Package Name: JennrichCorr
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Add-in Type: Group
Default Proc Name: JennrichCorr
Default Menu Text: Jennrich Test for equality of correlation matrices

Description: This add-in carries out Jennrich's (1970) test for equality of correlation matrices. The user inputs a group object which is tested for equality against the current or most recent group. The add-in outputs a table with the test statistic, p-value and degrees of freedom. To use the test from the command line, type "group1.JennrichCorr group2".

The test is carried out as follows. Consider 2 group objects with sample sizes n_1 and n_2, respectively, and sample correlation matrices R_1 and R_2. Let

$$\begin{aligned} \bar{R} &= \frac{1}{n_1+n_2}(n_1R_1 + n_2R_2) \\ Z &= \sqrt{\frac{n_1n_2}{(n_1+n_2)}}\bar{R}^{-1}(R_1 - R_2). \end{aligned}$$

The statistic is,

$$\chi^2_{df} \sim \frac{1}{2}tr(ZZ') - \text{diag}(Z)'[I + \bar{R}\cdot\bar{R}^{-1}]^{-1}\text{diag}(Z)$$

where $df = k(k-1)/2$, and k is the number of columns in R_1.

References

Jennrich, R. I. (1970), "An asymptotic chi-square test for the equality of two correlation matrices," *Journal of the American Statistical Association*, 65, 904-912.