Title

> **swap( ) —** Interchange contents of variables

Description

swap(A, B) interchanges the contents of A and B. A and B are not required to be of the same type or dimension.

Syntax

> *void*   swap(*transmorphic matrix A*, *transmorphic matrix B*)

Remarks and examples

There is no faster way than swap(A, B) to assign $A=B$ when you do not care about the contents of B after the assignment. For instance, you have the code

> A = B
> B = ...(matrix expression)...

Faster is

>   swap(A, B)
> B = ...(matrix expression)...

The execution time of swap() is independent of the size of A and B, and swap() conserves memory to boot. Pretend that B is a 900 × 900 matrix. After $A=B$ is executed, but before B is reassigned, two copies of the 900 × 900 matrix exist. That does not happen with swap().

Conformability

swap(A, B):
    input:
            A: $r_1 \times c_1$
            B: $r_2 \times c_2$
    output:
            A: $r_2 \times c_2$
            B: $r_1 \times c_1$

Diagnostics

swap(A, B) works only with variables. Do not code, for instance, swap($A[i,j]$, $A[j,i]$). It is not an error, but it will have no effect.

Also see

[M-4] **Programming** — Programming functions