

Description

`vec(T)` returns T transformed into a column vector with one column stacked onto the next.

`vech(T)` returns square and typically symmetric matrix T transformed into a column vector; only the lower half of the matrix is recorded.

`invvech(v)` returns `vech()`-style column vector v transformed into a symmetric (Hermitian) matrix.

Syntax

transmorphic colvector `vec(transmorphic matrix T)`
transmorphic colvector `vech(transmorphic matrix T)`
transmorphic matrix `invvech(transmorphic colvector v)`

Remarks and examples

Remarks are presented under the following headings:

Example of `vec()`

Example of `vech()` and `invvech()`

Example of `vec()`

```
: x
      1  2  3
1  [ 1  2  3 ]
2  [ 4  5  6 ]

: vec(x)
      1
1  [ 1 ]
2  [ 4 ]
3  [ 2 ]
4  [ 5 ]
5  [ 3 ]
6  [ 6 ]
```

Example of vech() and invvech()

```
: x
[symmetric]
      1  2  3
1  [ 1
2  [ 2  4
3  [ 3  6  9

: v = vech(x)
: v
      1
1  [ 1
2  [ 2
3  [ 3
4  [ 4
5  [ 6
6  [ 9

: invvech(v)
[symmetric]
      1  2  3
1  [ 1
2  [ 2  4
3  [ 3  6  9
```

Conformability

```
vec(T):
      T:      r × c
      result:  r * c × 1

vech(T):
      T:      n × n
      result:  (n(n + 1)/2 × 1)

invvech(v):
      v:      (n(n + 1)/2 × 1)
      result:  n × n
```

Diagnostics

vec(T) cannot fail.

vech(T) aborts with error if T is not square. vech() records only the lower triangle of T; it does not require T be symmetric.

invvech(v) aborts with error if v does not have 0, 1, 3, 6, 10, ... rows.

Also see

[M-4] [Manipulation](#) — Matrix manipulation

Stata, Stata Press, and Mata are registered trademarks of StataCorp LLC. Stata and Stata Press are registered trademarks with the World Intellectual Property Organization of the United Nations. StataNow and NetCourseNow are trademarks of StataCorp LLC. Other brand and product names are registered trademarks or trademarks of their respective companies. Copyright © 1985–2025 StataCorp LLC, College Station, TX, USA. All rights reserved.

For suggested citations, see the FAQ on [citing Stata documentation](#).

