

Likelihood ratio test for the structure of a block covariance matrix

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Abstract

In this talk we use the likelihood ratio test to analyze the relationship between two groups of characteristics: the group of variables observed over time and the features which are unchanged during the experiment. It is assumed that the observations matrix have a multivariate normal distribution with block-structure of the covariance matrix. The diagonal blocks of the covariance matrix present the dependence within the groups, while off-diagonal between the groups. We formulate tests to verify the separability of the top- left block of the covariance matrix and the independence of two groups of characteristics. We demonstrate the properties of the test using a simulation study.

Keywords Block covariance structure, Separable covariance structure, Maximum likelihood estimation