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## Nonparametric Test for Eigenvalues of Covariance Matrix in Multipopulation

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**Abstract:** We propose a nonparametric procedure to test the hypothesis that the  $j$ -th largest eigenvalues of a covariance matrix are equal in multipopulation. We apply the Mood test by using the principal component scores and deal the equality of eigenvalues with the equality of variance. We investigate the significance level and the power of test by simulation and show that this nonparametric test is useful for symmetric populations.

**Key words:** eigenvalues,  $k$ -sample Mood test, nonparametric test, principal component score

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