A modal-Hamiltonian interpretation of quantum mechanics

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Abstract

The aim of this paper is to introduce a new member of the family of the modal interpretations of quantum mechanics. In this modal-Hamiltonian interpretation, the Hamiltonian of the quantum system plays a decisive role in the property-ascription rule that selects the definite-valued observables whose possible values become actual. We show that this interpretation is effective for solving the measurement problem, both in its ideal and its non-ideal versions, and we argue for the physical relevance of the property-ascription rule by applying it to well-known physical situations. Moreover, we explain how this interpretation supplies a description of the elemental categories of the ontology referred to by the theory, where quantum systems turn out to be bundles of possible properties

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