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All no-signalling theories are local-realistic

It is generally believed that experimental violations of Bell's inequalities, especially the recent so-called loophole-free experiments, provide evidence that quantum theory cannot be both local and realistic. We demonstrate to the contrary that all reversible-dynamics no-signalling operational theories (including unitary quantum theory) can be given a local-realistic interpretation. Thus, we answer by the negative the 1935 question of Einstein, Podolsky and Rosen: Quantum-mechanical description of physical reality **cannot** be considered complete (at least not the standard Copenhagen formulation). And moreover yes, it **can** be completed! However, we also demonstrate that the standard Everettian view, according to which the universal wavefunction is a complete representation of the universe, must be abandoned if locality is postulated as a metaphysical principle.

Joint work with Paul Raymond-Robichaud. Based on arXiv:1710.01380 and arXiv:1709.10016 [quant-ph].