conj( ) — Complex conjugate

Description Syntax Remarks and examples Conformability Diagnostics Also see

Description

`conj(`Z`)` returns the elementwise complex conjugate of Z, that is, `conj(`a+b`i)` = $a - b$`i`. `conj()` may be used with real or complex matrices. If Z is real, Z is returned unmodified.

`_conj(`A`)` replaces A with `conj(`A`)`. Coding `_conj(`A`)` is equivalent to coding A = `conj(`A`)`, except that less memory is used.

Syntax

numeric matrix `conj(`*numeric matrix Z*`)`

void `_conj(`*numeric matrix A*`)`

Remarks and examples

Given $m \times n$ matrix Z, `conj(`Z`)` returns an $m \times n$ matrix; it does not return the transpose. To obtain the conjugate transpose matrix, also known as the adjoint matrix, adjugate matrix, Hermitian adjoin, or Hermitian transpose, code

$$Z'$$

See [M-2] **op_transpose**.

A matrix equal to its conjugate transpose is called Hermitian or self-adjoint, although in this manual, we often use the term symmetric.

Conformability

`conj(`Z`)`:

Z:	$r \times c$
result:	$r \times c$

`_conj(`A`)`:

input:	
A:	$r \times c$
output:	
A:	$r \times c$

Diagnostics

`conj(`Z`)` returns a real matrix if Z is real and a complex matrix if Z is complex.

`conj(`Z`)`, if Z is real, returns Z itself and not a copy. This makes `conj()` execute instantly when applied to real matrices.

`_conj(`A`)` does nothing if A is real (and hence, does not abort if A is a view).

Also see

[M-5] **_transpose()** — Transposition in place

[M-4] **Scalar** — Scalar mathematical functions

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