StatsTopDownCDF

StatsTopDownCDF(r, N)

The StatsTopDownCDF function returns the cumulative distribution function for the top-down correlation coefficient. It is computationally intensive because it must evaluate many permutations [$O((n!)^2)$]. It exactly calculates the distribution for $3 \le N \le 7$; outside this range it uses Monte-Carlo estimation for $8 \le N \le 50$ and asymptotic Normal approximation for $N>50$. The Monte-Carlo estimate uses 1e6 random permutations fitted with two 9-order polynomials for the range [-1,0] and [0,1]. The results are within 0.2% of exact values where known.

References

Iman, R.L., and W.J. Conover, A measure of top-down correlation, *Technometrics*, *29*, 351-357, 1987.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsRankCorrelationTest** and **StatsInvTopDownCDF** functions.

StatsTriangularCDF

StatsTriangularCDF(x, a, b, c)

The StatsTriangularCDF function returns the triangular cumulative distribution function

$$F(x;a,b,c) = \begin{cases} 0 & x \le a \\ \dfrac{(x-a)^2}{(b-a)(c-a)} & a < x \le c \\ 1 - \dfrac{(b-x)^2}{(b-a)(b-c)} & c < x < b \\ 1 & x \ge b \end{cases}$$

where $a<c<b$.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsTriangularPDF** and **StatsInvTriangularCDF** functions.

StatsTriangularPDF

StatsTriangularPDF(x, a, b, c)

The StatsTriangularPDF function returns the triangular probability distribution function

$$f(x;a,b,c) = \begin{cases} \dfrac{2(x-a)}{(b-a)(c-a)} & a \le x < c \\ \dfrac{2(b-x)}{(b-a)(b-c)} & c < x \le b \\ 0 & \textit{Otherwise} \end{cases}$$

where $a<c<b$.

See Also

Chapter III-12, **Statistics** for a function and operation overview; the **StatsTriangularCDF** and **StatsInvTriangularCDF** functions.