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Representation theorems for exchangeable structures: a computability-theoretic perspective.

Exchangeability and related hypotheses describe the symmetries under which random sequences, arrays, and other structures are invariant. Classical theorems of probability theory due to de Finetti, Aldous, Hoover, Kallenberg, and others characterize the conditional independence that such structures must exhibit, and provide explicit ergodic decompositions. In this talk, we explore the computable content of these theorems, providing both positive and negative results. We also discuss some motivation from the theory of probabilistic programming languages. Joint work with Nathanael Ackerman, Jeremy Avigad, Daniel Roy, and Jason Rute. (Received September 14, 2019)