Precise large deviations for dependent heavy-tailed sequences

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Precise large deviations for iid sequences were studied by A.V. and S.V. Nagaev in the 1960s and 1970s. "Precise" refers to the fact that one gets asymptotically exact expressions for large deviation probabilities. We extend these results to dependent stationary sequences where the marginal distribution has power law tails. We give a general approach to large deviations, assuming some weak dependence structure. Special attention is given to Markov chains. In this case, we get analogs of the classical results, using regeneration techniques. A crucial difference is that large deviation results cannot be achieved uniformly on unbounded intervals.