sublowertriangle() — Return a matrix with zeros above a diagonal

Description

`sublowertriangle(`A`,` p`)` returns A with the elements above a diagonal set to zero. In the returned matrix, $A[i, j] = 0$ for all $i - j < p$. If it is not specified, p is set to zero.

`_sublowertriangle()` mirrors `sublowertriangle()` but modifies A.
`_sublowertriangle(`A`,` p`)` sets $A[i, j] = 0$ for all $i - j < p$. If it is not specified, p is set to zero.

Syntax

numeric matrix `sublowertriangle(`*numeric matrix A* [`,` *numeric scalar p*]`)`

void `_sublowertriangle(`*numeric matrix A* [`,` *numeric scalar p*]`)`

where argument p is optional.

Remarks and examples

stata.com

Remarks are presented under the following headings:

Get lower triangle of a matrix

If A is a square matrix, then `sublowertriangle(`A`, 0)` = `lowertriangle(`A`)`. `sublowertriangle()` is a generalization of `lowertriangle()`.

We begin by defining `A`

```
: A = (1, 2, 3 \ 4, 5, 6 \ 7, 8, 9)
```

`sublowertriangle(A, 0)` returns `A` with zeros above the main diagonal as does `lowertriangle()`:

```
: sublowertriangle(A, 0)
       1   2   3
    +-------------+
  1 |  1   0   0  |
  2 |  4   5   0  |
  3 |  7   8   9  |
    +-------------+
```

sublowertriangle(A, 1) returns A with zeros in the main diagonal and above.

```
: sublowertriangle(A, 1)
1   2   3
    ┌─────────────┐
  1 │  0   0   0  │
  2 │  4   0   0  │
  3 │  7   8   0  │
    └─────────────┘
```

sublowertriangle(A, p) can take negative p. For example, setting p $= -1$ yields

```
: sublowertriangle(A, -1)
        1   2   3
    ┌─────────────┐
  1 │  1   2   0  │
  2 │  4   5   6  │
  3 │  7   8   9  │
    └─────────────┘
```

Nonsquare matrices

sublowertriangle() and _sublowertriangle() may be used with nonsquare matrices.

For instance, we define a nonsquare matrix A

```
: A = (1, 2, 3, 4 \ 5, 6, 7,  8 \ 9, 10, 11, 12)
```

We use sublowertriangle() to obtain the lower triangle of A:

```
: sublowertriangle(A, 0)
         1    2    3    4
    ┌──────────────────────┐
  1 │   1    0    0    0   │
  2 │   5    6    0    0   │
  3 │   9   10   11    0   │
    └──────────────────────┘
```

Conformability

sublowertriangle(A, p):

input:

A:	$r \times c$
p:	1×1 (optional)

output:

result:	$r \times c$

_sublowertriangle(A, p):

input:

A:	$r \times c$
p:	1×1 (optional)

output:

A:	$r \times c$

Diagnostics

None.

Also see

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

For suggested citations, see the FAQ on citing Stata documentation.