Title

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Utility — Matrix utility functions

Contents Description Remarks and examples Also see

Contents

Selection

select( )	`select()`	select rows or columns
	`st_select()`	select rows or columns of view
	`selectindex()`	select indices

Missing values

missing( )	`missing()`	count of missing values
	`rowmissing()`	count of missing values, by row
	`colmissing()`	count of missing values, by column
	`nonmissing()`	count of nonmissing values
	`rownonmissing()`	count of nonmissing values, by row
	`colnonmissing()`	count of nonmissing values, by column
	`hasmissing()`	whether matrix has missing values
missingof( )	`missingof()`	appropriate missing value

Range, sums, & cross products

minmax( )	`rowmin()`	minimum, by row
	`colmin()`	minimum, by column
	`min()`	minimum, overall
	`rowmax()`	maximum, by row
	`colmax()`	maximum, by column
	`max()`	maximum, overall
	`rowminmax()`	minimum and maximum, by row
	`colminmax()`	minimum and maximum, by column
	`minmax()`	minimum and maximum, overall
	`rowmaxabs()`	`rowmax(abs())`
	`colmaxabs()`	`colmax(abs())`
minindex( )	`minindex()`	indices of minimums
	`maxindex()`	indices of maximums
sum( )	`rowsum()`	sum of each row
	`colsum()`	sum of each column
	`sum()`	overall sum
	`quadrowsum()`	quad-precision sum of each row
	`quadcolsum()`	quad-precision sum of each column
	`quadsum()`	quad-precision overall sum

Range, sums, & cross products, *continued*

runningsum( )	`runningsum()`	running sum of vector
	`quadrunningsum()`	quad-precision `runningsum()`
panelsum( )	`panelsum()`	within-panel sum of each column
cross( )	`cross()`	$X'X$, $X'Z$, etc.
crossdev( )	`crossdev()`	$(X:-x)'(X:-x)$, $(X:-x)'(Z:-z)$, etc.
quadcross( )	`quadcross()`	quad-precision `cross()`
	`quadcrossdev()`	quad-precision `crossdev()`

Programming

reldif( )	`reldif()`	relative difference
	`mreldif()`	max. relative difference between matrices
	`mreldifsym()`	max. relative difference from symmetry
	`mreldifre()`	max. relative difference from real
all( )	`all()`	`sum(!`L`)==0`
	`any()`	`sum(`L`)!=0`
	`allof()`	`all(`P`:==`s`)`
	`anyof()`	`any(`P`:==`s`)`
panelsetup( )	`panelsetup()`	initialize panel-data processing
	`panelstats()`	summary statistics on panels
	`panelsubmatrix()`	obtain matrix for panel i
	`panelsubview()`	obtain view matrix for panel i
_negate( )	`_negate()`	fast negation of matrix

Constants & tolerances

mindouble( )	`mindouble()`	minimum nonmissing value
	`maxdouble()`	maximum nonmissing value
	`smallestdouble()`	smallest $e > 0$
epsilon( )	`epsilon()`	unit roundoff error
floatround( )	`floatround()`	round to float precision
solve_tol( )	`solve_tol()`	tolerance used by solvers and inverters

Description

Matrix utility functions tell you something about the matrix, such as the number of rows or whether it is diagonal.

Remarks and examples

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There is a thin line between utility and manipulation; also see

[M-4] **Manipulation** Matrix manipulation functions

Also see

[M-4] **Intro** — Categorical guide to Mata functions