

Functions by name
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<code>abbrev(<i>s</i>,<i>n</i>)</code>	name <i>s</i> , abbreviated to a length of <i>n</i>
<code>abs(<i>x</i>)</code>	the absolute value of <i>x</i>
<code>acos(<i>x</i>)</code>	the radian value of the arccosine of <i>x</i>
<code>acosh(<i>x</i>)</code>	the inverse hyperbolic cosine of <i>x</i>
<code>age(<i>e<sub>d</sub></i><sub>DOB</sub>,<i>e<sub>d</sub></i>[,<i>s<sub>nl</sub></i>])</code>	the age in integer years on <i>e<sub>d</sub></i> for date of birth <i>e<sub>d</sub></i> <sub>DOB</sub> with <i>s<sub>nl</sub></i> the nonleap-year birthday for 29feb birthdates
<code>age_frac(<i>e<sub>d</sub></i><sub>DOB</sub>,<i>e<sub>d</sub></i>[,<i>s<sub>nl</sub></i>])</code>	the age in years, including the fractional part, on <i>e<sub>d</sub></i> for date of birth <i>e<sub>d</sub></i> <sub>DOB</sub> with <i>s<sub>nl</sub></i> the nonleap-year birthday for 29feb birthdates
<code>asin(<i>x</i>)</code>	the radian value of the arcsine of <i>x</i>
<code>asinh(<i>x</i>)</code>	the inverse hyperbolic sine of <i>x</i>
<code>atan(<i>x</i>)</code>	the radian value of the arctangent of <i>x</i>
<code>atan2(<i>y</i>, <i>x</i>)</code>	the radian value of the arctangent of <i>y/x</i> , where the signs of the parameters <i>y</i> and <i>x</i> are used to determine the quadrant of the answer
<code>atanh(<i>x</i>)</code>	the inverse hyperbolic tangent of <i>x</i>
<code>autocode(<i>x</i>,<i>n</i>,<i>x<sub>0</sub></i>,<i>x<sub>1</sub></i>)</code>	partitions the interval from <i>x<sub>0</sub></i> to <i>x<sub>1</sub></i> into <i>n</i> equal-length intervals and returns the upper bound of the interval that contains <i>x</i> or the upper bound of the first or last interval if <i>x</i> < <i>x<sub>0</sub></i> or <i>x</i> > <i>x<sub>1</sub></i> , respectively
<code>betaden(<i>a</i>,<i>b</i>,<i>x</i>)</code>	the probability density of the beta distribution, where <i>a</i> and <i>b</i> are the shape parameters; 0 if <i>x</i> < 0 or <i>x</i> > 1
<code>binomial(<i>n</i>,<i>k</i>,<i>θ</i>)</code>	the probability of observing <code>floor(<i>k</i>)</code> or fewer successes in <code>floor(<i>n</i>)</code> trials when the probability of a success on one trial is <i>θ</i> ; 0 if <i>k</i> < 0; or 1 if <i>k</i> > <i>n</i>
<code>binomialp(<i>n</i>,<i>k</i>,<i>p</i>)</code>	the probability of observing <code>floor(<i>k</i>)</code> successes in <code>floor(<i>n</i>)</code> trials when the probability of a success on one trial is <i>p</i>
<code>binomialtail(<i>n</i>,<i>k</i>,<i>θ</i>)</code>	the probability of observing <code>floor(<i>k</i>)</code> or more successes in <code>floor(<i>n</i>)</code> trials when the probability of a success on one trial is <i>θ</i> ; 1 if <i>k</i> < 0; or 0 if <i>k</i> > <i>n</i>
<code>binormal(<i>h</i>,<i>k</i>,<i>ρ</i>)</code>	the joint cumulative distribution $\Phi(h, k, \rho)$ of bivariate normal with correlation <i>ρ</i>
<code>birthday(<i>e<sub>d</sub></i><sub>DOB</sub>,<i>Y</i>[,<i>s<sub>nl</sub></i>])</code>	the <i>e<sub>d</sub></i> date of the birthday in year <i>Y</i> for date of birth <i>e<sub>d</sub></i> <sub>DOB</sub> with <i>s<sub>nl</sub></i> the nonleap-year birthday for 29feb birthdates
<code>bofd("cal",<i>e<sub>d</sub></i>)</code>	the <i>e<sub>b</sub></i> business date corresponding to <i>e<sub>d</sub></i>
<code>byteorder()</code>	1 if your computer stores numbers by using a hilo byte order and evaluates to 2 if your computer stores numbers by using a lohi byte order
<code>c(<i>name</i>)</code>	the value of the system or constant result <i>c</i> ( <i>name</i> ) (see [P] <a href="#">creturn</a> )
<code>_caller()</code>	version of the program or session that invoked the currently running program; see [P] <a href="#">version</a>
<code>cauchy(<i>a</i>,<i>b</i>,<i>x</i>)</code>	the cumulative Cauchy distribution with location parameter <i>a</i> and scale parameter <i>b</i>

## 2 Functions by name

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<code>cauchyden(<i>a</i>,<i>b</i>,<i>x</i>)</code>	the probability density of the Cauchy distribution with location parameter <i>a</i> and scale parameter <i>b</i>
<code>cauchytail(<i>a</i>,<i>b</i>,<i>x</i>)</code>	the reverse cumulative (upper tail or survivor) Cauchy distribution with location parameter <i>a</i> and scale parameter <i>b</i>
<code>Cdhms(<i>e<sub>d</sub></i>,<i>h</i>,<i>m</i>,<i>s</i>)</code>	the <i>e<sub>tC</sub></i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>e<sub>d</sub></i> , <i>h</i> , <i>m</i> , <i>s</i>
<code>ceil(<i>x</i>)</code>	the unique integer <i>n</i> such that $n - 1 < x \leq n$ ; <i>x</i> (not ".") if <i>x</i> is missing, meaning that <code>ceil(.a) = .a</code>
<code>char(<i>n</i>)</code>	the character corresponding to ASCII or extended ASCII code <i>n</i> ; "" if <i>n</i> is not in the domain
<code>chi2(df,<i>x</i>)</code>	the cumulative $\chi^2$ distribution with <i>df</i> degrees of freedom; 0 if $x < 0$
<code>chi2den(df,<i>x</i>)</code>	the probability density of the $\chi^2$ distribution with <i>df</i> degrees of freedom; 0 if $x < 0$
<code>chi2tail(df,<i>x</i>)</code>	the reverse cumulative (upper tail or survivor) $\chi^2$ distribution with <i>df</i> degrees of freedom; 1 if $x < 0$
<code>Chms(<i>h</i>,<i>m</i>,<i>s</i>)</code>	the <i>e<sub>tC</sub></i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>h</i> , <i>m</i> , <i>s</i> on 01jan1960
<code>chop(<i>x</i>, <math>\epsilon</math>)</code>	<code>round(<i>x</i>)</code> if $\text{abs}(x - \text{round}(x)) < \epsilon$ ; otherwise, <i>x</i> ; or <i>x</i> if <i>x</i> is missing
<code>cholesky(<i>M</i>)</code>	the Cholesky decomposition of the matrix: if $R = \text{cholesky}(S)$ , then $RR^T = S$
<code>clip(<i>x</i>,<i>a</i>,<i>b</i>)</code>	<i>x</i> if $a < x < b$ , <i>b</i> if $x \geq b$ , <i>a</i> if $x \leq a$ , or <i>missing</i> if <i>x</i> is missing or if $a > b$ ; <i>x</i> if <i>x</i> is missing
<code>Clock(<i>s<sub>1</sub></i>,<i>s<sub>2</sub></i>[,<i>Y</i>])</code>	the <i>e<sub>tC</sub></i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>s<sub>1</sub></i> based on <i>s<sub>2</sub></i> and <i>Y</i>
<code>clock(<i>s<sub>1</sub></i>,<i>s<sub>2</sub></i>[,<i>Y</i>])</code>	the <i>e<sub>tC</sub></i> datetime (ms. since 01jan1960 00:00:00.000) corresponding to <i>s<sub>1</sub></i> based on <i>s<sub>2</sub></i> and <i>Y</i>
<code>Clockdiff(<i>e<sub>tC1</sub></i>, <i>e<sub>tC2</sub></i>,<i>s<sub>u</sub></i>)</code>	the <i>e<sub>tC</sub></i> datetime difference, rounded down to an integer, from <i>e<sub>tC1</sub></i> to <i>e<sub>tC2</sub></i> in <i>s<sub>u</sub></i> units of days, hours, minutes, seconds, or milliseconds
<code>clockdiff(<i>e<sub>tC1</sub></i>,<i>e<sub>tC2</sub></i>,<i>s<sub>u</sub></i>)</code>	the <i>e<sub>tC</sub></i> datetime difference, rounded down to an integer, from <i>e<sub>tC1</sub></i> to <i>e<sub>tC2</sub></i> in <i>s<sub>u</sub></i> units of days, hours, minutes, seconds, or milliseconds
<code>Clockdiff_frac(<i>e<sub>tC1</sub></i>,<i>e<sub>tC2</sub></i>,<i>s<sub>u</sub></i>)</code>	the <i>e<sub>tC</sub></i> datetime difference, including the fractional part, from <i>e<sub>tC1</sub></i> to <i>e<sub>tC2</sub></i> in <i>s<sub>u</sub></i> units of days, hours, minutes, seconds, or milliseconds
<code>clockdiff_frac(<i>e<sub>tC1</sub></i>,<i>e<sub>tC2</sub></i>,<i>s<sub>u</sub></i>)</code>	the <i>e<sub>tC</sub></i> datetime difference, including the fractional part, from <i>e<sub>tC1</sub></i> to <i>e<sub>tC2</sub></i> in <i>s<sub>u</sub></i> units of days, hours, minutes, seconds, or milliseconds
<code>Clockpart(<i>e<sub>tC</sub></i>,<i>s<sub>u</sub></i>)</code>	the integer year, month, day, hour, minute, second, or millisecond of <i>e<sub>tC</sub></i> with <i>s<sub>u</sub></i> specifying which time part
<code>clockpart(<i>e<sub>tC</sub></i>,<i>s<sub>u</sub></i>)</code>	the integer year, month, day, hour, minute, second, or millisecond of <i>e<sub>tC</sub></i> with <i>s<sub>u</sub></i> specifying which time part
<code>cloglog(<i>x</i>)</code>	the complementary log-log of <i>x</i>
<code>Cmdyhms(<i>M</i>,<i>D</i>,<i>Y</i>,<i>h</i>,<i>m</i>,<i>s</i>)</code>	the <i>e<sub>tC</sub></i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) corresponding to <i>M</i> , <i>D</i> , <i>Y</i> , <i>h</i> , <i>m</i> , <i>s</i>
<code>Cofc(<i>e<sub>tC</sub></i>)</code>	the <i>e<sub>tC</sub></i> datetime (ms. with leap seconds since 01jan1960 00:00:00.000) of <i>e<sub>tC</sub></i> (ms. without leap seconds since 01jan1960 00:00:00.000)

<code>cofC(<math>e_{tC}</math>)</code>	the $e_{tc}$ datetime (ms. without leap seconds since 01jan1960 00:00:00.000) of $e_{tC}$ (ms. with leap seconds since 01jan1960 00:00:00.000)
<code>Cofd(<math>e_d</math>)</code>	the $e_{tC}$ datetime (ms. with leap seconds since 01jan1960 00:00:00.000) of date $e_d$ at time 00:00:00.000
<code>cofd(<math>e_d</math>)</code>	the $e_{tc}$ datetime (ms. since 01jan1960 00:00:00.000) of date $e_d$ at time 00:00:00.000
<code>colegnumb(<math>M, s</math>)</code>	the equation number of $M$ associated with column equation $s$ ; <i>missing</i> if the column equation cannot be found
<code>collatorlocale(<math>loc, type</math>)</code>	the most closely related locale supported by ICU from $loc$ if $type$ is 1; the actual locale where the collation data comes from if $type$ is 2
<code>collatorversion(<math>loc</math>)</code>	the version string of a collator based on locale $loc$
<code>colnfreeparms(<math>M</math>)</code>	the number of free parameters in columns of $M$
<code>colnumb(<math>M, s</math>)</code>	the column number of $M$ associated with column name $s$ ; <i>missing</i> if the column cannot be found
<code>colsof(<math>M</math>)</code>	the number of columns of $M$
<code>comb(<math>n, k</math>)</code>	the combinatorial function $n!/\{k!(n-k)!\}$
<code>cond(<math>x, a, b[, c]</math>)</code>	$a$ if $x$ is <i>true</i> and nonmissing, $b$ if $x$ is <i>false</i> , and $c$ if $x$ is <i>missing</i> ; $a$ if $c$ is not specified and $x$ evaluates to <i>missing</i>
<code>corr(<math>M</math>)</code>	the correlation matrix of the variance matrix
<code>cos(<math>x</math>)</code>	the cosine of $x$ , where $x$ is in radians
<code>cosh(<math>x</math>)</code>	the hyperbolic cosine of $x$
<code>daily(<math>s_1, s_2[, Y]</math>)</code>	a synonym for <code>date(<math>s_1, s_2[, Y]</math>)</code>
<code>date(<math>s_1, s_2[, Y]</math>)</code>	the $e_d$ date (days since 01jan1960) corresponding to $s_1$ based on $s_2$ and $Y$
<code>datediff(<math>e_{d1}, e_{d2}, s_u[, s_{nl}]</math>)</code>	the difference, rounded down to an integer, from $e_{d1}$ to $e_{d2}$ in $s_u$ units of days, months, or years with $s_{nl}$ the nonleap-year anniversary for $e_{d1}$ on 29feb
<code>datediff_frac(<math>e_{d1}, e_{d2}, s_u[, s_{nl}]</math>)</code>	the difference, including the fractional part, from $e_{d1}$ to $e_{d2}$ in $s_u$ units of days, months, or years with $s_{nl}$ the nonleap-year anniversary for $e_{d1}$ on 29feb
<code>datepart(<math>e_d, s_u</math>)</code>	the integer year, month, or day of $e_d$ with $s_u$ specifying year, month, or day
<code>day(<math>e_d</math>)</code>	the numeric day of the month corresponding to $e_d$
<code>daysinmonth(<math>e_d</math>)</code>	the number of days in the month of $e_d$
<code>dayssinc dow(<math>e_d, d</math>)</code>	a synonym for <code>dayssinceweekday(<math>e_d, d</math>)</code>
<code>dayssinceweekday(<math>e_d, d</math>)</code>	the number of days until $e_d$ since previous day-of-week $d$
<code>daysuntildow(<math>e_d, d</math>)</code>	a synonym for <code>daysuntilweekday(<math>e_d, d</math>)</code>
<code>daysuntilweekday(<math>e_d, d</math>)</code>	the number of days from $e_d$ until next day-of-week $d$
<code>det(<math>M</math>)</code>	the determinant of matrix $M$
<code>dgammapda(<math>a, x</math>)</code>	$\frac{\partial P(a, x)}{\partial a}$ , where $P(a, x) = \text{gammap}(a, x)$ ; 0 if $x < 0$
<code>dgammapdada(<math>a, x</math>)</code>	$\frac{\partial^2 P(a, x)}{\partial a^2}$ , where $P(a, x) = \text{gammap}(a, x)$ ; 0 if $x < 0$

<code>dgammapdadx(a, x)</code>	$\frac{\partial^2 P(a, x)}{\partial a \partial x}$ , where $P(a, x) = \text{gammap}(a, x)$ ; 0 if $x < 0$
<code>dgammapdx(a, x)</code>	$\frac{\partial P(a, x)}{\partial x}$ , where $P(a, x) = \text{gammap}(a, x)$ ; 0 if $x < 0$
<code>dgammapdxdx(a, x)</code>	$\frac{\partial^2 P(a, x)}{\partial x^2}$ , where $P(a, x) = \text{gammap}(a, x)$ ; 0 if $x < 0$
<code>dhms(e<sub>d</sub>, h, m, s)</code>	the $e_{tc}$ datetime (ms. since 01jan1960 00:00:00.000) corresponding to $e_d$ , $h$ , $m$ , and $s$
<code>diag(M)</code>	the square, diagonal matrix created from the row or column vector
<code>diag0cnt(M)</code>	the number of zeros on the diagonal of $M$
<code>digamma(x)</code>	the <code>digamma()</code> function, $d \ln \Gamma(x) / dx$
<code>dmy(D, M, Y)</code>	the $e_d$ date (days since 01jan1960) corresponding to $D$ , $M$ , $Y$
<code>dofb(e<sub>b</sub>, "cal")</code>	the $e_d$ datetime corresponding to $e_b$
<code>dofC(e<sub>tC</sub>)</code>	the $e_d$ date (days since 01jan1960) of datetime $e_{tC}$ (ms. with leap seconds since 01jan1960 00:00:00.000)
<code>dofc(e<sub>tc</sub>)</code>	the $e_d$ date (days since 01jan1960) of datetime $e_{tc}$ (ms. since 01jan1960 00:00:00.000)
<code>dofh(e<sub>h</sub>)</code>	the $e_d$ date (days since 01jan1960) of the start of half-year $e_h$
<code>dofm(e<sub>m</sub>)</code>	the $e_d$ date (days since 01jan1960) of the start of month $e_m$
<code>dofq(e<sub>q</sub>)</code>	the $e_d$ date (days since 01jan1960) of the start of quarter $e_q$
<code>dofw(e<sub>w</sub>)</code>	the $e_d$ date (days since 01jan1960) of the start of week $e_w$
<code>dofy(e<sub>y</sub>)</code>	the $e_d$ date (days since 01jan1960) of 01jan in year $e_y$
<code>dow(e<sub>d</sub>)</code>	the numeric day of the week corresponding to date $e_d$ ; 0 = Sunday, 1 = Monday, . . . , 6 = Saturday
<code>doy(e<sub>d</sub>)</code>	the numeric day of the year corresponding to date $e_d$
<code>dunnettprob(k, df, x)</code>	the cumulative multiple range distribution that is used in Dunnett's multiple-comparison method with $k$ ranges and $df$ degrees of freedom; 0 if $x < 0$
<code>e(name)</code>	the value of stored result <code>e(name)</code> ; see [U] 18.8 Accessing results calculated by other programs
<code>el(s, i, j)</code>	$s[\text{floor}(i), \text{floor}(j)]$ , the $i, j$ element of the matrix named $s$ ; <i>missing</i> if $i$ or $j$ are out of range or if matrix $s$ does not exist
<code>e(sample)</code>	1 if the observation is in the estimation sample and 0 otherwise
<code>epsdouble()</code>	the machine precision of a double-precision number
<code>epsfloat()</code>	the machine precision of a floating-point number
<code>exp(x)</code>	the exponential function $e^x$
<code>expm1(x)</code>	$e^x - 1$ with higher precision than <code>exp(x) - 1</code> for small values of $ x $
<code>exponential(b, x)</code>	the cumulative exponential distribution with scale $b$
<code>exponentialden(b, x)</code>	the probability density function of the exponential distribution with scale $b$
<code>exponentialtail(b, x)</code>	the reverse cumulative exponential distribution with scale $b$
<code>F(df<sub>1</sub>, df<sub>2</sub>, f)</code>	the cumulative $F$ distribution with $df_1$ numerator and $df_2$ denominator degrees of freedom: $F(df_1, df_2, f) = \int_0^f Fden(df_1, df_2, t) dt$ ; 0 if $f < 0$
<code>Fden(df<sub>1</sub>, df<sub>2</sub>, f)</code>	the probability density function of the $F$ distribution with $df_1$ numerator and $df_2$ denominator degrees of freedom; 0 if $f < 0$

<code>fileexists(<i>f</i>)</code>	1 if the file specified by <i>f</i> exists; otherwise, 0
<code>fileread(<i>f</i>)</code>	the contents of the file specified by <i>f</i>
<code>filereaderror(<i>s</i>)</code>	0 or positive integer, said value having the interpretation of a return code
<code>filewrite(<i>f</i>,<i>s</i>[,<i>r</i>])</code>	writes the string specified by <i>s</i> to the file specified by <i>f</i> and returns the number of bytes in the resulting file
<code>firstdayofmonth(<i>e<sub>d</sub></i>)</code>	the <i>e<sub>d</sub></i> date of the first day of the month of <i>e<sub>d</sub></i>
<code>firstdowofmonth(<i>M</i>,<i>Y</i>,<i>d</i>)</code>	a synonym for <code>firstweekdayofmonth(<i>M</i>,<i>Y</i>,<i>d</i>)</code>
<code>firstweekdayofmonth(<i>M</i>,<i>Y</i>,<i>d</i>)</code>	the <i>e<sub>d</sub></i> date of the first day-of-week <i>d</i> in month <i>M</i> of year <i>Y</i>
<code>float(<i>x</i>)</code>	the value of <i>x</i> rounded to float precision
<code>floor(<i>x</i>)</code>	the unique integer <i>n</i> such that $n \leq x < n + 1$ ; <i>x</i> (not “.”) if <i>x</i> is missing, meaning that <code>floor(.a) = .a</code>
<code>fmtwidth(<i>fmtstr</i>)</code>	the output length of the % <i>fmt</i> contained in <i>fmtstr</i> ; missing if <i>fmtstr</i> does not contain a valid % <i>fmt</i>
<code>frval()</code>	returns values of variables stored in other frames
<code>_frval()</code>	programmer’s version of <code>frval()</code>
<code>Ftail(<i>df<sub>1</sub></i>,<i>df<sub>2</sub></i>,<i>f</i>)</code>	the reverse cumulative (upper tail or survivor) <i>F</i> distribution with <i>df<sub>1</sub></i> numerator and <i>df<sub>2</sub></i> denominator degrees of freedom; 1 if <i>f</i> < 0
<code>gammaden(<i>a</i>,<i>b</i>,<i>g</i>,<i>x</i>)</code>	the probability density function of the gamma distribution; 0 if $x < g$
<code>gammap(<i>a</i>,<i>x</i>)</code>	the cumulative gamma distribution with shape parameter <i>a</i> ; 0 if $x < 0$
<code>gammaptail(<i>a</i>,<i>x</i>)</code>	the reverse cumulative (upper tail or survivor) gamma distribution with shape parameter <i>a</i> ; 1 if $x < 0$
<code>get(<i>systemname</i>)</code>	a copy of Stata internal system matrix <i>systemname</i>
<code>hadamard(<i>M</i>,<i>N</i>)</code>	a matrix whose <i>i</i> , <i>j</i> element is $M[i, j] \cdot N[i, j]$ (if <i>M</i> and <i>N</i> are not the same size, this function reports a conformability error)
<code>halfyear(<i>e<sub>d</sub></i>)</code>	the numeric half of the year corresponding to date <i>e<sub>d</sub></i>
<code>halfyearly(<i>s<sub>1</sub></i>,<i>s<sub>2</sub></i>[,<i>Y</i>])</code>	the <i>e<sub>h</sub></i> half-yearly date (half-years since 1960h1) corresponding to <i>s<sub>1</sub></i> based on <i>s<sub>2</sub></i> and <i>Y</i> ; <i>Y</i> specifies <i>topyear</i> ; see <code>date()</code>
<code>has_eprop(<i>name</i>)</code>	1 if <i>name</i> appears as a word in <code>e(properties)</code> ; otherwise, 0
<code>hh(<i>e<sub>tc</sub></i>)</code>	the hour corresponding to datetime <i>e<sub>tc</sub></i> (ms. since 01jan1960 00:00:00.000)
<code>hhC(<i>e<sub>tc</sub></i>)</code>	the hour corresponding to datetime <i>e<sub>tc</sub></i> (ms. with leap seconds since 01jan1960 00:00:00.000)
<code>hms(<i>h</i>,<i>m</i>,<i>s</i>)</code>	the <i>e<sub>tc</sub></i> datetime (ms. since 01jan1960 00:00:00.000) corresponding to <i>h</i> , <i>m</i> , <i>s</i> on 01jan1960
<code>hofd(<i>e<sub>d</sub></i>)</code>	the <i>e<sub>h</sub></i> half-yearly date (half years since 1960h1) containing date <i>e<sub>d</sub></i>
<code>hours(<i>ms</i>)</code>	$ms/3,600,000$
<code>hypergeometric(<i>N</i>,<i>K</i>,<i>n</i>,<i>k</i>)</code>	the cumulative probability of the hypergeometric distribution
<code>hypergeometricp(<i>N</i>,<i>K</i>,<i>n</i>,<i>k</i>)</code>	the hypergeometric probability of <i>k</i> successes out of a sample of size <i>n</i> , from a population of size <i>N</i> containing <i>K</i> elements that have the attribute of interest
<code>I(<i>n</i>)</code>	an $n \times n$ identity matrix if <i>n</i> is an integer; otherwise, a $\text{round}(n) \times \text{round}(n)$ identity matrix

## 6 Functions by name

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<code>ibeta(<i>a,b,x</i>)</code>	the cumulative beta distribution with shape parameters <i>a</i> and <i>b</i> ; 0 if $x < 0$ ; or 1 if $x > 1$
<code>ibetatail(<i>a,b,x</i>)</code>	the reverse cumulative (upper tail or survivor) beta distribution with shape parameters <i>a</i> and <i>b</i> ; 1 if $x < 0$ ; or 0 if $x > 1$
<code>igaussian(<i>m,a,x</i>)</code>	the cumulative inverse Gaussian distribution with mean <i>m</i> and shape parameter <i>a</i> ; 0 if $x \leq 0$
<code>igaussianden(<i>m,a,x</i>)</code>	the probability density of the inverse Gaussian distribution with mean <i>m</i> and shape parameter <i>a</i> ; 0 if $x \leq 0$
<code>igaussiantail(<i>m,a,x</i>)</code>	the reverse cumulative (upper tail or survivor) inverse Gaussian distribution with mean <i>m</i> and shape parameter <i>a</i> ; 1 if $x \leq 0$
<code>indexnot(<i>s<sub>1</sub>,s<sub>2</sub></i>)</code>	the position in ASCII string <i>s<sub>1</sub></i> of the first character of <i>s<sub>1</sub></i> not found in ASCII string <i>s<sub>2</sub></i> , or 0 if all characters of <i>s<sub>1</sub></i> are found in <i>s<sub>2</sub></i>
<code>inlist(<i>z,a,b,...</i>)</code>	1 if <i>z</i> is a member of the remaining arguments; otherwise, 0
<code>inrange(<i>z,a,b</i>)</code>	1 if it is known that $a \leq z \leq b$ ; otherwise, 0
<code>int(<i>x</i>)</code>	the integer obtained by truncating <i>x</i> toward 0 (thus, <code>int(5.2) = 5</code> and <code>int(-5.8) = -5</code> ); <i>x</i> (not “.”) if <i>x</i> is missing, meaning that <code>int(.a) = .a</code>
<code>inv(<i>M</i>)</code>	the inverse of the matrix <i>M</i>
<code>invbinomial(<i>n,k,p</i>)</code>	the inverse of the cumulative binomial; that is, $\theta$ ( $\theta$ = probability of success on one trial) such that the probability of observing <code>floor(k)</code> or fewer successes in <code>floor(n)</code> trials is <i>p</i>
<code>invbinomialtail(<i>n,k,p</i>)</code>	the inverse of the right cumulative binomial; that is, $\theta$ ( $\theta$ = probability of success on one trial) such that the probability of observing <code>floor(k)</code> or more successes in <code>floor(n)</code> trials is <i>p</i>
<code>invcauchy(<i>a,b,p</i>)</code>	the inverse of <code>cauchy()</code> : if <code>cauchy(<i>a,b,x</i>) = p</code> , then <code>invcauchy(<i>a,b,p</i>) = x</code>
<code>invcauchytail(<i>a,b,p</i>)</code>	the inverse of <code>cauchytail()</code> : if <code>cauchytail(<i>a,b,x</i>) = p</code> , then <code>invcauchytail(<i>a,b,p</i>) = x</code>
<code>invchi2(<i>df,p</i>)</code>	the inverse of <code>chi2()</code> : if <code>chi2(<i>df,x</i>) = p</code> , then <code>invchi2(<i>df,p</i>) = x</code>
<code>invchi2tail(<i>df,p</i>)</code>	the inverse of <code>chi2tail()</code> : if <code>chi2tail(<i>df,x</i>) = p</code> , then <code>invchi2tail(<i>df,p</i>) = x</code>
<code>invcloglog(<i>x</i>)</code>	the inverse of the complementary log-log function of <i>x</i>
<code>invdunnettprob(<i>k,df,p</i>)</code>	the inverse cumulative multiple range distribution that is used in Dunnett’s multiple-comparison method with <i>k</i> ranges and <i>df</i> degrees of freedom
<code>invexponential(<i>b,p</i>)</code>	the inverse cumulative exponential distribution with scale <i>b</i> : if <code>exponential(<i>b,x</i>) = p</code> , then <code>invexponential(<i>b,p</i>) = x</code>
<code>invexponentialtail(<i>b,p</i>)</code>	the inverse reverse cumulative exponential distribution with scale <i>b</i> : if <code>exponentialtail(<i>b,x</i>) = p</code> , then <code>invexponentialtail(<i>b,p</i>) = x</code>
<code>invF(<i>df<sub>1</sub>,df<sub>2</sub>,p</i>)</code>	the inverse cumulative <i>F</i> distribution: if <code>F(<i>df<sub>1</sub>,df<sub>2</sub>,f</i>) = p</code> , then <code>invF(<i>df<sub>1</sub>,df<sub>2</sub>,p</i>) = f</code>
<code>invFtail(<i>df<sub>1</sub>,df<sub>2</sub>,p</i>)</code>	the inverse reverse cumulative (upper tail or survivor) <i>F</i> distribution: if <code>Ftail(<i>df<sub>1</sub>,df<sub>2</sub>,f</i>) = p</code> , then <code>invFtail(<i>df<sub>1</sub>,df<sub>2</sub>,p</i>) = f</code>
<code>invgammap(<i>a,p</i>)</code>	the inverse cumulative gamma distribution: if <code>gammap(<i>a,x</i>) = p</code> , then <code>invgammap(<i>a,p</i>) = x</code>

<code>invgammaptail(a,p)</code>	the inverse reverse cumulative (upper tail or survivor) gamma distribution: if <code>gammaptail(a,x) = p</code> , then <code>invgammaptail(a,p) = x</code>
<code>invibeta(a,b,p)</code>	the inverse cumulative beta distribution: if <code>ibeta(a,b,x) = p</code> , then <code>invibeta(a,b,p) = x</code>
<code>invibetatail(a,b,p)</code>	the inverse reverse cumulative (upper tail or survivor) beta distribution: if <code>ibetatail(a,b,x) = p</code> , then <code>invibetatail(a,b,p) = x</code>
<code>invigaussian(m,a,p)</code>	the inverse of <code>igaussian()</code> : if <code>igaussian(m,a,x) = p</code> , then <code>invigaussian(m,a,p) = x</code>
<code>invigaussiantail(m,a,p)</code>	the inverse of <code>igaussiantail()</code> : if <code>igaussiantail(m,a,x) = p</code> , then <code>invigaussiantail(m,a,p) = x</code>
<code>invlaplace(m,b,p)</code>	the inverse of <code>laplace()</code> : if <code>laplace(m,b,x) = p</code> , then <code>invlaplace(m,b,p) = x</code>
<code>invlaplacetail(m,b,p)</code>	the inverse of <code>laplacetail()</code> : if <code>laplacetail(m,b,x) = p</code> , then <code>invlaplacetail(m,b,p) = x</code>
<code>invlogistic(p)</code>	the inverse cumulative logistic distribution: if <code>logistic(x) = p</code> , then <code>invlogistic(p) = x</code>
<code>invlogistic(s,p)</code>	the inverse cumulative logistic distribution: if <code>logistic(s,x) = p</code> , then <code>invlogistic(s,p) = x</code>
<code>invlogistic(m,s,p)</code>	the inverse cumulative logistic distribution: if <code>logistic(m,s,x) = p</code> , then <code>invlogistic(m,s,p) = x</code>
<code>invlogistictail(p)</code>	the inverse reverse cumulative logistic distribution: if <code>logistictail(x) = p</code> , then <code>invlogistictail(p) = x</code>
<code>invlogistictail(s,p)</code>	the inverse cumulative logistic distribution: if <code>logistic(s,x) = p</code> , then <code>invlogistic(s,p) = x</code>
<code>invlogistictail(m,s,p)</code>	the inverse cumulative logistic distribution: if <code>logistic(m,s,x) = p</code> , then <code>invlogistic(m,s,p) = x</code>
<code>invlogit(x)</code>	the inverse of the logit function of $x$
<code>invnbinomial(n,k,q)</code>	the value of the negative binomial parameter, $p$ , such that $q = \text{nbinomial}(n,k,p)$
<code>invnbinomialtail(n,k,q)</code>	the value of the negative binomial parameter, $p$ , such that $q = \text{nbinomialtail}(n,k,p)$
<code>invnchi2(df,np,p)</code>	the inverse cumulative noncentral $\chi^2$ distribution: if <code>nchi2(df,np,x) = p</code> , then <code>invnchi2(df,np,p) = x</code>
<code>invnchi2tail(df,np,p)</code>	the inverse reverse cumulative (upper tail or survivor) noncentral $\chi^2$ distribution: if <code>nchi2tail(df,np,x) = p</code> , then <code>invnchi2tail(df,np,p) = x</code>
<code>invnF(df1,df2,np,p)</code>	the inverse cumulative noncentral $F$ distribution: if <code>nF(df1,df2,np,f) = p</code> , then <code>invnF(df1,df2,np,p) = f</code>
<code>invnFtail(df1,df2,np,p)</code>	the inverse reverse cumulative (upper tail or survivor) noncentral $F$ distribution: if <code>nFtail(df1,df2,np,f) = p</code> , then <code>invnFtail(df1,df2,np,p) = f</code>
<code>invnibeta(a,b,np,p)</code>	the inverse cumulative noncentral beta distribution: if <code>nibeta(a,b,np,x) = p</code> , then <code>invnibeta(a,b,np,p) = x</code>
<code>invnormal(p)</code>	the inverse cumulative standard normal distribution: if <code>normal(z) = p</code> , then <code>invnormal(p) = z</code>

<code>invnt(df, np, p)</code>	the inverse cumulative noncentral Student's $t$ distribution: if $\text{nt}(df, np, t) = p$ , then $\text{invnt}(df, np, p) = t$
<code>invnttail(df, np, p)</code>	the inverse reverse cumulative (upper tail or survivor) noncentral Student's $t$ distribution: if $\text{nttail}(df, np, t) = p$ , then $\text{invnttail}(df, np, p) = t$
<code>invpoisson(k, p)</code>	the Poisson mean such that the cumulative Poisson distribution evaluated at $k$ is $p$ : if $\text{poisson}(m, k) = p$ , then $\text{invpoisson}(k, p) = m$
<code>invpoisontail(k, q)</code>	the Poisson mean such that the reverse cumulative Poisson distribution evaluated at $k$ is $q$ : if $\text{poisontail}(m, k) = q$ , then $\text{invpoisontail}(k, q) = m$
<code>invsym(M)</code>	the inverse of $M$ if $M$ is positive definite
<code>invt(df, p)</code>	the inverse cumulative Student's $t$ distribution: if $\text{t}(df, t) = p$ , then $\text{invt}(df, p) = t$
<code>invttail(df, p)</code>	the inverse reverse cumulative (upper tail or survivor) Student's $t$ distribution: if $\text{ttail}(df, t) = p$ , then $\text{invttail}(df, p) = t$
<code>invtukeyprob(k, df, p)</code>	the inverse cumulative Tukey's Studentized range distribution with $k$ ranges and $df$ degrees of freedom
<code>invvech(M)</code>	a symmetric matrix formed by filling in the columns of the lower triangle from a row or column vector
<code>invvecp(M)</code>	a symmetric matrix formed by filling in the columns of the upper triangle from a row or column vector
<code>invweibull(a, b, p)</code>	the inverse cumulative Weibull distribution with shape $a$ and scale $b$ : if $\text{weibull}(a, b, x) = p$ , then $\text{invweibull}(a, b, p) = x$
<code>invweibull(a, b, g, p)</code>	the inverse cumulative Weibull distribution with shape $a$ , scale $b$ , and location $g$ : if $\text{weibull}(a, b, g, x) = p$ , then $\text{invweibull}(a, b, g, p) = x$
<code>invweibullph(a, b, p)</code>	the inverse cumulative Weibull (proportional hazards) distribution with shape $a$ and scale $b$ : if $\text{weibullph}(a, b, x) = p$ , then $\text{invweibullph}(a, b, p) = x$
<code>invweibullph(a, b, g, p)</code>	the inverse cumulative Weibull (proportional hazards) distribution with shape $a$ , scale $b$ , and location $g$ : if $\text{weibullph}(a, b, g, x) = p$ , then $\text{invweibullph}(a, b, g, p) = x$
<code>invweibullphtail(a, b, p)</code>	the inverse reverse cumulative Weibull (proportional hazards) distribution with shape $a$ and scale $b$ : if $\text{weibullphtail}(a, b, x) = p$ , then $\text{invweibullphtail}(a, b, p) = x$
<code>invweibullphtail(a, b, g, p)</code>	the inverse reverse cumulative Weibull (proportional hazards) distribution with shape $a$ , scale $b$ , and location $g$ : if $\text{weibullphtail}(a, b, g, x) = p$ , then $\text{invweibullphtail}(a, b, g, p) = x$
<code>invweibulltail(a, b, p)</code>	the inverse reverse cumulative Weibull distribution with shape $a$ and scale $b$ : if $\text{weibulltail}(a, b, x) = p$ , then $\text{invweibulltail}(a, b, p) = x$
<code>invweibulltail(a, b, g, p)</code>	the inverse reverse cumulative Weibull distribution with shape $a$ , scale $b$ , and location $g$ : if $\text{weibulltail}(a, b, g, x) = p$ , then $\text{invweibulltail}(a, b, g, p) = x$
<code>irecode(x, x<sub>1</sub>, ..., x<sub>n</sub>)</code>	<i>missing</i> if $x$ is missing or $x_1, \dots, x_n$ is not weakly increasing; 0 if $x \leq x_1$ ; 1 if $x_1 < x \leq x_2$ ; 2 if $x_2 < x \leq x_3$ ; ...; $n$ if $x > x_n$



<code>isleapsecond(<math>e_{tC}</math>)</code>	1 if $e_{tC}$ is a leap second; otherwise, 0
<code>isleapyear(<math>Y</math>)</code>	1 if $Y$ is a leap year; otherwise, 0
<code>issymmetric(<math>M</math>)</code>	1 if the matrix is symmetric; otherwise, 0
<code>J(<math>r, c, z</math>)</code>	the $r \times c$ matrix containing elements $z$
<code>laplace(<math>m, b, x</math>)</code>	the cumulative Laplace distribution with mean $m$ and scale parameter $b$
<code>laplaceden(<math>m, b, x</math>)</code>	the probability density of the Laplace distribution with mean $m$ and scale parameter $b$
<code>laplacetail(<math>m, b, x</math>)</code>	the reverse cumulative (upper tail or survivor) Laplace distribution with mean $m$ and scale parameter $b$
<code>lastdayofmonth(<math>e_d</math>)</code>	the $e_d$ date of the last day of the month of $e_d$
<code>lastdowofmonth(<math>M, Y, d</math>)</code>	a synonym for <code>lastweekdayofmonth(<math>M, Y, d</math>)</code>
<code>lastweekdayofmonth(<math>M, Y, d</math>)</code>	the $e_d$ date of the last day-of-week $d$ in month $M$ of year $Y$
<code>ln(<math>x</math>)</code>	the natural logarithm, $\ln(x)$
<code>ln1m(<math>x</math>)</code>	the natural logarithm of $1 - x$ with higher precision than $\ln(1 - x)$ for small values of $ x $
<code>ln1p(<math>x</math>)</code>	the natural logarithm of $1 + x$ with higher precision than $\ln(1 + x)$ for small values of $ x $
<code>lncauchyden(<math>a, b, x</math>)</code>	the natural logarithm of the density of the Cauchy distribution with location parameter $a$ and scale parameter $b$
<code>lnfactorial(<math>n</math>)</code>	the natural log of $n$ factorial = $\ln(n!)$
<code>lngamma(<math>x</math>)</code>	$\ln\{\Gamma(x)\}$
<code>lnigammaden(<math>a, b, x</math>)</code>	the natural logarithm of the inverse gamma density, where $a$ is the shape parameter and $b$ is the scale parameter
<code>lnigaussianden(<math>m, a, x</math>)</code>	the natural logarithm of the inverse Gaussian density with mean $m$ and shape parameter $a$
<code>lniwishartden(<math>df, V, X</math>)</code>	the natural logarithm of the density of the inverse Wishart distribution; missing if $df \leq n - 1$
<code>lnlaplaceden(<math>m, b, x</math>)</code>	the natural logarithm of the density of the Laplace distribution with mean $m$ and scale parameter $b$
<code>lnmvnormalden(<math>M, V, X</math>)</code>	the natural logarithm of the multivariate normal density
<code>lnnormal(<math>z</math>)</code>	the natural logarithm of the cumulative standard normal distribution
<code>lnnormalden(<math>z</math>)</code>	the natural logarithm of the standard normal density, $N(0, 1)$
<code>lnnormalden(<math>x, \sigma</math>)</code>	the natural logarithm of the normal density with mean 0 and standard deviation $\sigma$
<code>lnnormalden(<math>x, \mu, \sigma</math>)</code>	the natural logarithm of the normal density with mean $\mu$ and standard deviation $\sigma$ , $N(\mu, \sigma^2)$
<code>lnwishartden(<math>df, V, X</math>)</code>	the natural logarithm of the density of the Wishart distribution; missing if $df \leq n - 1$
<code>log(<math>x</math>)</code>	a synonym for <code>ln(<math>x</math>)</code>
<code>log10(<math>x</math>)</code>	the base-10 logarithm of $x$
<code>log1m(<math>x</math>)</code>	a synonym for <code>ln1m(<math>x</math>)</code>
<code>log1p(<math>x</math>)</code>	a synonym for <code>ln1p(<math>x</math>)</code>

<code>logistic(<math>x</math>)</code>	the cumulative logistic distribution with mean 0 and standard deviation $\pi/\sqrt{3}$
<code>logistic(<math>s, x</math>)</code>	the cumulative logistic distribution with mean 0, scale $s$ , and standard deviation $s\pi/\sqrt{3}$
<code>logistic(<math>m, s, x</math>)</code>	the cumulative logistic distribution with mean $m$ , scale $s$ , and standard deviation $s\pi/\sqrt{3}$
<code>logisticden(<math>x</math>)</code>	the density of the logistic distribution with mean 0 and standard deviation $\pi/\sqrt{3}$
<code>logisticden(<math>s, x</math>)</code>	the density of the logistic distribution with mean 0, scale $s$ , and standard deviation $s\pi/\sqrt{3}$
<code>logisticden(<math>m, s, x</math>)</code>	the density of the logistic distribution with mean $m$ , scale $s$ , and standard deviation $s\pi/\sqrt{3}$
<code>logistictail(<math>x</math>)</code>	the reverse cumulative logistic distribution with mean 0 and standard deviation $\pi/\sqrt{3}$
<code>logistictail(<math>s, x</math>)</code>	the reverse cumulative logistic distribution with mean 0, scale $s$ , and standard deviation $s\pi/\sqrt{3}$
<code>logistictail(<math>m, s, x</math>)</code>	the reverse cumulative logistic distribution with mean $m$ , scale $s$ , and standard deviation $s\pi/\sqrt{3}$
<code>logit(<math>x</math>)</code>	the log of the odds ratio of $x$ , $\text{logit}(x) = \ln\{x/(1-x)\}$
<code>matmissing(<math>M</math>)</code>	1 if any elements of the matrix are missing; otherwise, 0
<code>matrix(<math>exp</math>)</code>	restricts name interpretation to scalars and matrices; see <code>scalar()</code>
<code>matuniform(<math>r, c</math>)</code>	the $r \times c$ matrices containing uniformly distributed pseudorandom numbers on the interval (0, 1)
<code>max(<math>x_1, x_2, \dots, x_n</math>)</code>	the maximum value of $x_1, x_2, \dots, x_n$
<code>maxbyte()</code>	the largest value that can be stored in storage type byte
<code>maxdouble()</code>	the largest value that can be stored in storage type double
<code>maxfloat()</code>	the largest value that can be stored in storage type float
<code>maxint()</code>	the largest value that can be stored in storage type int
<code>maxlong()</code>	the largest value that can be stored in storage type long
<code>mdy(<math>M, D, Y</math>)</code>	the $e_d$ date (days since 01jan1960) corresponding to $M, D, Y$
<code>mdyhms(<math>M, D, Y, h, m, s</math>)</code>	the $e_{tc}$ datetime (ms. since 01jan1960 00:00:00.000) corresponding to $M, D, Y, h, m, s$
<code>mi(<math>x_1, x_2, \dots, x_n</math>)</code>	a synonym for <code>missing(<math>x_1, x_2, \dots, x_n</math>)</code>
<code>min(<math>x_1, x_2, \dots, x_n</math>)</code>	the minimum value of $x_1, x_2, \dots, x_n$
<code>minbyte()</code>	the smallest value that can be stored in storage type byte
<code>mindouble()</code>	the smallest value that can be stored in storage type double
<code>minfloat()</code>	the smallest value that can be stored in storage type float
<code>minint()</code>	the smallest value that can be stored in storage type int
<code>minlong()</code>	the smallest value that can be stored in storage type long
<code>minutes(<math>ms</math>)</code>	$ms/60,000$
<code>missing(<math>x_1, x_2, \dots, x_n</math>)</code>	1 if any $x_i$ evaluates to <i>missing</i> ; otherwise, 0
<code>mm(<math>e_{tc}</math>)</code>	the minute corresponding to datetime $e_{tc}$ (ms. since 01jan1960 00:00:00.000)

<code>mmC(<math>e_{tC}</math>)</code>	the minute corresponding to datetime $e_{tC}$ (ms. with leap seconds since 01jan1960 00:00:00.000)
<code>mod(<math>x, y</math>)</code>	the modulus of $x$ with respect to $y$
<code>mofd(<math>e_d</math>)</code>	the $e_m$ monthly date (months since 1960m1) containing date $e_d$
<code>month(<math>e_d</math>)</code>	the numeric month corresponding to date $e_d$
<code>monthly(<math>s_1, s_2</math> [, <math>Y</math>])</code>	the $e_m$ monthly date (months since 1960m1) corresponding to $s_1$ based on $s_2$ and $Y$ ; $Y$ specifies <i>topyear</i> ; see <code>date()</code>
<code>mreldif(<math>X, Y</math>)</code>	the relative difference of $X$ and $Y$ , where the relative difference is defined as $\max_{i,j} \{ x_{ij} - y_{ij}  / ( y_{ij}  + 1)\}$
<code>msofhours(<math>h</math>)</code>	$h \times 3,600,000$
<code>msofminutes(<math>m</math>)</code>	$m \times 60,000$
<code>msofseconds(<math>s</math>)</code>	$s \times 1,000$
<code>nbetaden(<math>a, b, np, x</math>)</code>	the probability density function of the noncentral beta distribution; 0 if $x < 0$ or $x > 1$
<code>nbinomial(<math>n, k, p</math>)</code>	the cumulative probability of the negative binomial distribution
<code>nbinomialp(<math>n, k, p</math>)</code>	the negative binomial probability
<code>nbinomialtail(<math>n, k, p</math>)</code>	the reverse cumulative probability of the negative binomial distribution
<code>nchi2(<math>df, np, x</math>)</code>	the cumulative noncentral $\chi^2$ distribution; 0 if $x < 0$
<code>nchi2den(<math>df, np, x</math>)</code>	the probability density of the noncentral $\chi^2$ distribution; 0 if $x < 0$
<code>nchi2tail(<math>df, np, x</math>)</code>	the reverse cumulative (upper tail or survivor) noncentral $\chi^2$ distribution; 1 if $x < 0$
<code>nextbirthday(<math>e_{d\text{DOB}}, e_d</math> [, <math>s_{nl}</math>])</code>	the $e_d$ date of the first birthday after $e_d$ for date of birth $e_{d\text{DOB}}$ with $s_{nl}$ the nonleap-year birthday for 29feb birthdates
<code>nextdow(<math>e_d, d</math>)</code>	a synonym for <code>nextweekday(<math>e_d, d</math>)</code>
<code>nextleapyear(<math>Y</math>)</code>	the first leap year after year $Y$
<code>nextweekday(<math>e_d, d</math>)</code>	the $e_d$ date of the first day-of-week $d$ after $e_d$
<code>nF(<math>df_1, df_2, np, f</math>)</code>	the cumulative noncentral $F$ distribution with $df_1$ numerator and $df_2$ denominator degrees of freedom and noncentrality parameter $np$ ; 0 if $f < 0$
<code>nFden(<math>df_1, df_2, np, f</math>)</code>	the probability density function of the noncentral $F$ distribution with $df_1$ numerator and $df_2$ denominator degrees of freedom and noncentrality parameter $np$ ; 0 if $f < 0$
<code>nFtail(<math>df_1, df_2, np, f</math>)</code>	the reverse cumulative (upper tail or survivor) noncentral $F$ distribution with $df_1$ numerator and $df_2$ denominator degrees of freedom and noncentrality parameter $np$ ; 1 if $f < 0$
<code>nibeta(<math>a, b, np, x</math>)</code>	the cumulative noncentral beta distribution; 0 if $x < 0$ ; or 1 if $x > 1$
<code>normal(<math>z</math>)</code>	the cumulative standard normal distribution
<code>normalden(<math>z</math>)</code>	the standard normal density, $N(0, 1)$
<code>normalden(<math>x, \sigma</math>)</code>	the normal density with mean 0 and standard deviation $\sigma$
<code>normalden(<math>x, \mu, \sigma</math>)</code>	the normal density with mean $\mu$ and standard deviation $\sigma$ , $N(\mu, \sigma^2)$
<code>now()</code>	the current $e_{tC}$ datetime

<code>npnchi2(df, x, p)</code>	the noncentrality parameter, $np$ , for noncentral $\chi^2$ : if $\text{nchi2}(df, np, x) = p$ , then $\text{npnchi2}(df, x, p) = np$
<code>npnF(df1, df2, f, p)</code>	the noncentrality parameter, $np$ , for the noncentral $F$ : if $\text{nF}(df_1, df_2, np, f) = p$ , then $\text{npnF}(df_1, df_2, f, p) = np$
<code>npnt(df, t, p)</code>	the noncentrality parameter, $np$ , for the noncentral Student's $t$ distribution: if $\text{nt}(df, np, t) = p$ , then $\text{npnt}(df, t, p) = np$
<code>nt(df, np, t)</code>	the cumulative noncentral Student's $t$ distribution with $df$ degrees of freedom and noncentrality parameter $np$
<code>ntden(df, np, t)</code>	the probability density function of the noncentral Student's $t$ distribution with $df$ degrees of freedom and noncentrality parameter $np$
<code>nttail(df, np, t)</code>	the reverse cumulative (upper tail or survivor) noncentral Student's $t$ distribution with $df$ degrees of freedom and noncentrality parameter $np$
<code>nullmat(matname)</code>	use with the row-join ( <code>,</code> ) and column-join ( <code>\</code> ) operators
<code>plural(n, s)</code>	the plural of $s$ if $n \neq \pm 1$
<code>plural(n, s1, s2)</code>	the plural of $s_1$ , as modified by or replaced with $s_2$ , if $n \neq \pm 1$
<code>poisson(m, k)</code>	the probability of observing <code>floor(k)</code> or fewer outcomes that are distributed as Poisson with mean $m$
<code>poissonp(m, k)</code>	the probability of observing <code>floor(k)</code> outcomes that are distributed as Poisson with mean $m$
<code>poisontail(m, k)</code>	the probability of observing <code>floor(k)</code> or more outcomes that are distributed as Poisson with mean $m$
<code>previousbirthday(ed<sub>DOB</sub>, ed[<i>s<sub>nl</sub></i>])</code>	the $e_d$ date of the birthday immediately before $e_d$ for date of birth $e_{d\text{DOB}}$ with $s_{nl}$ the nonleap-year birthday for 29feb birthdates
<code>previousdow(ed, d)</code>	a synonym for <code>previousweekday(ed, d)</code>
<code>previousleapyear(Y)</code>	the leap year immediately before year $Y$
<code>previousweekday(ed, d)</code>	the $e_d$ date of the last day-of-week $d$ before $e_d$
<code>qofd(ed)</code>	the $e_q$ quarterly date (quarters since 1960q1) containing date $e_d$
<code>quarter(ed)</code>	the numeric quarter of the year corresponding to date $e_d$
<code>quarterly(s1, s2[<i>Y</i>])</code>	the $e_q$ quarterly date (quarters since 1960q1) corresponding to $s_1$ based on $s_2$ and $Y$ ; $Y$ specifies <i>topyear</i> , see <code>date()</code>
<code>r(name)</code>	the value of the stored result <code>r(name)</code> ; see [U] 18.8 Accessing results calculated by other programs
<code>rbeta(a, b)</code>	beta( $a, b$ ) random variates, where $a$ and $b$ are the beta distribution shape parameters
<code>rbinomial(n, p)</code>	binomial( $n, p$ ) random variates, where $n$ is the number of trials and $p$ is the success probability
<code>rcauchy(a, b)</code>	Cauchy( $a, b$ ) random variates, where $a$ is the location parameter and $b$ is the scale parameter
<code>rchi2(df)</code>	$\chi^2$ , with $df$ degrees of freedom, random variates
<code>recode(x, x1, ..., xn)</code>	<i>missing</i> if $x_1, x_2, \dots, x_n$ is not weakly increasing; $x$ if $x$ is missing; $x_1$ if $x \leq x_1$ ; $x_2$ if $x \leq x_2, \dots$ ; otherwise, $x_n$ if $x > x_1, x_2, \dots, x_{n-1}$ . $x_i \geq \cdot$ is interpreted as $x_i = +\infty$
<code>real(s)</code>	$s$ converted to numeric or <i>missing</i>

<code>regcapture(<i>n</i>)</code>	subexpression <i>n</i> from a previous <code>regexpr()</code> or <code>regmatch()</code> match
<code>regcapturenamed(<i>grp</i>)</code>	subexpression corresponding to matching group named <i>grp</i> in regular expression from a previous <code>regexpr()</code> or <code>regmatch()</code> match
<code>regexpr(<i>s, re</i>)</code>	a match of a regular expression, which evaluates to 1 if regular expression <i>re</i> is satisfied by the ASCII string <i>s</i> ; otherwise, 0
<code>regmatch(<i>s, re</i> [, <i>noc</i> [, <i>std</i> [, <i>nlalt</i> ] ] ]])</code>	a match of a regular expression, which evaluates to 1 if regular expression <i>re</i> is satisfied by the ASCII string <i>s</i> ; otherwise, 0
<code>regexpr(<i>s<sub>1</sub>, re, s<sub>2</sub></i>)</code>	replaces the first substring within ASCII string <i>s<sub>1</sub></i> that matches <i>re</i> with ASCII string <i>s<sub>2</sub></i> and returns the resulting string
<code>regreplace(<i>s<sub>1</sub>, re, s<sub>2</sub></i> [, <i>noc</i> [, <i>fmt</i> [, <i>std</i> [, <i>nlalt</i> ] ] ]])</code>	replaces the first substring within ASCII string <i>s<sub>1</sub></i> that matches <i>re</i> with ASCII string <i>s<sub>2</sub></i> and returns the resulting string
<code>regreplaceall(<i>s<sub>1</sub>, re, s<sub>2</sub></i> [, <i>noc</i> [, <i>fmt</i> [, <i>std</i> [, <i>nlalt</i> ] ] ]])</code>	replaces all substrings within ASCII string <i>s<sub>1</sub></i> that match <i>re</i> with ASCII string <i>s<sub>2</sub></i> and returns the resulting string
<code>regexprs(<i>n</i>)</code>	subexpression <i>n</i> from a previous <code>regexpr()</code> or <code>regmatch()</code> match, where $0 \leq n < 10$
<code>reldif(<i>x, y</i>)</code>	the “relative” difference $ x - y /( y  + 1)$ ; 0 if both arguments are the same type of extended missing value; <i>missing</i> if only one argument is missing or if the two arguments are two different types of <i>missing</i>
<code>replay()</code>	1 if the first nonblank character of local macro ‘0’ is a comma, or if ‘0’ is empty
<code>return(<i>name</i>)</code>	the value of the to-be-stored result <code>r(<i>name</i>)</code> ; see [P] <b>return</b>
<code>rexponential(<i>b</i>)</code>	exponential random variates with scale <i>b</i>
<code>rgamma(<i>a, b</i>)</code>	gamma( <i>a, b</i> ) random variates, where <i>a</i> is the gamma shape parameter and <i>b</i> is the scale parameter
<code>rhypergeometric(<i>N, K, n</i>)</code>	hypergeometric random variates
<code>rigaussian(<i>m, a</i>)</code>	inverse Gaussian random variates with mean <i>m</i> and shape parameter <i>a</i>
<code>rlaplace(<i>m, b</i>)</code>	Laplace( <i>m, b</i> ) random variates with mean <i>m</i> and scale parameter <i>b</i>
<code>rlogistic()</code>	logistic variates with mean 0 and standard deviation $\pi/\sqrt{3}$
<code>rlogistic(<i>s</i>)</code>	logistic variates with mean 0, scale <i>s</i> , and standard deviation $s\pi/\sqrt{3}$
<code>rlogistic(<i>m, s</i>)</code>	logistic variates with mean <i>m</i> , scale <i>s</i> , and standard deviation $s\pi/\sqrt{3}$
<code>rnbinomial(<i>n, p</i>)</code>	negative binomial random variates
<code>rnormal()</code>	standard normal (Gaussian) random variates, that is, variates from a normal distribution with a mean of 0 and a standard deviation of 1
<code>rnormal(<i>m</i>)</code>	normal( <i>m, 1</i> ) (Gaussian) random variates, where <i>m</i> is the mean and the standard deviation is 1
<code>rnormal(<i>m, s</i>)</code>	normal( <i>m, s</i> ) (Gaussian) random variates, where <i>m</i> is the mean and <i>s</i> is the standard deviation

<code>round(x, y)</code> or <code>round(x)</code>	$x$ rounded in units of $y$ or $x$ rounded to the nearest integer if the argument $y$ is omitted; $x$ (not “.”) if $x$ is missing (meaning that <code>round(.a) = .a</code> and that <code>round(.a, y) = .a</code> if $y$ is not missing) and if $y$ is missing, then “.” is returned
<code>roweqnumb(M, s)</code>	the equation number of $M$ associated with row equation $s$ ; <i>missing</i> if the row equation cannot be found
<code>rowfreeparms(M)</code>	the number of free parameters in rows of $M$
<code>rownumb(M, s)</code>	the row number of $M$ associated with row name $s$ ; <i>missing</i> if the row cannot be found
<code>rowsof(M)</code>	the number of rows of $M$
<code>rpoisson(m)</code>	Poisson( $m$ ) random variates, where $m$ is the distribution mean
<code>rt(df)</code>	Student’s $t$ random variates, where $df$ is the degrees of freedom
<code>runiform()</code>	uniformly distributed random variates over the interval (0, 1)
<code>runiform(a, b)</code>	uniformly distributed random variates over the interval ( $a$ , $b$ )
<code>runiformint(a, b)</code>	uniformly distributed random integer variates on the interval [ $a$ , $b$ ]
<code>rweibull(a, b)</code>	Weibull variates with shape $a$ and scale $b$
<code>rweibull(a, b, g)</code>	Weibull variates with shape $a$ , scale $b$ , and location $g$
<code>rweibullph(a, b)</code>	Weibull (proportional hazards) variates with shape $a$ and scale $b$
<code>rweibullph(a, b, g)</code>	Weibull (proportional hazards) variates with shape $a$ , scale $b$ , and location $g$
<code>s(name)</code>	the value of stored result <code>s(name)</code> ; see [U] <b>18.8 Accessing results calculated by other programs</b>
<code>scalar(exp)</code>	restricts name interpretation to scalars and matrices
<code>seconds(ms)</code>	$ms/1,000$
<code>sign(x)</code>	the sign of $x$ : $-1$ if $x < 0$ , $0$ if $x = 0$ , $1$ if $x > 0$ , or <i>missing</i> if $x$ is missing
<code>sin(x)</code>	the sine of $x$ , where $x$ is in radians
<code>sinh(x)</code>	the hyperbolic sine of $x$
<code>smallestdouble()</code>	the smallest double-precision number greater than zero
<code>soundex(s)</code>	the soundex code for a string, $s$
<code>soundex_nara(s)</code>	the U.S. Census soundex code for a string, $s$
<code>sqrt(x)</code>	the square root of $x$
<code>ss(et<sub>c</sub>)</code>	the second corresponding to datetime $e_{tc}$ (ms. since 01jan1960 00:00:00.000)
<code>ssC(et<sub>C</sub>)</code>	the second corresponding to datetime $e_{tC}$ (ms. with leap seconds since 01jan1960 00:00:00.000)
<code>strcat(s<sub>1</sub>, s<sub>2</sub>)</code>	there is no <code>strcat()</code> function; instead the addition operator is used to concatenate strings
<code>strdup(s<sub>1</sub>, n)</code>	there is no <code>strdup()</code> function; instead the multiplication operator is used to create multiple copies of strings
<code>string(n)</code>	a synonym for <code>stroofreal(n)</code>
<code>string(n, s)</code>	a synonym for <code>stroofreal(n, s)</code>
<code>stritrim(s)</code>	$s$ with multiple, consecutive internal blanks (ASCII space character <code>char(32)</code> ) collapsed to one blank
<code>strlen(s)</code>	the number of characters in ASCII $s$ or length in bytes

<code>strlower(<i>s</i>)</code>	lowercase ASCII characters in string <i>s</i>
<code>strltrim(<i>s</i>)</code>	<i>s</i> without leading blanks (ASCII space character <code>char(32)</code> )
<code>strmatch(<i>s</i><sub>1</sub>,<i>s</i><sub>2</sub>)</code>	1 if <i>s</i> <sub>1</sub> matches the pattern <i>s</i> <sub>2</sub> ; otherwise, 0
<code>stroofreal(<i>n</i>)</code>	<i>n</i> converted to a string
<code>stroofreal(<i>n</i>,<i>s</i>)</code>	<i>n</i> converted to a string using the specified display format
<code>strpos(<i>s</i><sub>1</sub>,<i>s</i><sub>2</sub>)</code>	the position in <i>s</i> <sub>1</sub> at which <i>s</i> <sub>2</sub> is first found, 0 if <i>s</i> <sub>2</sub> does not occur, and 1 if <i>s</i> <sub>2</sub> is empty
<code>strproper(<i>s</i>)</code>	a string with the first ASCII letter and any other letters immediately following characters that are not letters capitalized; all other ASCII letters converted to lowercase
<code>strreverse(<i>s</i>)</code>	the reverse of ASCII string <i>s</i>
<code>strrpos(<i>s</i><sub>1</sub>,<i>s</i><sub>2</sub>)</code>	the position in <i>s</i> <sub>1</sub> at which <i>s</i> <sub>2</sub> is last found, 0 if <i>s</i> <sub>2</sub> does not occur, and 1 if <i>s</i> <sub>2</sub> is empty
<code>strrtrim(<i>s</i>)</code>	<i>s</i> without trailing blanks (ASCII space character <code>char(32)</code> )
<code>strtoname(<i>s</i>[,<i>p</i>])</code>	<i>s</i> translated into a Stata 13 compatible name
<code>strtrim(<i>s</i>)</code>	<i>s</i> without leading and trailing blanks (ASCII space character <code>char(32)</code> ); equivalent to <code>strltrim(strrtrim(<i>s</i>))</code>
<code>strupper(<i>s</i>)</code>	uppercase ASCII characters in string <i>s</i>
<code>subinstr(<i>s</i><sub>1</sub>,<i>s</i><sub>2</sub>,<i>s</i><sub>3</sub>,<i>n</i>)</code>	<i>s</i> <sub>1</sub> , where the first <i>n</i> occurrences in <i>s</i> <sub>1</sub> of <i>s</i> <sub>2</sub> have been replaced with <i>s</i> <sub>3</sub>
<code>subinword(<i>s</i><sub>1</sub>,<i>s</i><sub>2</sub>,<i>s</i><sub>3</sub>,<i>n</i>)</code>	<i>s</i> <sub>1</sub> , where the first <i>n</i> occurrences in <i>s</i> <sub>1</sub> of <i>s</i> <sub>2</sub> as a word have been replaced with <i>s</i> <sub>3</sub>
<code>substr(<i>s</i>,<i>n</i><sub>1</sub>,<i>n</i><sub>2</sub>)</code>	the substring of <i>s</i> , starting at <i>n</i> <sub>1</sub> , for a length of <i>n</i> <sub>2</sub>
<code>sum(<i>x</i>)</code>	the running sum of <i>x</i> , treating missing values as zero
<code>sweep(<i>M</i>,<i>i</i>)</code>	matrix <i>M</i> with <i>i</i> th row/column swept
<code>t(<i>df</i>,<i>t</i>)</code>	the cumulative Student's <i>t</i> distribution with <i>df</i> degrees of freedom
<code>tan(<i>x</i>)</code>	the tangent of <i>x</i> , where <i>x</i> is in radians
<code>tanh(<i>x</i>)</code>	the hyperbolic tangent of <i>x</i>
<code>tC(<i>l</i>)</code>	convenience function to make typing dates and times in expressions easier
<code>tC(<i>l</i>)</code>	convenience function to make typing dates and times in expressions easier
<code>tD(<i>l</i>)</code>	convenience function to make typing dates in expressions easier
<code>tden(<i>df</i>,<i>t</i>)</code>	the probability density function of Student's <i>t</i> distribution
<code>th(<i>l</i>)</code>	convenience function to make typing half-yearly dates in expressions easier
<code>tin(<i>d</i><sub>1</sub>,<i>d</i><sub>2</sub>)</code>	<i>true</i> if <i>d</i> <sub>1</sub> ≤ <i>t</i> ≤ <i>d</i> <sub>2</sub> , where <i>t</i> is the time variable previously <code>tsset</code>
<code>tm(<i>l</i>)</code>	convenience function to make typing monthly dates in expressions easier
<code>tobytes(<i>s</i>[,<i>n</i>])</code>	escaped decimal or hex digit strings of up to 200 bytes of <i>s</i>
<code>today()</code>	today's <i>e</i> <sub><i>d</i></sub> date
<code>tq(<i>l</i>)</code>	convenience function to make typing quarterly dates in expressions easier
<code>trace(<i>M</i>)</code>	the trace of matrix <i>M</i>
<code>trigamma(<i>x</i>)</code>	the second derivative of <code>lgamma(<i>x</i>) = d<sup>2</sup> lnΓ(<i>x</i>)/d<i>x</i><sup>2</sup></code>

<code>trunc(<i>x</i>)</code>	a synonym for <code>int(<i>x</i>)</code>
<code>ttail(<i>df</i>, <i>t</i>)</code>	the reverse cumulative (upper tail or survivor) Student's <i>t</i> distribution; the probability $T > t$
<code>tukeyprob(<i>k</i>, <i>df</i>, <i>x</i>)</code>	the cumulative Tukey's Studentized range distribution with <i>k</i> ranges and <i>df</i> degrees of freedom; 0 if $x < 0$
<code>tw(<i>l</i>)</code>	convenience function to make typing weekly dates in expressions easier
<code>twithin(<i>d</i><sub>1</sub>, <i>d</i><sub>2</sub>)</code>	<i>true</i> if $d_1 < t < d_2$ , where <i>t</i> is the time variable previously <code>tset</code>
<code>uchar(<i>n</i>)</code>	the Unicode character corresponding to Unicode code point <i>n</i> or an empty string if <i>n</i> is beyond the Unicode code-point range
<code>udstrlen(<i>s</i>)</code>	the number of display columns needed to display the Unicode string <i>s</i> in the Stata Results window
<code>udsubstr(<i>s</i>, <i>n</i><sub>1</sub>, <i>n</i><sub>2</sub>)</code>	the Unicode substring of <i>s</i> , starting at character <i>n</i> <sub>1</sub> , for <i>n</i> <sub>2</sub> display columns
<code>uisdigit(<i>s</i>)</code>	1 if the first Unicode character in <i>s</i> is a Unicode decimal digit; otherwise, 0
<code>uisletter(<i>s</i>)</code>	1 if the first Unicode character in <i>s</i> is a Unicode letter; otherwise, 0
<code>ustrcompare(<i>s</i><sub>1</sub>, <i>s</i><sub>2</sub> [, <i>loc</i>])</code>	compares two Unicode strings
<code>ustrcompareex(<i>s</i><sub>1</sub>, <i>s</i><sub>2</sub>, <i>loc</i>, <i>st</i>, <i>case</i>, <i>cslv</i>, <i>norm</i>, <i>num</i>, <i>alt</i>, <i>fr</i>)</code>	compares two Unicode strings
<code>ustrfix(<i>s</i> [, <i>rep</i>])</code>	replaces each invalid UTF-8 sequence with a Unicode character
<code>ustrfrom(<i>s</i>, <i>enc</i>, <i>mode</i>)</code>	converts the string <i>s</i> in encoding <i>enc</i> to a UTF-8 encoded Unicode string
<code>ustrinvalidcnt(<i>s</i>)</code>	the number of invalid UTF-8 sequences in <i>s</i>
<code>ustrleft(<i>s</i>, <i>n</i>)</code>	the first <i>n</i> Unicode characters of the Unicode string <i>s</i>
<code>ustrlen(<i>s</i>)</code>	the number of characters in the Unicode string <i>s</i>
<code>ustrlower(<i>s</i> [, <i>loc</i>])</code>	lowercase all characters of Unicode string <i>s</i> under the given locale <i>loc</i>
<code>ustrltrim(<i>s</i>)</code>	removes the leading Unicode whitespace characters and blanks from the Unicode string <i>s</i>
<code>ustrnormalize(<i>s</i>, <i>norm</i>)</code>	normalizes Unicode string <i>s</i> to one of the five normalization forms specified by <i>norm</i>
<code>ustrpos(<i>s</i><sub>1</sub>, <i>s</i><sub>2</sub> [, <i>n</i>])</code>	the position in <i>s</i> <sub>1</sub> at which <i>s</i> <sub>2</sub> is first found; otherwise, 0
<code>ustrregexm(<i>s</i>, <i>re</i> [, <i>noc</i>])</code>	performs a match of a regular expression and evaluates to 1 if regular expression <i>re</i> is satisfied by the Unicode string <i>s</i> ; otherwise, 0
<code>ustrregexra(<i>s</i><sub>1</sub>, <i>re</i>, <i>s</i><sub>2</sub> [, <i>noc</i>])</code>	replaces all substrings within the Unicode string <i>s</i> <sub>1</sub> that match <i>re</i> with <i>s</i> <sub>2</sub> and returns the resulting string
<code>ustrregexrf(<i>s</i><sub>1</sub>, <i>re</i>, <i>s</i><sub>2</sub> [, <i>noc</i>])</code>	replaces the first substring within the Unicode string <i>s</i> <sub>1</sub> that matches <i>re</i> with <i>s</i> <sub>2</sub> and returns the resulting string
<code>ustrregexs(<i>n</i>)</code>	subexpression <i>n</i> from a previous <code>ustrregexm()</code> match
<code>ustrreverse(<i>s</i>)</code>	the reverse of Unicode string <i>s</i>
<code>ustrright(<i>s</i>, <i>n</i>)</code>	the last <i>n</i> Unicode characters of the Unicode string <i>s</i>
<code>ustrrpos(<i>s</i><sub>1</sub>, <i>s</i><sub>2</sub> [, <i>n</i>])</code>	the position in <i>s</i> <sub>1</sub> at which <i>s</i> <sub>2</sub> is last found; otherwise, 0
<code>ustrrtrim(<i>s</i>)</code>	remove trailing Unicode whitespace characters and blanks from the Unicode string <i>s</i>



<code>ustrsortkey(s[,loc])</code>	generates a null-terminated byte array that can be used by the <code>sort</code> command to produce the same order as <code>ustrcompare()</code>
<code>ustrsortkeyex(s,loc,st,case,cslv,norm,num,alt,fr)</code>	generates a null-terminated byte array that can be used by the <code>sort</code> command to produce the same order as <code>ustrcompare()</code>
<code>ustrtitle(s[,loc])</code>	a string with the first characters of Unicode words titlecased and other characters lowercased
<code>ustrto(s,enc,mode)</code>	converts the Unicode string <i>s</i> in UTF-8 encoding to a string in encoding <i>enc</i>
<code>ustrtohex(s[,n])</code>	escaped hex digit string of <i>s</i> up to 200 Unicode characters
<code>ustrtoname(s[,p])</code>	string <i>s</i> translated into a Stata name
<code>ustrtrim(s)</code>	removes leading and trailing Unicode whitespace characters and blanks from the Unicode string <i>s</i>
<code>ustrunescape(s)</code>	the Unicode string corresponding to the escaped sequences of <i>s</i>
<code>ustrupper(s[,loc])</code>	uppercase all characters in string <i>s</i> under the given locale <i>loc</i>
<code>ustrword(s,n[,loc])</code>	the <i>n</i> th Unicode word in the Unicode string <i>s</i>
<code>ustrwordcount(s[,loc])</code>	the number of nonempty Unicode words in the Unicode string <i>s</i>
<code>usubinstr(s<sub>1</sub>,s<sub>2</sub>,s<sub>3</sub>,n)</code>	replaces the first <i>n</i> occurrences of the Unicode string <i>s</i> <sub>2</sub> with the Unicode string <i>s</i> <sub>3</sub> in <i>s</i> <sub>1</sub>
<code>usubstr(s,n<sub>1</sub>,n<sub>2</sub>)</code>	the Unicode substring of <i>s</i> , starting at <i>n</i> <sub>1</sub> , for a length of <i>n</i> <sub>2</sub>
<code>vec(M)</code>	a column vector formed by listing the elements of <i>M</i> , starting with the first column and proceeding column by column
<code>vecdiag(M)</code>	the row vector containing the diagonal of matrix <i>M</i>
<code>vech(M)</code>	a column vector formed by listing the lower triangle elements of <i>M</i>
<code>vecp(M)</code>	a column vector formed by listing the upper triangle elements of <i>M</i>
<code>week(e<sub>d</sub>)</code>	the numeric week of the year corresponding to date <i>e<sub>d</sub></i> , the %td encoded date (days since 01jan1960)
<code>weekly(s<sub>1</sub>,s<sub>2</sub>[,Y])</code>	the <i>e<sub>w</sub></i> weekly date (weeks since 1960w1) corresponding to <i>s</i> <sub>1</sub> based on <i>s</i> <sub>2</sub> and <i>Y</i> ; <i>Y</i> specifies <i>topyear</i> ; see <code>date()</code>
<code>weibull(a,b,x)</code>	the cumulative Weibull distribution with shape <i>a</i> and scale <i>b</i>
<code>weibull(a,b,g,x)</code>	the cumulative Weibull distribution with shape <i>a</i> , scale <i>b</i> , and location <i>g</i>
<code>weibullden(a,b,x)</code>	the probability density function of the Weibull distribution with shape <i>a</i> and scale <i>b</i>
<code>weibullden(a,b,g,x)</code>	the probability density function of the Weibull distribution with shape <i>a</i> , scale <i>b</i> , and location <i>g</i>
<code>weibullph(a,b,x)</code>	the cumulative Weibull (proportional hazards) distribution with shape <i>a</i> and scale <i>b</i>
<code>weibullph(a,b,g,x)</code>	the cumulative Weibull (proportional hazards) distribution with shape <i>a</i> , scale <i>b</i> , and location <i>g</i>
<code>weibullphden(a,b,x)</code>	the probability density function of the Weibull (proportional hazards) distribution with shape <i>a</i> and scale <i>b</i>
<code>weibullphden(a,b,g,x)</code>	the probability density function of the Weibull (proportional hazards) distribution with shape <i>a</i> , scale <i>b</i> , and location <i>g</i>

<code>weibullphtail(<i>a,b,x</i>)</code>	the reverse cumulative Weibull (proportional hazards) distribution with shape <i>a</i> and scale <i>b</i>
<code>weibullphtail(<i>a,b,g,x</i>)</code>	the reverse cumulative Weibull (proportional hazards) distribution with shape <i>a</i> , scale <i>b</i> , and location <i>g</i>
<code>weibulltail(<i>a,b,x</i>)</code>	the reverse cumulative Weibull distribution with shape <i>a</i> and scale <i>b</i>
<code>weibulltail(<i>a,b,g,x</i>)</code>	the reverse cumulative Weibull distribution with shape <i>a</i> , scale <i>b</i> , and location <i>g</i>
<code>wofd(<i>e<sub>d</sub></i>)</code>	the <i>e<sub>w</sub></i> weekly date (weeks since 1960w1) containing date <i>e<sub>d</sub></i>
<code>word(<i>s,n</i>)</code>	the <i>n</i> th word in <i>s</i> ; missing ("") if <i>n</i> is missing
<code>wordbreaklocale(<i>loc,type</i>)</code>	the most closely related locale supported by ICU from <i>loc</i> if <i>type</i> is 1, the actual locale where the word-boundary analysis data come from if <i>type</i> is 2; or an empty string is returned for any other <i>type</i>
<code>wordcount(<i>s</i>)</code>	the number of words in <i>s</i>
<code>year(<i>e<sub>d</sub></i>)</code>	the numeric year corresponding to date <i>e<sub>d</sub></i>
<code>yearly(<i>s<sub>1</sub>,s<sub>2</sub>[,Y]</i>)</code>	the <i>e<sub>y</sub></i> yearly date (year) corresponding to <i>s<sub>1</sub></i> based on <i>s<sub>2</sub></i> and <i>Y</i> ; <i>Y</i> specifies <i>topyear</i> ; see <code>date()</code>
<code>yh(<i>Y,H</i>)</code>	the <i>e<sub>h</sub></i> half-yearly date (half-years since 1960h1) corresponding to year <i>Y</i> , half-year <i>H</i>
<code>ym(<i>Y,M</i>)</code>	the <i>e<sub>m</sub></i> monthly date (months since 1960m1) corresponding to year <i>Y</i> , month <i>M</i>
<code>yofd(<i>e<sub>d</sub></i>)</code>	the <i>e<sub>y</sub></i> yearly date (year) containing date <i>e<sub>d</sub></i>
<code>yq(<i>Y,Q</i>)</code>	the <i>e<sub>q</sub></i> quarterly date (quarters since 1960q1) corresponding to year <i>Y</i> , quarter <i>Q</i>
<code>yw(<i>Y,W</i>)</code>	the <i>e<sub>w</sub></i> weekly date (weeks since 1960w1) corresponding to year <i>Y</i> , week <i>W</i>

## Also see

[FN] [Functions by category](#)

[D] [egen](#) — Extensions to generate

[D] [generate](#) — Create or change contents of variable

[M-4] [Intro](#) — Categorical guide to Mata functions

[U] [13.3 Functions](#)

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