Subject: Re: general matrix multiplication
Posted by Martin Schultz on Mon, 23 Feb 1998 08:00:00 GMT
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David Schmidt wrote:
>
> All,
>
> I'm looking for a routine to perform generalized matrix multipication
> over particular indexes within arrays. For example, let A be a
> (10,3,20) array and B be a (20,5,10,30) array. I want to be able to
> multiply and add (i.e. matrix multiply) the elemens within index 1,3 of
> A and 3,1 of B and produce a result of dimension (3,5,10). While this
> can be done simply by using FOR loops, I'm looking for a routine that
> does this efficiently, using built-in IDL routines. Does anyone know of
> such a routine? ...how I could construct such a routine?
>
> Thanks,
>
> David
> --

hmmm - I am not sure I understand how you will get a result with the
dimensions you indicate. Anyway, here some hints that will hopefully
help you a little:
While matrix multiplication is indeed provided by IDL with the
operator (see online help:
"The ## operator does what is commonly referred to as matrix
multiplication. It computes array elements by multiplying the rows of
the first array by the columns of the second array. The second array
must have the same number of rows as the first array has columns. The
resulting array has the same number of rows as the first array and the
same number of columns as the second array."

I don't think you will have a chance to get around the loops over
3, 5, and 30. Your piece of code should be something like
```
    result = fltarr(10,10,3,5,30)
    for i=0,2 do begin
       for j=0,4 do begin
          for k=0,29 do begin
             tmp = A(*,i,*) ## B(*,j,*,k)
             result(*,*,i,j,k) = tmp
          endfor
       endfor
    endfor
```


Regards,

Martin.

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