Ideally, the number of replicates must be equal for each factor and each level. StatsANOVA2Test supports both equal replication and proportional replication. Proportional replication allows for different number of data in each cell with missing data represented as NaN and the number of points in each cell is given by

```
Nij=(sum of data in row i)*(sum of data in column j)/number of samples.
```

If you have no replicates (a single datum per cell) use **StatsANOVA2NRTest** instead. If the number of replicates in your data does not satisfy these conditions you may be able to "estimate" additional replicates using various methods. In that case use the /FAKE flag so that the operation can account for the estimated data by reducing the total and error degrees of freedom. /FAKE only accounts for the number of estimates being used. You must provide an appropriate number of estimated values.

The contents of the M_ANOVA2Results output wave columns are: the first contains the sum of the squares (SS) values, the second the degrees of freedom (DF), the third contains the mean square (MS) values, the fourth contains the computed F value for this test, the fifth contains the critical Fc value for the specified alpha and degrees of freedom, and the last contains the conclusion with 0 to reject H_0 or 1 to accept it. In each case H_0 corresponds to the mean level, which is the same for all populations.

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

See Also

Chapter III-12, **Statistics** for a function and operation overview; **StatsANOVA1Test** and **StatsANOVA2NRTest**.

StatsBetaCDF

StatsBetaCDF(*x*, *p*, *q* [, *a*, *b*])

The StatsBetaCDF function returns the beta cumulative distribution function

$$\text{F(x,p,q,a,b)}=\frac{1}{\text{B(p,q)}}\int_0^{\frac{x-a}{b-a}} t^{p-1}(1-t)^{q-1}\,dt, \qquad \begin{matrix} p,q>0 \\ a\le x\le b \end{matrix}$$

where $B(p,q)$ is the beta function

$$B(p,q)=\int_0^1 t^{p-1}(1-t)^{q-1}\,dt.$$

The defaults (a=0 and b=1) correspond to the standard beta distribution were a is the location parameter, (b-a) is the scale parameter, and p and q are shape parameters.

References

Evans, M., N. Hastings, and B. Peacock, *Statistical Distributions*, 3rd ed., Wiley, New York, 2000.

See Also

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

StatsBetaPDF

StatsBetaPDF(*x*, *p*, *q* [, *a*, *b*])

The StatsBetaPDF function returns the beta probability distribution function

$$f(x;p,q,a,b)=\frac{(x-a)^{p-1}(b-x)^{q-1}}{B(p,q)(b-a)^{p+q-1}}, \qquad \begin{matrix} a\le x\le b \\ p,q>0 \end{matrix}$$

where $B(p,q)$ is the beta function

$$B(p,q)=\int_0^1 t^{p-1}(1-t)^{q-1}\,dt.$$