StatsFriedmanTest

StatsFriedmanTest [***flags***] [***wave1, wave2,… wave100***]

The StatsFriedmanTest operation performs Friedman's test on a randomized block of data. It is a nonparametric analysis of data contained in either individual 1D waves or in a single 2D wave. Output is to the M_FriedmanTestResults wave in the current data folder or optionally to a table.

Flags

/ALPH = *val* Sets the significance level (default *val*=0.05).

/Q No results printed in the history area.

/RW Saves the ranking wave M_FriedmanRanks, which contains the rank values corresponding to each input datum.

/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.

The table is associated with the test and not with the data. If you repeat the test, it will update the table with the new results.

/WSTR=*waveListString*

Specifies a string containing a semicolon-separated list of waves that contain sample data. Use *waveListString* instead of listing each wave after the flags.

/Z Ignores errors. V_flag will be set to -1 for any error and to zero otherwise.

Details

The Friedman test ranks the input data on a row-by-row basis, sums the ranks for each column, and computes the Friedman statistic, which is proportional to the sum of the squares of the ranks.

Input waves can be a single 2D wave or a list of 1D numeric waves, which can also be specified in a string list with /WSTR. All 1D waves must have the same number of points. A 2D wave must not contain any NaNs.

The critical value for the Friedman distribution is fairly difficult to compute when the number of rows and columns is large because it requires a number of permutations on the order of (numColumns!)^numRows. A certain range of these critical values are supported by precomputed tables. When the exact critical value is not available you can use one of the two approximations that are always computed: the Chi-squared approximation or the Iman and Davenport approximation, which converts the Friedman statistic is converted to a new value Ff then compares it with critical values from the F distribution using weighted degrees of freedom.

With the /T flag, it displays the results in a table that contains the number of rows, the number of columns, the Friedman statistic, the exact critical value (if available), the Chi-squared approximation, the Iman and Davenport approximation, and the conclusion (1 to accept H_0 and 0 to reject it).

V_flag will be set to -1 for any error and to zero otherwise.

References

Iman, R.L., and J.M. Davenport, Approximations of the critical region of the Friedman statistic, *Comm. Statist. A9*, 571-595, 1980.

See Also

Chapter III-12, **Statistics** for a function and operation overview; **StatsFriedmanCDF** and **StatsInvFriedmanCDF**.

StatsFTest

StatsFTest [***flags***] ***wave1, wave2***

The StatsFTest operation performs the F-test on the two distributions in *wave1* and *wave2*, which can be any real numeric type, must contain at least two data points each, and can have an arbitrary number of dimensions. Output is to the W_StatsFTest wave in the current data folder or optionally to a table.