L^2-type exponentiality tests based on V-empirical Laplace transform and Puri-Rubin characterization

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In this paper we propose new goodness-of-fit tests that employ the equidistribution characterization of the exponential distribution due to Puri and Rubin. Based on V-empirical Laplace transforms of equidistributed statistics, test statistics of L^2-type are constructed. They are degenerate V-statistics with estimated parameters. Their asymptotic properties are derived. To assess their quality, the approximate Bahadur efficiency is used. For small sample sizes, a simulated power study is performed. The tests are shown to be very efficient and powerful in comparison to many other exponentiality tests.

References

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