

Physical Relations or Functional Relations ? A non-metaphysical construal of Rovelli's Relational Quantum Mechanics

Bitbol, Michel (2007) Physical Relations or Functional Relations ?
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Abstract

Rovelli's RQM is first characterized by contrast with both Everett's and Bohr's interpretations of quantum mechanics. Then, it is shown that a basic difficulty arises from the choice of formulating RQM in a naturalistic framework. Even though, according to Rovelli's interpretation, statements about the world only make sense relative to certain naturalized observers described by means of quantum mechanics, this very meta-statement seems to make sense relative to a sort of super-observer which does not partake of the naturalized status of ordinary observers. The difficulty is solved by substituting functional reference frames for physical (or naturalized) observers throughout. Instead of being relative to physical observers, statements about the state vector of physical systems are here relative to well-defined projects of probabilistic prediction which may be embodied by several physical observers.

Keywords: Quantum mechanics, relational interpretation, naturalization, Rovelli, philosophy of physics

[Specific Sciences: Physics: Relativity Theory](#)

Subjects:

[General Issues: Realism/Anti-realism](#)

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ID Code: 3506

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Deposited On: 11 September 2007