

On the Computation of the Exact Distribution of Power Divergence Test Statistics.

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Abstract: In this paper we introduce several algorithms to generate all the vectors in the support of a multinomial distribution. Computational studies are carried out to analyze their efficiency with respect to the CPU time and to calculate their efficiency frontiers. The proposed algorithm is used to calculate exact distributions of power divergence test statistics under the hypothesis of uniformity. Finally, several exact power comparisons are done for different divergence statistics and families of alternatives to the uniformity hypothesis.

Keywords: multinomial distribution; algorithms; goodness-of-fit divergence tests; power divergence statistics; chi-squared tests; power comparisons;

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