Pellaumail, J.

Graphes et algorithme de calcul de probabilités stationnaires d'un processus markovien discret. (Graphs and algorithm for the computation of stationary probabilities of a discrete Markov process). (French) Zbl 0701.60064

Ann. Inst. Henri Poincaré, Probab. Stat. 26, No. 1, 121-143 (1990).

The author in effect addresses the problem of finding the (unique) stationary distribution $\{p_i\}_{i=0}^n$ corresponding to a finite stochastic matrix $P = \{p_{ij}\}_{i,j=0}^n$ satisfying $p_{ii} = 0$ for each i, and containing only one closed set of indices. The approach depends on writing

$$p_i = Z_1' R_1' ... R_{k-1}' S_{k,i} R_{k+1} ... R_{n-1} Z_{n-1}, \quad i \in E_k, \quad k = 0, ..., n,$$

as an inhomogeneous product of certain non-negative matrices, after decomposing the index set into mutually exclusive subsets $\{E_k\}$. The author is, consequently, able to use coefficients of ergodicity [see the reviewer, Non-negative matrices and Markov chains. (1981; Zbl 0471.60001)] as a measure of speed of convergence.

Reviewer: Eugene Seneta (Sydney)

MSC:

60J10 Markov chains (discrete-time Markov processes on discrete state spaces)
65F15 Numerical computation of eigenvalues and eigenvectors of matrices

Keywords:

non-negative matrices; stationary distribution; coefficients of ergodicity; measure of speed of convergence

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