quadcross( ) — Quad-precision cross products

Description Syntax Remarks and examples Conformability Diagnostics Also see

Description

`quadcross()` makes calculations of the form

$X'X$

$X'Z$

$X'\texttt{diag}(w)X$

$X'\texttt{diag}(w)Z$

This function mirrors `cross()` (see [M-5] **cross( )**), the difference being that sums are formed in quad precision rather than in double precision, so `quadcross()` is more accurate.

`quadcrossdev()` makes calculations of the form

$(X\text{:}\ -x)'(X\text{:}\ -x)$

$(X\text{:}\ -x)'(Z\text{:}\ -z)$

$(X\text{:}\ -x)'\texttt{diag}(w)(X\text{:}\ -x)$

$(X\text{:}\ -x)'\texttt{diag}(w)(Z\text{:}\ -z)$

This function mirrors `crossdev()` (see [M-5] **crossdev( )**), the difference being that sums are formed in quad precision rather than in double precision, so `quadcrossdev()` is more accurate.

Syntax

real matrix `quadcross(`*X*`,` *Z*`)`

real matrix `quadcross(`*X*`,` *w*`,` *Z*`)`

real matrix `quadcross(`*X*`,` *xc*`,` *Z*`,` *zc*`)`

real matrix `quadcross(`*X*`,` *xc*`,` *w*`,` *Z*`,` *zc*`)`

real matrix `quadcrossdev(`*X*`,` *x*`,` *Z*`,` *z*`)`

real matrix `quadcrossdev(`*X*`,` *x*`,` *w*`,` *Z*`,` *z*`)`

real matrix `quadcrossdev(`*X*`,` *xc*`,` *x*`,` *Z*`,` *zc*`,` *z*`)`

real matrix `quadcrossdev(`*X*`,` *xc*`,` *x*`,` *w*`,` *Z*`,` *zc*`,` *z*`)`

where

X:	*real matrix X*
xc:	*real scalar xc*
x:	*real rowvector x*
w:	*real vector w*
Z:	*real matrix Z*
zc:	*real scalar zc*
z:	*real rowvector z*

Remarks and examples

The returned result is double precision, but the sum calculations made in creating that double-precision result were made in quad precision.

Conformability

`quadcross()` has the same conformability requirements as `cross()`; see [M-5] **cross( )**.

`quadcrossdev()` has the same conformability requirements as `crossdev()`; see [M-5] **crossdev( )**.

Diagnostics

See *Diagnostics* in [M-5] **cross( )** and *Diagnostics* in [M-5] **crossdev( )**.

Also see

[M-5] **cross( )** — Cross products

[M-5] **crossdev( )** — Deviation cross products

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

[M-4] **Utility** — Matrix utility functions