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Title: Robustness of Markov processes on large networks.

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The motivation for this paper is the study of perturbations a Markov process on a network. The last term refers to the product of a large number N of sets. The idea is to obtain a metric which quantifies perturbations, with respect to parameter changes, of (i) the equilibrium measure and (ii) the speed of convergence to the equilibrium, in a way that the deviations are uniform on N.

The author introduces a seminorm on measures which achieves this purpose. This seminorm is induced by Dobrushin's seminorm on the space of continuous functionals of the network. The main results are two theorems, related to (i) and (ii) above. The first theorem establishes a bound on the change of the equilibrium measure and the rate of change with respect to a parameter. The second theorem shows that, if the the speed of convergence to the equilibrium is exponential, then small perturbations do not affect the speed. Several examples, applications and open problems are also presented.

Mathematics Subject Classification 60J25 Continuous-time Markov processes on general state spaces 60J05 Discrete-time Markov processes on general state spaces