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Asymptotic Inference of Autocovariances of Stationary Processes

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The paper presents a systematic theory for asymptotic inference of autocovariances of stationary processes. We consider nonparametric tests for serial correlations based on the maximum (or ${\cal L}^\infty$) and the quadratic (or ${\cal L}^2$) deviations. For these two cases, with proper centering and rescaling, the asymptotic distributions of the deviations are Gumbel and Gaussian, respectively. To establish such an asymptotic theory, as byproducts, we develop a normal comparison principle and propose a sufficient condition for summability of joint cumulants of stationary processes. We adopt a simulation-based block of blocks bootstrapping procedure that improves the finite-sample performance.

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