account can be blunted. Moreover, I show that the account I offer provides a suitable ontology for time (and space) in both classical and quantum canonical general relativity.

Keywords:	Quantum gravity, structural realism, spacetime, general relativity
Subjects:	Specific Sciences: Physics: Cosmology Specific Sciences: Physics: Relativity Theory General Issues: Realism/Anti-realism Specific Sciences: Physics: Quantum Field Theory
ID Code:	1845
Deposited By:	Rickles, Dean
Deposited On:	22 July 2004
Additional Information:	Expanded version of a paper to appear in S. French, D. Rickles, and J. Saatsi (eds.), ``The Structural Foundations of Quantum Gravity'' (forthcoming: Oxford University Press).