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CONDITIONING PROPERTIES OF THE STATIONARY DISTRIBUTION FOR A MARKOV CHAIN[*]

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Abstract. Let T be an irreducible stochastic matrix with stationary vector π^T. The conditioning of π^T under perturbation of T is discussed by providing an attainable upper bound on the absolute value of the derivative of each entry in π^T with respect to a given perturbation matrix. Connections are made with an existing condition number for π^T, and the results are applied to the class of Markov chains arising from a random walk on a tree.

Key words. Stochastic matrix, Stationary vector, Condition number.

AMS subject classifications. 15A51, 15A18, 65F35, 60J10.

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