

Algebraic Characterization of Infinite Markov Chains Where Movement to the Right is Limited to one Step

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Abstract

We consider an infinite Markov chain with states E_0, E_1, \dots , such that E_1, E_2, \dots is not closed, and for $i \geq 1$ movement to the right is limited by one step. Simple algebraic characterizations are given for persistency of all states, and, if E_0 is absorbing, simple expressions are given for the probabilities of staying forever among the transient states. Examples are furnished, and simple necessary conditions and sufficient conditions for the above characterizations are given.

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