

# Can (quantum) information be sorted out from quantum mechanics?

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## Abstract

We shall draw an affirmative answer to the question posed in the title. The key point will be a quantum description of physical reality. Once fixed at ontic level two basic elements, namely the laws of physics and the matter, we argue that the underlying physical reality emerges from the interconnection between these two elements. We

consider any physical process, including measurement, modeled by unitary evolution. In this context, we will deduce quantum randomness as a consequence of inclusion of the observer into the quantum system. The global picture of the universe is in a sense deterministic, but from our own local perspective (as part of the system) we perceive

quantum mechanical randomness. Then, the notion of "information" turns out to be a derivative concept.

**Keywords:** Quantum Information, Laws of physics, Observers and objects, quantum correlations, quantum randomness.

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