

THE CLT FOR STATIONARY MARKOV CHAINS WITH TRIVIAL TAIL SIGMA FIELD

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In this talk we consider the class of stationary Markov chains with general state space and trivial two-sided tail sigma field. We present the essential tools leading to the following result: Any additive functional of such a Markov chain satisfies the central limit theorem provided the variance of partial sum of n variables divided by n is bounded. The method of proof is based on martingale decomposition, by using a new idea involving conditioning with respect to both the past and the future of the chain. No assumption of irreducibility or aperiodicity is needed. Similar results hold if the Markov chain is started from one point. We shall also provide examples of Markov chains with trivial two-sided tail sigma field.