Toy Models for Retrocausality

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Abstract

A number of writers have been attracted to the idea that some of the peculiarities of quantum theory might be manifestations of 'backward' or 'retro' causality, underlying the quantum description. This idea has been explored in the literature in two main ways: firstly in a variety of explicit models of quantum systems, and secondly at a conceptual level. This note introduces a third approach, intended to complement the other two. It describes a simple toy model, which, under a natural interpretation, shows how retrocausality can emerge from simple global constraints. The model is also useful in permitting a clear distinction between the kind of retrocausality likely to be of interest in QM, and a different kind of reverse causality, with which it is liable to be confused. The model is proposed in the hope that future elaborations might throw light on the potential of retrocausality to account for quantum phenomena.

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