On Skorohod's topologies

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Abstract In 1956, Skorohod introduced four topologies on the space of right-continuous functions with left limits, which he called J1, M1, J2, and M2. Of these, the J1 topology has become an indispensable tool in the study of convergence of Markov processes with jumps. This topology is now usually simply called the Skorohod topology. Also Skorohod's M1 topology has found a range of applications. Probably anyone who has read the definition of the Skorohod topology and the proof of its basic properties will at some point have wondered if things really have to be so technical. In my talk, I will present an alternative approach to Skorohod's J1 and M1 topologies that is based on measuring the distance between two graphs with a variant of the Hausdorff metric, that measures the distance between two compact sets, each of which is equipped with a total order.