makesymmetric( ) — Make square matrix symmetric (Hermitian)

Syntax

    numeric matrix    makesymmetric( numeric matrix A )

    void              _makesymmetric( numeric matrix A )

Description

    makesymmetric( A ) returns A made into a symmetric (Hermitian) matrix by reflecting elements below the diagonal.

    _makesymmetric( A ) does the same thing but stores the result back in A.

Remarks and examples

If A is real, elements below the diagonal are copied into their corresponding above-the-diagonal position.

If A is complex, the conjugate of the elements below the diagonal are copied into their corresponding above-the-diagonal positions, and the imaginary part of the diagonal is set to zero.

Whether A is real or complex, roundoff error can make matrix calculations that are supposed to produce symmetric matrices produce matrices that vary a little from symmetry, and makesymmetric( ) can be used to correct the situation.

Conformability

    makesymmetric( A ):
        A:    n × n
        result:    n × n

    _makesymmetric( A ):
        A:    n × n

Diagnostics

    makesymmetric( A ) and _makesymmetric( A ) abort with error if A is not square. Also, _makesymmetric() aborts with error if A is a view.
Also see

[M-5] issymmetric() — Whether matrix is symmetric (Hermitian)

[M-4] manipulation — Matrix manipulation