MARKOV RENEWAL THEORY IN THE ANALYSIS OF TRIES AND STRINGS

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In a talk given at the *21st International Meeting on Probabilistic, Combinatorial, and Asymptotic Methods for the Analysis of Algorithms in Vienna 2010 (AofA'10)*, Svante Janson presented a number of examples where renewal theory may be used in an elegant way and as a probabilistic alternative to analytic combinatorial methods in the analysis of random tries and strings generated by i.i.d. input (Bernoulli source), see [1] for an extended abstract or [2] for a more detailed account. Embarking on an introduction of Janson's approach, I will discuss some applications of Markov renewal theory to such problems in the more general (and difficult) case when the input is Markov-dependent (Markov sources).

References

[1] Svante Janson, *Renewal theory in the analysis of tries and strings: extended abstract*, 21st International Meeting on Probabilistic, Combinatorial, and Asymptotic Methods in the Analysis of Algorithms (AofA'10), Discrete Math. Theor. Comput. Sci. Proc., AM, Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2010, pp. 415–426.

[2] ———, *Renewal theory in the analysis of tries and strings*, Theoret. Comput. Sci. **416** (2012), 33–54. MR 2876106