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PROBABILISTIC REALITY AND KNOWLEDGE
BETWEEN PHYSICS AND PSYCHOLOGY

Abstract

Epistemological problems raised by statistical interpretation of Schrödinger's equation provide particularly sound, relevant references about foundation of the concept of reality, the core of the many years lasting Einstein-Born's dispute on quantum mechanics.

Einstein identifies physical reality with conserved quantities in fundamental transformations in physics; but he conceives it as being knowledge-independent. As a crucial point, he thinks of reality in terms of single objects instead of sets of occurrences with probabilistic values, the same observations being as such. Thus, he accuses quantum mechanics, with specific regard to the uncertainty principle, of being incomplete.

Born maintains that knowledge is probabilistic, since accuracy in physical observations is always approximate: what requires repeated measures and the statistical mean of obtained values.

Einstein's conception actually stresses the structural feature of knowledge and reality. Nevertheless, such a structurality pertains to the representative systems, mainly conceptual and mathematical ones: so that to extend it to a hypothetical independent reality goes further what one is able to verify and rigorously prove.

In psychology, the probabilistic nature of knowledge is demonstrated by experiments on the ways people perceive objects in sensory conditions which depend on probabilistic distribution of their points of view. Furthermore, as for the "schemes theory", cognitive schemes also form depending on probabilistic rules. Finally, "activity theory" matches the crisis of positivistic illusion about objectivity, showing that the actual basis of knowledge is not preexisting reality *per se*, but first of all individuals activity.