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Review of Subjunctive Reasoning in the Philosophy of Quantum Mechanics

Neither in physics nor in the philosophy of physics does it matter when indicative and subjunctive conditionals are not distinguished. Sloppiness without a consequence. Yet there are subjects where it matters crucially and where this sloppiness has demonstrable consequences for views of the nature of physical reality, that is, for scientifically informed metaphysics. I shall tell the tale of the locality debate, from the ever-exciting realm of the philosophy of Quantum Mechanics, about whether physical reality is local or non-local (in a sense that is motivated by Einstein's Special Theory of Relativity and will be specified precisely). This tale is a true story with a closed ending. For almost all participants of the debate the ending was a happy ending; but for at least one participant, the story never ended and he keeps defending a position until the present that was buried by almost all participants in the last decade of the previous century. We claim that the crucial contribution was the one wherein the Lewis-Stalnaker account of subjunctive conditionals, developed in philosophical logic, was applied to the locality debate.

(Some acquaintance with probability theory is required; all required knowledge of Quantum Mechanics will be provided.)