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Markovianity as a distributional symmetry

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Markovianity is a stochastic phenomenon which does not care about the past - the presence 'dictates' the future. Unexpectedly this phenomenon is closely linked to representations of the Thompson group F. My talk will introduce to this new connection between randomness and symmetry which stays valid in noncommutative probability. I will explain the general result that every stationary (noncommutative) Markov chain induces a representation of the Thompson group F. Conversely, a large class of representations of F yields stationary (noncommutative) Markov chains. Finally I will introduce 'partial spreadability' as a new distributional symmetry, aiming at a de Finetti type characterization of Markovianity.

The presented results are based on ongoing research with Rajarama Bhat, Gwion Evans, Rolf Gohm, Arundhathi Krishnan, Vijaya Kumar, and Stephen Wills.

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