Title

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Lmatrix( ) — Elimination matrix

Description

`Lmatrix(`n`)` returns the $n(n+1)/2 \times n^2$ elimination matrix `L` for which `L*vec(`X`) = vech(`X`)`, where X is an $n \times n$ symmetric matrix.

Syntax

real matrix `Lmatrix(`*real scalar* n`)`

Remarks and examples

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Elimination matrices are frequently used in computing derivatives of functions of symmetric matrices. Section 9.6 of Lütkepohl (1996) lists many useful properties of elimination matrices.

Conformability

`Lmatrix(`n`)`:

n:	1×1
result:	$n(n+1)/2 \times n^2$

Diagnostics

`Lmatrix(`n`)` aborts with error if n is less than 0 or is missing. n is interpreted as `trunc(`n`)`.

Reference

Lütkepohl, H. 1996. *Handbook of Matrices*. New York: Wiley.

Also see

[M-5] **Dmatrix( )** — Duplication matrix

[M-5] **Kmatrix( )** — Commutation matrix

[M-5] **vec( )** — Stack matrix columns

[M-4] **Standard** — Functions to create standard matrices