

Subject and author index

This is the subject and author index for the *Mata Reference Manual*. Readers interested in topics other than Mata should see the combined subject index in the *Stata Quick Reference and Index*, which indexes the *Getting Started with Stata for Macintosh Manual*, the *Getting Started with Stata for Unix Manual*, the *Getting Started with Stata for Windows Manual*, the *Stata User's Guide*, the *Stata Base Reference Manual*, the *Stata Data Management Reference Manual*, the *Stata Graphics Reference Manual*, the *Stata Programming Reference Manual*, the *Stata Longitudinal/Panel Data Reference Manual*, the *Stata Multivariate Statistics Reference Manual*, the *Stata Survey Data Reference Manual*, the *Stata Survival Analysis & Epidemiological Tables Reference Manual*, and the *Stata Time-Series Reference Manual*.

A

abs() function, [M-5] **abs()**
acos() function, [M-5] **sin()**
acosh() function, [M-5] **sin()**
acosr() function, [M-5] **sin()**
addition, [M-2] **op_arith**, [M-2] **op_colon**
adjoint matrix, [M-2] **op_transpose**, [M-5] **conj()**
adjugate matrix, [M-2] **op_transpose**, [M-5] **conj()**
ado-files, [M-1] **ado**
all() function, [M-5] **all()**
allob() function, [M-5] **all()**
Anderson, E., [M-1] **LAPACK**
any() function, [M-5] **all()**
anyof() function, [M-5] **all()**
arg() function, [M-5] **sin()**
args() function, [M-5] **args()**
arguments,
 program, [M-2] **declarations**, [M-6] **glossary**
 values returned in, [M-1] **returnedargs**
 varying number, [M-2] **optargs**, [M-5] **args()**
arithmetic operators, [M-2] **op_arith**
ASCII codes, [M-5] **ascii()**
ascii() function, [M-5] **ascii()**
asin() function, [M-5] **sin()**
asinh() function, [M-5] **sin()**
asinr() function, [M-5] **sin()**
assert() function, [M-5] **assert()**
asserteq() function, [M-5] **assert()**
assignment operator, [M-2] **op_assignment**
atan() function, [M-5] **sin()**
atan2() function, [M-5] **sin()**
atanh() function, [M-5] **sin()**
atanr() function, [M-5] **sin()**

B

Bai, Z., [M-1] **LAPACK**
beta function, [M-5] **normal()**

betaden() function, [M-5] **normal()**
Binomial() function, [M-5] **normal()**
binormal() function, [M-5] **normal()**
Bischof, C., [M-1] **LAPACK**
Blackford, S., [M-1] **LAPACK**
block diagonal matrix, [M-5] **blockdiag()**
blockdiag() function, [M-5] **blockdiag()**
break, [M-2] **break**
break key processing, [M-5] **setbreakinr()**
breakkey() function, [M-5] **setbreakinr()**
breakkeyreset() function, [M-5] **setbreakinr()**
broad type, [M-6] **glossary**

C

C() function, [M-5] **C()**
c() function, [M-5] **c()**
c-conformability, [M-2] **op_colon**, [M-6] **glossary**
callersversion() function, [M-5] **callersversion()**
cat() function, [M-5] **cat()**
ceil() function, [M-5] **trunc()**
char() function, [M-5] **ascii()**
characteristic roots, [M-5] **eigensystem()**
_chdir() function, [M-5] **chdir()**
chdir() function, [M-5] **chdir()**
chi2() function, [M-5] **normal()**
chi2tail() function, [M-5] **normal()**
Cholesky decomposition, [M-5] **cholesky()**
cholesky() function, [M-5] **cholesky()**
_cholin() function, [M-5] **cholinv()**
cholinv() function, [M-5] **cholinv()**
_cholsolve() function, [M-5] **cholsolve()**
cholsolve() function, [M-5] **cholsolve()**
clear, [M-3] **mata clear**
cloglog() function, [M-5] **logit()**
_collate() function, [M-5] **sort()**
colmax() function, [M-5] **minmax()**
colmaxabs() function, [M-5] **minmax()**
colmin() function, [M-5] **minmax()**
colminmax() function, [M-5] **minmax()**
colmissing() function, [M-5] **missing()**
colnonmissing() function, [M-5] **missing()**
colon operators, [M-2] **op_colon**
cols() function, [M-5] **rows()**
colscalefactors() function, [M-5] **_equilrc()**
colshape() function, [M-5] **rowshape()**
colsum() function, [M-5] **sum()**
colvector, [M-2] **declarations**, [M-6] **glossary**
comb() function, [M-5] **comb()**
combinatorial function, [M-5] **comb()**
complex, [M-2] **declarations**, [M-6] **glossary**
cond() function, [M-5] **cond()**
condition number, [M-5] **cond()**, [M-6] **glossary**
conditional operator, [M-2] **op_conditional**
conformability, [M-5] **glossary**, [M-2] **void**, *also*
 see c-conformability, r-conformability, and p-conformability

`_conj()` function, [M-5] `_transpose()`
`conj()` function, [M-5] `conj()`
conjugate, [M-5] `conj()`, [M-5] `_transpose()`,
[M-6] glossary
conjugate transpose, [M-2] `op_transpose`, [M-5] `conj()`,
[M-5] `_transpose()`, [M-6] glossary
convolve() function, [M-5] `fft()`
copysource, [M-1] source
`Corr()` function, [M-5] `fft()`
`corr()` function, [M-5] `corr()`
correlation, [M-5] `corr()`, [M-5] `mean()`, [M-5] `fft()`
correlation() function, [M-5] `mean()`
`cos()` function, [M-5] `sin()`
`cosh()` function, [M-5] `sin()`
`crexternal()` function, [M-5] `findexternal()`
cross product, [M-5] `cross()`, [M-5] `crossdev()`,
[M-5] `quadcross()`
`cross()` function, [M-5] `cross()`
`crossdev()` function, [M-5] `crossdev()`
cubic natural splines, [M-5] `spline3()`

D

data matrix, [M-5] `st_data()`, [M-5] `st_view()`,
[M-6] glossary
date and time, [M-5] `c()`
declarations, [M-2] `declarations`, [M-6] glossary
decomposition, [M-5] `cholesky()`, [M-5] `lud()`,
[M-5] `qrd()`, [M-2] `svd()`, [M-5] `fullsvd()`
deconvolve() function, [M-5] `fft()`
decrement operator, [M-2] `op_increment`
defective matrix, [M-6] glossary
delete, [M-5] `unlink()`
`#delimit`, [M-2] `semicolons`
Demmel, J., [M-1] LAPACK
density functions, [M-5] `normal()`
dereferencing, [M-2] `pointers`, [M-2] `ftof`
describe, [M-3] `meta describe`
design matrix, [M-5] `designmatrix()`, [M-5] `I()`
`designmatrix()` function, [M-5] `designmatrix()`
`det()` function, [M-5] `det()`
determinant of matrix, [M-5] `det()`
`dettriangular()` function, [M-5] `det()`
deviation cross product, [M-5] `crossdev()`,
[M-5] `quadcross()`
`dgammapda()` function, [M-5] `normal()`
`dgammapdada()` function, [M-5] `normal()`
`dgammapdadx()` function, [M-5] `normal()`
`dgammapdx()` function, [M-5] `normal()`
`dgammapdxdx()` function, [M-5] `normal()`
`diag()` function, [M-5] `diag()`
`diag0cnt()` function, [M-5] `diag0cnt()`
diagonal, [M-5] `diagonal()`, [M-6] glossary
diagonal matrix, [M-5] `diag()`, [M-5] `diagonal()`,
[M-5] `isdiagonal()`, [M-6] glossary
`diagonal()` function, [M-5] `diagonal()`
`digamma()` function, [M-5] `factorial()`
`dir()` function, [M-5] `dir()`

directories, [M-5] `chdir()`, [M-5] `dir()`,
[M-5] `direxists()`
`direxists()` function, [M-5] `direxists()`
`direxternal()` function, [M-5] `direxternal()`
display
as error, [M-5] `displayas()`, [M-5] `errprintf()`
as text, as result, etc., [M-5] `displayas()`
`display()` function, [M-5] `display()`
`displayas()` function, [M-5] `displayas()`
`displayflush()` function, [M-5] `displayflush()`
distribution functions, [M-5] `normal()`
division, [M-2] `op_arith`, [M-2] `op_colon`
do ... while, [M-2] `do`, [M-2] `continue`, [M-2] `break`
Dongarra, J., [M-1] LAPACK
drop, [M-3] `meta drop`
`dsign()` function, [M-5] `dsign()`, [M-5] `sign()`
Du Croz, J., [M-1] LAPACK

E

`e()` function, [M-5] `e()`
`_editmissing()` function, [M-5] `editmissing()`
`editmissing()` function, [M-5] `editmissing()`
`_edittoint()` function, [M-5] `edittoint()`
`edittoint()` function, [M-5] `edittoint()`
`_edittointtol()` function, [M-5] `edittoint()`
`edittointtol()` function, [M-5] `edittoint()`
`_edittozero()` function, [M-5] `edittozero()`
`edittozero()` function, [M-5] `edittozero()`
`_edittozerotol()` function, [M-5] `edittozero()`
`edittozerotol()` function, [M-5] `edittozero()`
`_editvalue()` function, [M-5] `editvalue()`
`editvalue()` function, [M-5] `editvalue()`
`_eigen_la()` function, [M-5] `eigensystem()`
`_eigensystem()` function, [M-5] `eigensystem()`
`eigensystem()` function, [M-5] `eigensystem()`
eigenvalues, [M-5] `eigensystem()`
`_eigenvalues()` function, [M-5] `eigensystem()`
eigenvalues() function, [M-5] `eigensystem()`
eigenvectors, [M-5] `eigensystem()`
`eltype`, [M-2] `declarations`, [M-6] glossary
`eltype()` function, [M-5] `eltype()`
end, [M-3] `end`
epsilon, [M-6] glossary
`epsilon()` function, [M-5] `epsilon()`
`_equilc()` function, [M-5] `_equilrc()`
equilibration, [M-5] `_equilr()`
`_equilr()` function, [M-5] `_equilrc()`
`_equilrc()` function, [M-5] `_equilrc()`
erase, [M-5] `unlink()`
error codes, [M-2] `errors`
`_error()` function, [M-5] `error()`
`error()` function, [M-5] `error()`
`errprintf()` function, [M-5] `errprintf()`
exit `meta`, [M-3] `end`
`exit()` function, [M-5] `exit()`
`exp`, [M-2] `exp`, [M-6] glossary

exp() function, [M-5] **exp()**
 exponentiation, [M-5] **exp()**, [M-5] **matexpsym()**
 external, [M-2] **declarations**
 externals, [M-2] **declarations**, [M-5] **findexternal()**,
 [M-5] **valofexternal()**, [M-5] **direxternal()**,
 [M-6] **glossary**
 extract diagonal, [M-5] **diagonal()**, [M-5] **diag()**

F

F() function, [M-5] **normal()**
 factorial() function, [M-5] **factorial()**
 favorspeed() function, [M-5] **favorspeed()**
 _fclose() function, [M-5] **fopen()**
 fclose() function, [M-5] **fopen()**
 Fden() function, [M-5] **normal()**
 _fft() function, [M-5] **fft()**
 fft() function, [M-5] **fft()**
 _fget() function, [M-5] **fopen()**
 fget() function, [M-5] **fopen()**
 _fgetmatrix() function, [M-5] **fopen()**
 fgetmatrix() function, [M-5] **fopen()**
 _fgetnl() function, [M-5] **fopen()**
 fgetnl() function, [M-5] **fopen()**
 file processing, [M-4] **io**, [M-5] **findfile()**,
 [M-5] **fileexists()**, [M-5] **fopen()**, [M-5] **cat()**,
 [M-5] **unlink()**
 fileexists() function, [M-5] **fileexists()**
 filename manipulation, [M-5] **pathjoin()**
 _fillmissing() function, [M-5] **_fillmissing()**
 findexternal() function, [M-5] **findexternal()**
 findfile() function, [M-5] **findfile()**
 floor() function, [M-5] **trunc()**
 folders, see **directories**
 _fopen() function, [M-5] **fopen()**
 fopen() function, [M-5] **fopen()**
 for, [M-2] **for**, [M-2] **continue**, [M-2] **break**,
 [M-2] **semicolons**
 FORTRAN, [M-2] **goto**, [M-5] **dsgin()**
 Fourier transform, [M-5] **fft()**
 _fput() function, [M-5] **fopen()**
 fput() function, [M-5] **fopen()**
 _fputmatrix() function, [M-5] **fopen()**
 fputmatrix() function, [M-5] **fopen()**
 _fread() function, [M-5] **fopen()**
 fread() function, [M-5] **fopen()**
 _fseek() function, [M-5] **fopen()**
 fseek() function, [M-5] **fopen()**
 fstatus() function, [M-5] **fopen()**
 Ftail() function, [M-5] **normal()**
 _ftell() function, [M-5] **fopen()**
 ftell() function, [M-5] **fopen()**
 ftfreqs() function, [M-5] **fft()**
 ftpad() function, [M-5] **fft()**
 ftperiodogram() function, [M-5] **fft()**
 ftretime() function, [M-5] **fft()**
 _ftruncate() function, [M-5] **fopen()**
 ftruncate() function, [M-5] **fopen()**

ftunwrap() function, [M-5] **fft()**
 ftwrap() function, [M-5] **fft()**
 fullsdiag() function, [M-5] **fullsvd()**
 _fullsvd() function, [M-5] **fullsvd()**
 fullsvd() function, [M-5] **fullsvd()**
 function, [M-2] **declarations**, [M-6] **glossary**
 function arguments, [M-1] **returnedargs**, also see
 arguments
 function naming convention, [M-1] **naming**
 functions, underscore, [M-6] **glossary**
 _fwrite() function, [M-5] **fopen()**
 fwrite() function, [M-5] **fopen()**

G

gamma() function, [M-5] **factorial()**
 gammaden() function, [M-5] **normal()**
 gammap() function, [M-5] **normal()**
 generalized inverse, [M-5] **invsym()**, [M-5] **pinv()**,
 [M-5] **qrinv()**
 global variable, [M-2] **declarations**,
 [M-5] **direxternal()**, [M-5] **findexternal()**,
 [M-5] **valofexternal()**, [M-6] **glossary**
 goto, [M-2] **goto**
 grammar, [M-2] **syntax**
 Greenbaum, A., [M-1] **LAPACK**

H

Hammarling, S., [M-1] **LAPACK**
 help, [M-1] **help**, [M-3] **meta help**
 Hermitian
 adjoin, [M-2] **op_transpose**, [M-5] **conj()**
 matrices, [M-5] **issymmetric()**,
 [M-5] **makesymmetric()**, [M-6] **glossary**
 transpose, [M-2] **op_transpose**, [M-5] **conj()**
 Hilbert() function, [M-5] **Hilbert()**
 _hqr() function, [M-5] **qrd()**
 hqr() function, [M-5] **qrd()**
 hqrdmultq() function, [M-5] **qrd()**
 hqrdmultq1t() function, [M-5] **qrd()**
 _hqrqp() function, [M-5] **qrd()**
 hqrqp() function, [M-5] **qrd()**
 _hqrqp_la() function, [M-5] **qrd()**
 hqrdx() function, [M-5] **qrd()**
 hqrdx1() function, [M-5] **qrd()**
 hyperbolic functions, [M-5] **sin()**

I

I() function, [M-5] **I()**
 I/O functions, [M-4] **io**
 ibeta() function, [M-5] **normal()**
 identity matrix, [M-5] **I()**
 if, [M-2] **if**
 Im() function, [M-5] **Re()**
 imaginary part, [M-5] **Re()**

incomplete

- beta function, [M-5] **normal()**
- gamma function, [M-5] **normal()**

increment operator, [M-2] **op_increment**

index,

- mathematical functions, [M-4] **statistical**
- matrix functions, [M-4] **utility**
- statistical functions, [M-4] **statistical**
- utility functions, [M-4] **utility**

indexnot() function, [M-5] **indexnot()**

input/output functions, [M-4] **io**

integers, [M-5] **trunc()**

invbinomial() function, [M-5] **normal()**

invchi2() function, [M-5] **normal()**

invchi2tail() function, [M-5] **normal()**

invcloglog() function, [M-5] **logit()**

inverse matrix, [M-4] **solvers**, [M-5] **invsym()**,
[M-5] **cholinv()**, [M-5] **luinv()**, [M-5] **qrinv()**,
[M-5] **pinv()**, [M-5] **solve_tol()**

invF() function, [M-5] **normal()**

_invfft() function, [M-5] **fft()**

invfft() function, [M-5] **fft()**

invFtail() function, [M-5] **normal()**

invgammap() function, [M-5] **normal()**

invibeta() function, [M-5] **normal()**

invlogit() function, [M-5] **logit()**

invnFtail() function, [M-5] **normal()**

invnibeta() function, [M-5] **normal()**

invnormal() function, [M-5] **normal()**

invorder() function, [M-5] **invorder()**

_invsym() function, [M-5] **invsym()**

invsym() function, [M-5] **invsym()**

invttail() function, [M-5] **normal()**

invvech() function, [M-5] **veec()**

iscomplex() function, [M-5] **isreal()**

isdiagonal() function, [M-5] **isdiagonal()**

isfleeting() function, [M-5] **isfleeting()**

ispointer() function, [M-5] **isreal()**

isreal() function, [M-5] **isreal()**

isrealvalues() function, [M-5] **isrealvalues()**

isstring() function, [M-5] **isreal()**

issymmetric() function, [M-5] **issymmetric()**

issymmetriconly() function, [M-5] **issymmetric()**

istmt, [M-1] **how**, [M-6] **glossary**

isview() function, [M-5] **isview()**

J

J() function, [M-5] **J()**, [M-2] **void**, [M-6] **glossary**

join operator, [M-2] **op_join**

_jumble() function, [M-5] **sort()**

jumble() function, [M-5] **sort()**

K

Kronecker direct product, [M-2] **op_kronecker**

L

LAPACK, [M-1] **LAPACK**, [M-5] **cholesky()**,

- [M-5] **cholinv()**, [M-5] **cholsolve()**,
- [M-5] **eigensystem()**, [M-5] **fullsvd()**,
- [M-5] **lud()**, [M-5] **luinv()**, [M-5] **lusolve()**,
- [M-5] **qrd()**, [M-5] **qrinv()**, [M-5] **qrsolve()**,
- [M-5] **svd()**, [M-5] **svsolve()**, [M-6] **glossary**

latent roots, [M-5] **eigensystem()**

left eigenvectors, [M-5] **eigensystem()**

_lefteigensystem() function, [M-5] **eigensystem()**

lefteigensystem() function, [M-5] **eigensystem()**

length, [M-5] **abs()**, [M-5] **rows()**, [M-5] **strlen()**

length() function, [M-5] **rows()**

libraries, [M-1] **how**, [M-3] **mata mlib**,
[M-3] **mata which**

limits, [M-1] **limits**

list subscripts, see subscripts

ln() function, [M-5] **exp()**

lnfactorial() function, [M-5] **factorial()**

lngamma() function, [M-5] **factorial()**

log() function, [M-5] **exp()**

log10() function, [M-5] **exp()**

logarithms, [M-5] **exp()**, [M-5] **matexpsym()**

logical operators, [M-2] **op_logical**

logit() function, [M-5] **logit()**

lower-triangular matrix, see triangular matrix

lowercase, [M-5] **strupper()**

_lowertriangle() function, [M-5] **lowertriangle()**

lowertriangle() function, [M-5] **lowertriangle()**

LU decomposition, [M-5] **lud()**

_lud() function, [M-5] **lud()**

lud() function, [M-5] **lud()**

_lud_la() function, [M-5] **lud()**

_luinv() function, [M-5] **luinv()**

luinv() function, [M-5] **luinv()**

_luinv_la() function, [M-5] **luinv()**

_lusolve() function, [M-5] **lusolve()**

lusolve() function, [M-5] **lusolve()**

_lusolve_la() function, [M-5] **lusolve()**

lval, [M-2] **op_assignment**, [M-6] **glossary**

M

machine precision, [M-5] **epsilon()**, [M-6] **glossary**

makesymmetric() function, [M-5] **makesymmetric()**

Mata

commands, [M-3] **intro**

error messages, [M-5] **error()**, also see **traceback**
log

mata, [M-3] **mata clear**, [M-3] **mata describe**,

[M-3] **mata drop**, [M-3] **mata help**,

[M-3] **mata matsave**, [M-3] **mata memory**,

[M-3] **mata mlib**, [M-3] **mata mosaic**,

[M-3] **mata rename**, [M-3] **mata set**,

[M-3] **mata stata**, [M-3] **mata which**,

[M-3] **namelists**

.mata file, [M-1] **source**, [M-3] **mata mlib**,

[M-6] **glossary**

mata invocation command, [M-3] **mata**
 matacache, [M-3] **mata set**
 matafavor, [M-3] **mata set**, [M-5] **favorspeed()**
 matalibs, [M-3] **mata set**
 matalnum, [M-3] **mata set**
 matamofirst, [M-3] **mata set**
 mataoptimize, [M-3] **mata set**
 matastrict, [M-3] **mata set**, [M-2] **declarations**,
 [M-1] **ado**
 matdescribe, [M-3] **mata matsave**
 matexpsym() function, [M-5] **matexpsym()**
 mathematical functions, [M-4] **mathematical**,
 [M-4] **matrix**, [M-4] **scalar**, [M-4] **solvers**,
 [M-4] **standard**
 matlogsym() function, [M-5] **matexpsym()**
 matpowersym() function, [M-5] **matpowersym()**
 matrix, [M-4] **intro**, [M-6] **glossary**
 functions, [M-4] **manipulation**, [M-4] **matrix**,
 [M-4] **solvers**, [M-4] **standard**
 norm, [M-5] **norm()**
 matrix, [M-2] **declarations**
 matsave, [M-3] **mata matsave**
 matsize, [M-1] **limits**
 matuse, [M-3] **mata matsave**
 max() function, [M-5] **minmax()**
 maxdouble() function, [M-5] **mindouble()**
 maximum
 length of string, [M-1] **limits**
 size of matrix, [M-1] **limits**
 McKenney, A., [M-1] **LAPACK**
 mean() function, [M-5] **mean()**
 meanvariance() function, [M-5] **mean()**
 memory, [M-3] **mata memory**
 memory utilization, [M-1] **limits**, [M-3] **mata memory**
 min() function, [M-5] **minmax()**
 mindouble() function, [M-5] **mindouble()**
 minmax() function, [M-5] **minmax()**
 missing values, [M-5] **missing()**, [M-5] **missingof()**,
 [M-5] **editmissing()**, [M-5] **_fillmissing()**
 missing() function, [M-5] **missing()**
 missingof() function, [M-5] **missingof()**
 _mkdir() function, [M-5] **chdir()**
 mkdir() function, [M-5] **chdir()**
 mlib, [M-3] **mata mlib**
 .mlib library files, [M-1] **how**, [M-3] **mata describe**,
 [M-3] **mata mlib**, [M-3] **mata set**,
 [M-3] **mata which**, [M-6] **glossary**
 .mmat files, [M-3] **mata matsave**
 .mo file, [M-1] **how**, [M-3] **mata mosave**,
 [M-3] **mata which**, [M-6] **glossary**
 mod() function, [M-5] **mod()**
 modulus() function, [M-5] **mod()**
 Moore–Penrose inverse, [M-5] **pinv()**
 more() function, [M-5] **more()**
 mosave, [M-3] **mata mosave**
 mreldif() function, [M-5] **reldif()**
 multiplication, [M-2] **op_arith**, [M-2] **op_colon**

N

namelists, [M-3] **namelists**
 naming convention, [M-1] **naming**
 nbetaden() function, [M-5] **normal()**
 negation, [M-2] **op_arith**
 nFden() function, [M-5] **normal()**
 nFtail() function, [M-5] **normal()**
 nibeta() function, [M-5] **normal()**
 nonmissing() function, [M-5] **missing()**
 norm, [M-6] **glossary**
 norm() function, [M-5] **norm()**
 normal() function, [M-5] **normal()**
 normalden() function, [M-5] **normal()**
 NULL, [M-2] **pointers**, [M-6] **glossary**
 numeric, [M-2] **declarations**, [M-6] **glossary**

O

object code, [M-1] **how**, [M-6] **glossary**
 online help, [M-1] **help**, [M-3] **mata help**
 operators, [M-2] **op_arith**, [M-2] **op_assignment**,
 [M-2] **op_colon**, [M-2] **op_conditional**,
 [M-2] **op_increment**, [M-2] **op_join**,
 [M-2] **op_kronecker**, [M-2] **op_logical**,
 [M-2] **op_range**, [M-2] **op_transpose**
 optimization, [M-3] **mata set**, [M-6] **glossary**
 order() function, [M-5] **sort()**
orgtype, [M-2] **declarations**, [M-6] **glossary**
 orgtype() function, [M-5] **eltype()**
 orthogonal matrix, [M-6] **glossary**

P

p-conformability, [M-6] **glossary**
 panel data, [M-5] **panelsetup()**
 panelsetup() function, [M-5] **panelsetup()**
 panelstats() function, [M-5] **panelsetup()**
 panelsubmatrix() function, [M-5] **panelsetup()**
 panelsubview() function, [M-5] **panelsetup()**
 parsing, [M-5] **tokens()**
 pathasciisuffix() function, [M-5] **pathjoin()**
 pathbasename() function, [M-5] **pathjoin()**
 pathisabs() function, [M-5] **pathjoin()**
 pathisurl() function, [M-5] **pathjoin()**
 pathjoin() function, [M-5] **pathjoin()**
 pathlist() function, [M-5] **pathjoin()**
 pathrmsuffix() function, [M-5] **pathjoin()**
 pathsplit() function, [M-5] **pathjoin()**
 pathstata suffix() function, [M-5] **pathjoin()**
 pathsysdir() function, [M-5] **pathjoin()**
 pathsuffix() function, [M-5] **pathjoin()**
 pattern matching, [M-5] **strmatch()**
 _perhapssequilc() function, [M-5] **_equilrc()**
 _perhapssequilr() function, [M-5] **_equilrc()**
 _perhapssequilrc() function, [M-5] **_equilrc()**
 permutation matrix and vector, [M-1] **permutation**,
 [M-5] **invorder()**, [M-6] **glossary**

pi() function, [M-5] **sin()**
 _pinv() function, [M-5] **pinv()**
 pinv() function, [M-5] **pinv()**
 pointers, [M-2] **pointers**, [M-2] **ftof**,
 [M-5] **findexternal()**, [M-6] **glossary**
 polyadd() function, [M-5] **polyeval()**
 polyderiv() function, [M-5] **polyeval()**
 polyeval() function, [M-5] **polyeval()**
 polyinteg() function, [M-5] **polyeval()**
 polymult() function, [M-5] **polyeval()**
 polynomials, [M-5] **polyeval()**
 polyroots() function, [M-5] **polyeval()**
 polysolve() function, [M-5] **polyeval()**
 polytrim() function, [M-5] **polyeval()**
 power, [M-2] **op_arith**, [M-2] **op_colon**,
 [M-5] **matpowersym()**
 pragma, [M-2] **pragma**, [M-6] **glossary**
 printf() function, [M-5] **printf()**
 product, [M-2] **op_arith**, [M-2] **op_colon**,
 [M-2] **op_kronecker**, [M-5] **cross()**,
 [M-5] **crossdev()**, [M-5] **quadcross()**
 programming
 functions, [M-4] **programming**
 use, [M-1] **ado**
 proper values, [M-5] **eigensystem()**
 pseudoinverse, [M-5] **pinv()**
 pwd() function, [M-5] **chdir()**

Q

QR decomposition, [M-5] **qrd()**
 qrd() function, [M-5] **qrd()**
 qrdp() function, [M-5] **qrd()**
 _qrinv() function, [M-5] **qrinv()**
 qrinv() function, [M-5] **qrinv()**
 _qrsolve() function, [M-5] **qrsolve()**
 qrsolve() function, [M-5] **qrsolve()**
 quad precision, [M-5] **sum()**, [M-5] **mean()**,
 [M-5] **quadcross()**
 quadcolsum() function, [M-5] **sum()**
 quadcorrelation() function, [M-5] **mean()**
 quadcross() function, [M-5] **quadcross()**
 quadcrossdev() function, [M-5] **quadcross()**
 quadmeanvariance() function, [M-5] **mean()**
 quadrant() function, [M-5] **sign()**
 quadrowsum() function, [M-5] **sum()**
 quadsum() function, [M-5] **sum()**
 quadvariance() function, [M-5] **mean()**
 query, [M-3] **mata set**
 querybreakintr() function, [M-5] **setbreakintr()**

R

r-conformability, [M-6] **glossary**, [M-5] **normal**
 random numbers, [M-5] **uniform()**

range
 operators, [M-2] **op_range**
 subscripts, see **subscripts**
 vector, [M-5] **range()**
 range() function, [M-5] **range()**
 rank, [M-5] **rank()**, [M-6] **glossary**
 rank() function, [M-5] **rank()**
 Re() function, [M-5] **Re()**
 real, [M-2] **declarations**, [M-6] **glossary**
 real part, [M-5] **Re()**
 reldif() function, [M-5] **reldif()**
 rename, [M-3] **mata rename**
 reserved words, [M-2] **reswords**
 return, [M-2] **return**
 revorder() function, [M-5] **invorder()**
 right eigenvectors, [M-5] **eigensystem()**
 _rmdir() function, [M-5] **chdir()**
 rmdir() function, [M-5] **chdir()**
 rmexternal() function, [M-5] **findexternal()**
 roots of polynomials, [M-5] **polyeval()**
 round() function, [M-5] **trunc()**
 roundoff error, [M-5] **epsilon()**, [M-5] **edittozero()**,
 [M-5] **edittoint()**
 rowmax() function, [M-5] **minmax()**
 rowmaxabs() function, [M-5] **minmax()**
 rowmin() function, [M-5] **minmax()**
 rowminmax() function, [M-5] **minmax()**
 rowmissing() function, [M-5] **missing()**
 rownonmissing() function, [M-5] **missing()**
 rows() function, [M-5] **rows()**
 rowscalefactors() function, [M-5] **_equilrc()**
 rowshape() function, [M-5] **rowshape()**
 rowsum() function, [M-5] **sum()**
 rowvector, [M-2] **declarations**, [M-6] **glossary**

S

scalar, [M-2] **declarations**, [M-6] **glossary**
 scalar functions, [M-4] **scalar**
 semicolons, [M-2] **semicolons**
 set, [M-3] **mata set**
 setbreakintr() function, [M-5] **setbreakintr()**
 setuniformseed() function, [M-5] **uniform()**
 sign() function, [M-5] **sign()**, [M-5] **dsign()**
 sin() function, [M-5] **sin()**
 singular value decomposition, [M-5] **svd()**,
 [M-5] **fullsvd()**
 sinh() function, [M-5] **sin()**
 sizeof() function, [M-5] **sizeof()**
 smallestdouble() function, [M-5] **mindouble()**
 SMCL, see **Stata Markup and Control Language**
 solve AX=B, [M-4] **solvers**, [M-5] **cholsolve()**,
 [M-5] **lusolve()**, [M-5] **qrsolve()**,
 [M-5] **svsolve()**, [M-5] **solvelower()**,
 [M-5] **solve_tol()**
 solve_tol() function, [M-5] **solve_tol()**
 _solvelower() function, [M-5] **solvelower()**
 solvelower() function, [M-5] **solvelower()**

- `_solvetolerance`, [M-5] `solve_tol()`
- `_solveupper()` function, [M-5] `solverlower()`
- `solveupper()` function, [M-5] `solverlower()`
- Sorensen, D., [M-1] **LAPACK**
- `_sort()` function, [M-5] `sort()`
- `sort()` function, [M-5] `sort()`
- source code, [M-1] **how**, [M-1] **source**, [M-6] **glossary**
- `spline3()` function, [M-5] `spline3()`
- `spline3eval()` function, [M-5] `spline3()`
- `sprintf()` function, [M-5] `printf()`
- `sqrt()` function, [M-5] `sqrt()`
- square
 - matrix, [M-6] **glossary**
 - root, [M-5] `sqrt()`, [M-5] `cholesky()`
- `_st__addobs()` function, [M-5] `st__addobs()`
- `st__addobs()` function, [M-5] `st__addobs()`
- `_st__addvar()` function, [M-5] `st__addvar()`
- `st__addvar()` function, [M-5] `st__addvar()`
- `_st__data()` function, [M-5] `st__data()`
- `st__data()` function, [M-5] `st__data()`
- `st__dir()` function, [M-5] `st__dir()`
- `st__dropobsif()` function, [M-5] `st__dropvar()`
- `st__dropobsin()` function, [M-5] `st__dropvar()`
- `st__dropvar()` function, [M-5] `st__dropvar()`
- `st__eclear()` function, [M-5] `st__rclear()`
- `st__global()` function, [M-5] `st__global()`
- `st__isfmt()` function, [M-5] `st__isfmt()`
- `st__isfmtnum()` function, [M-5] `st__isfmt()`
- `st__isfmtstr()` function, [M-5] `st__isfmt()`
- `st__isname()` function, [M-5] `st__isname()`
- `st__isnumvar()` function, [M-5] `st__vartype()`
- `st__isstrvar()` function, [M-5] `st__vartype()`
- `st__keepobsif()` function, [M-5] `st__dropvar()`
- `st__keepobsin()` function, [M-5] `st__dropvar()`
- `st__keepvar()` function, [M-5] `st__dropvar()`
- `st__local()` function, [M-5] `st__local()`
- `_st__macroexpand()` function, [M-5] `st__macroexpand()`
- `st__macroexpand()` function, [M-5] `st__macroexpand()`
- `st__matrix()` function, [M-5] `st__matrix()`
- `st__matrixcolstripe()` function, [M-5] `st__matrix()`
- `st__matrixrowstripe()` function, [M-5] `st__matrix()`
- `st__nobs()` function, [M-5] `st__nvar()`
- `st__numscalar()` function, [M-5] `st__numscalar()`
- `st__nvar()` function, [M-5] `st__nvar()`
- `st__rclear()` function, [M-5] `st__rclear()`
- `st__replacematrix()` function, [M-5] `st__matrix()`
- `st__sclear()` function, [M-5] `st__rclear()`
- `_st__sdata()` function, [M-5] `st__data()`
- `st__sdata()` function, [M-5] `st__data()`
- `_st__sstore()` function, [M-5] `st__store()`
- `st__sstore()` function, [M-5] `st__store()`
- `_st__store()` function, [M-5] `st__store()`
- `st__store()` function, [M-5] `st__store()`
- `st__strscalar()` function, [M-5] `st__numscalar()`
- `st__subview()` function, [M-5] `st__subview()`
- `st__tempfilename()` function, [M-5] `st__tempname()`
- `st__tempname()` function, [M-5] `st__tempname()`
- `st__tsrevar()` function, [M-5] `st__tsrevar()`
- `st__update()` function, [M-5] `st__update()`
- `st__varformat()` function, [M-5] `st__varformat()`
- `_st__varindex()` function, [M-5] `st__varindex()`
- `st__varindex()` function, [M-5] `st__varindex()`
- `st__varlabel()` function, [M-5] `st__varformat()`
- `st__varname()` function, [M-5] `st__varname()`
- `st__varrename()` function, [M-5] `st__varrename()`
- `st__vartype()` function, [M-5] `st__vartype()`
- `st__varvaluelabel()` function, [M-5] `st__varformat()`
- `st__view()` function, [M-5] `st__view()`
- `st__viewobs()` function, [M-5] `st__viewvars()`
- `st__viewvars()` function, [M-5] `st__viewvars()`
- `st__vldrop()` function, [M-5] `st__vlexists()`
- `st__vlexists()` function, [M-5] `st__vlexists()`
- `st__vlload()` function, [M-5] `st__vlexists()`
- `st__vllmap()` function, [M-5] `st__vlexists()`
- `st__vlmodify()` function, [M-5] `st__vlexists()`
- `st__vlsearch()` function, [M-5] `st__vlexists()`
- Stata
 - c()-class results, [M-5] `st__global()`
 - characteristics, [M-5] `st__global()`, [M-5] `st__dir()`
 - e()-class results, [M-5] `st__global()`, [M-5] `st__dir()`, [M-5] `st__rclear()`
 - error message, [M-5] `error()`
 - macros, [M-5] `st__global()`, [M-5] `st__local()`, [M-5] `st__dir()`
 - matrices, [M-5] `st__matrix()`, [M-5] `st__dir()`
 - op.varname, see Stata, time-series operated variable
 - r()-class results, [M-5] `st__global()`, [M-5] `st__dir()`, [M-5] `st__rclear()`
 - s()-class results, [M-5] `st__global()`, [M-5] `st__dir()`, [M-5] `st__rclear()`
 - scalars, [M-5] `st__numscalar()`, [M-5] `st__dir()`
 - temporary
 - filenames, [M-5] `st__tempname()`
 - names, [M-5] `st__tempname()`
 - time-series operated variable, [M-5] `st__tsrevar()`, [M-6] **glossary**
 - value labels, [M-5] `st__varformat()`, [M-5] `st__vlexists()`
 - variable
 - formats, [M-5] `st__varformat()`
 - labels, [M-5] `st__varformat()`
- Stata Markup and Control Language, [M-5] `display()`, [M-5] `printf()`, [M-5] `errprintf()`
- Stata, execute command, [M-3] `mata stata`, [M-5] `stata()`
- `stata`, [M-3] `mata stata`
- `_stata()` function, [M-5] `stata()`
- `stata()` function, [M-5] `stata()`
- statistical
 - density functions, [M-5] `normal()`
 - distribution functions, [M-5] `normal()`

string
 duplication, [M-5] **strdup()**
 functions, [M-4] **string**
 pattern matching, [M-5] **strmatch()**
string, [M-2] **declarations**, [M-6] **glossary**
strlen() function, [M-5] **strlen()**
strlower() function, [M-5] **strupper()**
strltrim() function, [M-5] **strtrim()**
strmatch() function, [M-5] **strmatch()**
strpos() function, [M-5] **strpos()**
strproper() function, [M-5] **strupper()**
strreverse() function, [M-5] **strreverse()**
strrtrim() function, [M-5] **strtrim()**
strtrim() function, [M-5] **strtrim()**
strupper() function, [M-5] **strupper()**
substr() function, [M-5] **substr()**
subinword() function, [M-5] **substr()**
 subscripts, [M-6] **glossary**
substr() function, [M-5] **substr()**
 subtraction, [M-2] **op_arith**, [M-2] **op_colon**
sum() function, [M-5] **sum()**
 SVD, see singular value decomposition
_svd() function, [M-5] **svd()**
svd() function, [M-5] **svd()**
_svd_la() function, [M-5] **svd()**, [M-5] **fullsvd()**
_svdsv() function, [M-5] **svd()**
svdsv() function, [M-5] **svd()**
_svsolve() function, [M-5] **svsolve()**
svsolve() function, [M-5] **svsolve()**
swap() function, [M-5] **swap()**
_syemeigen_la() function, [M-5] **eigensystem()**
_syemeigensystem() function, [M-5] **eigensystem()**
syemeigensystem() function, [M-5] **eigensystem()**
_syemeigenvalues() function, [M-5] **eigensystem()**
syemeigenvalues() function, [M-5] **eigensystem()**
 symmetric matrices, [M-5] **issymmetric()**,
 [M-5] **makesymmetric()**, [M-6] **glossary**
 symmetrically, [M-6] **glossary**
symmreldif() function, [M-5] **reldif()**
 syntax, [M-2] **syntax**

T

tan() function, [M-5] **sin()**
tanh() function, [M-5] **sin()**
tden() function, [M-5] **normal()**
 time and date, [M-5] **c()**
Toeplitz() function, [M-5] **Toeplitz()**
tokens() function, [M-5] **tokens()**
 tolerances, [M-1] **tolerance**, [M-5] **solve_tol()**
 trace of matrix, [M-5] **trace()**
trace() function, [M-5] **trace()**
 traceback log, [M-2] **errors**, [M-5] **error()**,
 [M-6] **glossary**
 transmorphic, [M-2] **declarations**
 transpose, [M-2] **op_transpose**, [M-5] **_transpose()**,
 [M-5] **transposeonly()**, also see conjugate
 transpose

_transpose() function, [M-5] **_transpose()**
_transposeonly() function, [M-5] **transposeonly()**
transposeonly() function, [M-5] **transposeonly()**
 transposition, [M-2] **op_transpose**, [M-5] **_transpose()**,
 [M-5] **transposeonly()**
 triangular matrix, [M-5] **solvelower()**, [M-6] **glossary**
trigamma() function, [M-5] **factorial()**
 trigonometric functions, [M-5] **sin()**
trunc() function, [M-5] **trunc()**
ttail() function, [M-5] **normal()**
type, [M-2] **declarations**, [M-6] **glossary**
 type, broad, [M-6] **glossary**

U

underscore functions, [M-1] **naming**, [M-6] **glossary**
uniform() function, [M-5] **uniform()**
 uniformly distributed random numbers,
 [M-5] **uniform()**
uniqrows() function, [M-5] **uniqrows()**
 unit vectors, [M-5] **e()**
 unitary matrix, [M-6] **glossary**
unitcircle() function, [M-5] **unitcircle()**
_unlink() function, [M-5] **unlink()**
unlink() function, [M-5] **unlink()**
unorder() function, [M-5] **sort()**
 upper-triangular matrix, see triangular matrix
 uppercase, [M-5] **strupper()**
_uppertriangle() function, [M-5] **lowertriangle()**
uppertriangle() function, [M-5] **lowertriangle()**

V

valofexternal() function, [M-5] **valofexternal()**
Vandermonde() function, [M-5] **Vandermonde()**
 variable, [M-2] **declarations**, [M-5] **st_data()**,
 [M-6] **glossary**
 variable naming convention, [M-1] **naming**
variance() function, [M-5] **mean()**
vec() function, [M-5] **vec()**
vech() function, [M-5] **vec()**
 vector, [M-2] **declarations**, [M-6] **glossary**
 vector norm, [M-5] **norm()**
 version, [M-2] **version**
 version control, [M-2] **version**, [M-5] **callersversion()**
 view matrix, [M-5] **isview()**, [M-5] **st_subview()**,
 [M-5] **st_view()**, [M-5] **st_viewvars()**,
 [M-6] **glossary**
 viewsource, [M-1] **source**
 void
 function, [M-2] **declarations**, [M-6] **glossary**
 matrix, [M-2] **void**, [M-6] **glossary**

W

warning messages, [M-2] **pragma**
 which, [M-3] **mata which**
 while, [M-2] **while**, [M-2] **continue**, [M-2] **break**,
 [M-2] **semicolons**