

## ABSTRAK

Pandang rantai Markov  $\{X_t : t = 0, 1, 2, \dots\}$  dengan ruang state  $\xi = \{x_0, x_1, \dots, x_n\}$ . Rantai Markov tersebut dapat digambarkan dalam sebuah graf berarah terhubung dan berbobot yang disebut graf transisi. Dalam graf transisi, titik-titik berkorespondensi satu-satu dengan state-state dalam  $\xi$  dan garis berarah  $(x_i, x_j)$  dengan bobot tak nol  $p(x_i, x_j)$  menggambarkan peluang transisi dari state  $x_i$  ke state  $x_j$ . Ternyata sifat-sifat dari graf transisi sebagai graf berarah dapat diterapkan dalam menganalisis permasalahan pada rantai Markov, baik dalam hal pengklasifikasian state-state maupun dalam perhitungan vektor keadaan tetap  $\pi$  suatu rantai Markov reguler dan perhitungan matrik transisi k-langkah  $P^k$  sebagai fungsi dari  $k$ .

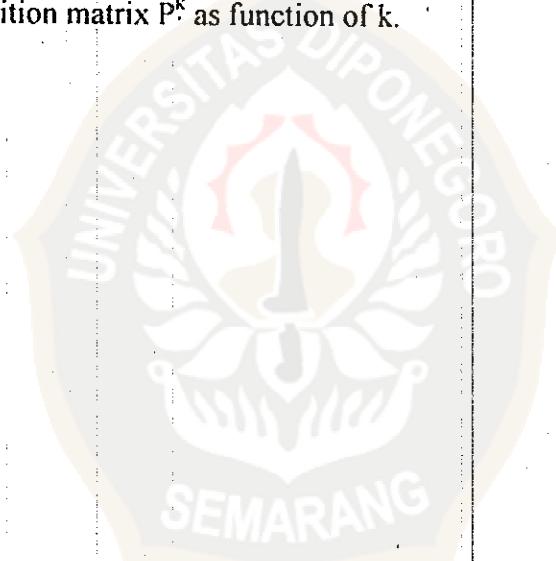


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Consider the Markov chains  $\{X_t : t = 0, 1, 2, \dots\}$  with state space  $\xi = \{x_0, x_1, \dots, x_n\}$ . It can be represented by weighted, connected directed graph called Transition Graph. In a transition graph, the vertices one-one corresponding to states in  $\xi$ , and a directed edge  $(x_i, x_j)$  with a non zero weight  $p(x_i, x_j)$  represents the transition of probability from state  $x_i$  to  $x_j$ . The fact, the directed graph properties of transition graph can be applied in analyzing the Markov chains problems, as well as states classification or in computing steady-state vector  $\pi$  any regular Markov chains and in computing k-step transition matrix  $P^k$  as function of k.



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