

See Also

Chapter III-12, **Statistics** for a function and operation overview; **StatsJBTest**, **WaveStats**, and **StatsCircularMoments**.

StatsKuiperCDF**StatsKuiperCDF (V)**

The StatsKuiperCDF function returns the Kuiper cumulative distribution function

$$F(V) = 1 - 2 \sum_{j=1}^{\infty} (4j^2 V^2 - 1) \exp(-2j^2 V^2).$$

Accuracy is on the order of 1e-15. It returns 0 for values of $V < 0.4$ or 1 for $V > 3.1$.

References

See in particular Section 14.3 of

Press, William H., et al., *Numerical Recipes in C*, 2nd ed., 994 pp., Cambridge University Press, New York, 1992.

See Also

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

StatsKWTest**StatsKWTest [flags] [wave1, wave2, ... wave100]**

The StatsKWTest operation performs the nonparametric Kruskal-Wallis test which tests variances using the ranks of the data. Output is to the W_KWTestResults wave in the current data folder.

Flags

/ALPH = <i>val</i>	Sets the significance level (default <i>val</i> =0.05).
/E	Computes the exact P-value using the Klotz and Teng algorithm, which may require long computation times for large data sets. You can stop the calculation by pressing the User Abort Key Combinations after which all remaining results remain valid and the exact P-value is set to NaN.
/Q	No results printed in the history area.
/T= <i>k</i>	Displays results in a table. <i>k</i> specifies the table behavior when it is closed. <i>k</i> =0: Normal with dialog (default). <i>k</i> =1: Kills with no dialog. <i>k</i> =2: Disables killing.
/WSTR= <i>waveListString</i>	Specifies a string containing a semicolon-separated list of waves that contain sample data. Use <i>waveListString</i> 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

Inputs are two or more 1D numerical waves (one for each group of samples). Use NaNs for missing data or use waves with different number of points.

StatsKWTest always computes the critical values using both the Chi-squared and Wallace approximations. If appropriate (small enough data set) you can also use /E to obtain the exact P value. When the calculation involves many waves or many data points the calculation of the exact critical value can be very lengthy. All the results are saved in the wave W_KWTestResults in the current data folder and are optionally displayed in a table (/T). The wave contains the following information:

H_0 for the Kruskal-Wallis test is that all input waves are the same. If the test fails and the input consisted of more than two waves, there is no indication for possible agreement between some of the waves. See **StatsNPMCTest** for further analysis.