



Statistical estimation of quadratic Rényi entropy for a stationary m -dependent sequence

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The Rényi entropy is a generalization of the Shannon entropy and is widely used in mathematical statistics and applied sciences for quantifying the uncertainty in a probability distribution. We consider estimation of the quadratic Rényi entropy and related functionals for the marginal distribution of a stationary m -dependent sequence. The U-statistic estimators under study are based on the number of epsilon-close vector observations in the corresponding sample. A variety of asymptotic properties for these estimators are obtained (e.g., consistency, asymptotic normality, Poisson convergence). The results can be used in diverse statistical and computer science problems whenever the conventional independence assumption is too strong (e.g., epsilon-keys in time series databases, distribution identification problems for dependent samples).

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