

NCBPPF**PURPOSE**

Compute the non-central beta percent point function with shape parameters α and β and non-centrality parameter λ .

DESCRIPTION

The percent point function for the non-central beta distribution does not have a simple closed form. It is computed numerically.

SYNTAX

LET <y> = NCBPPF(<p>,<a>,,<l>) <SUBSET/EXCEPT/FOR qualification>

where <p> is a number, parameter, or variable containing values between 0 and 1;

<a> is a positive number, parameter, or variable that specifies the first shape parameter;

 is a positive number, parameter, or variable that specifies the second shape parameter;

<l> is a non-negative number, parameter, or variable that specifies the non-centrality parameter;

<y> is a variable or a parameter (depending on what <p>, <a>, , and <l> are) where the computed ppf value is stored; and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES

LET A = NCBPPF(0.9,10,8,1)

LET Y = NCBPPF(P,10,8,2)

NOTE

DATAPLOT uses a bisection method to compute the non-central beta ppf value. The algorithm for the central beta distribution is given in the Kennedy and Gentle book (see the REFERENCE section below). The algorithm for the non-central beta distribution is similar.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

NCBCDF	=	Compute the non-central beta cumulative distribution function.
BETCDF	=	Compute the beta cumulative distribution function.
BETPDF	=	Compute the beta probability density function.
BETPPF	=	Compute the beta percent point function.
NCFCDF	=	Compute the non-central F cumulative distribution function.
NCFPPF	=	Compute the non-central F percent point function.
NCTCDF	=	Compute the non-central t cumulative distribution function.
NCTPPF	=	Compute the non-central t percent point function.
NCCCDF	=	Compute the non-central chi-square cumulative distribution function.
NCCPPF	=	Compute the non-central chi-square percent point function.
GAMCDF	=	Compute the gamma cumulative distribution function.
GAMPDF	=	Compute the gamma probability density function.
GAMPPF	=	Compute the gamma percent point function.
NORCDF	=	Compute the normal cumulative distribution function.
NORPDF	=	Compute the normal probability density function.
NORPPF	=	Compute the normal percent point function.

REFERENCE

"Computing Noncentral Beta Probabilities," Lenth, Applied Statistics, Vol. 39, No. 2, 1987, pp. 241-244.

"Continuous Univariate Distributions - Vol. 2," Johnson and Kotz, Wiley and Sons, 1970.

"Statistical Distributions," 2nd Edition, Evans, Hastings, and Peacock, 1970 (chapter 5).

"Statistical Computing," Kennedy and Gentle, Marcel-Dekker, 1978 (chapter 5).

APPLICATIONS

Data Analysis

IMPLEMENTATION DATE

94/9

PROGRAM

TITLE AUTOMATIC

YLABEL X

XLABEL PROBABILITY

PLOT BETPPF(X,4,2,1) FOR X = 0.01 .01 0.99

