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Can we escape from Bell's conclusion that quantum mechanics describes a non-local reality?
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Summary: It is argued that for a proper understanding of the question of non-locality in quantum mechanics and hidden variables theories purporting to reproduce the quantum mechanical measurement results, it is essential to consider stochastic hidden variables theories. F. Laudisa's [ibid. 27, No. 3, 297–313 (1996; Zbl 1222.81098)] conclusion that in derivations of the Bell inequality an implicit assumption of locality is made, is shown to be a consequence of his restriction to deterministic hidden variables theories. It is also demonstrated how it is possible to draw a clear distinction between contextualism and non-objectivism, non-objectivism amounting to the impossibility of reducing an individual quantum mechanical measurement result, either in a deterministic or in a stochastic way, to the hidden variables state the individual object is in independently of the measurement. The analogy with thermodynamics is exploited to clarify the issue.

MSC:
81P10 Logical foundations of quantum mechanics; quantum logic (quantum-theoretic aspects)

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