

JOINT CLUSTER COUNTS FROM UNIFORM DISTRIBUTION

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Abstract: We consider a vector of numbers of clusters at different distance levels of n independent identically distributed random variables uniformly distributed on $[a, b]$. We prove asymptotic normality of this vector when the ends a, b are known or are estimated from the sample. Basing on these asymptotic results we propose new tests for uniformity, called *cluster tests*. We also present results of a simulation study showing empirical behaviour of these tests.

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Keywords and phrases: Asymptotic normality, clusters of independent uniform random variables, number of clusters, testing for uniformity.

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