/PSOA	Performs parametric second order analysis of two samples. The input waves must each contain two columns.
/Q	No information printed in the history area.
/T= *k*	Displays results in a table. *k* specifies the table behavior when it is closed. *k*=0: Normal with dialog (default). *k*=1: Kills with no dialog. *k*=2: Disables killing.
/Z	Ignores any errors.

Details

The nonparametric paired-sample test (/NPR) is Moore's test for paired angles applied in second order analysis. The input can consist of one or two column waves. When both waves contain a single column the operation proceeds as if all the vector length were identically 1. The Moore statistic ($H_0 \rightarrow$ pair equality) is computed and compared to the critical value from the Moore distribution (see **StatsInvMooreCDF**).

The nonparametric second-order two-sample test (/NSOA) consists of pre-processing where the grand mean is subtracted from the two inputs followed by application of Watson's U^2 test (**StatsWatsonUSquaredTest**) with H_0 implying that the two samples came from the same population. The results of this test are stored in the wave W_WatsonUtest.

The parametric paired-sample test (/PPR) is due to Hotelling. In this test the input should consist of both angular and vector length data. The test statistic is compared with a critical value from the F distribution (**StatsInvFCDF**).

The parametric second order two-sample test (/PSOA) is an extension of Hotelling one-sample test to second order analysis where an F-like statistic is computed corresponding to H_0 of equal mean angles.

References

Zar, J.H., *Biostatistical Analysis*, 4th ed., 929 pp., Prentice Hall, Englewood Cliffs, New Jersey, 1999.

See Also

Chapter III-12, **Statistics** for a function and operation overview; **StatsInvMooreCDF**, **StatsWatsonUSquaredTest**, and **StatsInvFCDF**.

StatsCMSSDCDF

`StatsCMSSDCDF(`*`C`*`, `*`n`*`)`

The StatsCMSSDCDF function returns the cumulative distribution function of the C distribution (mean square successive difference), which is

$$f(C,n) = \frac{\Gamma(2m+2)}{a2^{2m+1}\left[\Gamma(m+1)\right]^2}\left(1-\frac{C^2}{a^2}\right)^m,$$

where

$$a^2 = \frac{\left(n^2+2n-12\right)\left(n-2\right)}{\left(n^3-13n+24\right)},$$

$$m = \frac{\left(n^4-n^3-13n^2+37n-60\right)}{2\left(n^3-13n+24\right)}.$$

The distribution (*C*>0) can then be expressed as