Subject: Re: Help with matrix operations
Posted by zawodny on Wed, 28 Apr 1993 11:47:13 GMT
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In article <1rk7gs$4m6@morrow.stanford.edu> pln@egret0.Stanford.EDU writes:
> I have a little matrix problem that I'm trying to do without using
> loops. So far I'm not clever enough to figure out how to do it.
> Suppose we have
>   A = fltarr(N,N)
>   B = fltarr(N)
>   C = fltarr(N,N,N)
> I want to have C(i,j,k) = A(i,j) + B(k)
> for all i,j,k < N. Is there a way to do this without writing
> ugly loops? I'm sure it's trivial, and I'll feel like a dope
> when the first person points it out. Fire away.
>
> --
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Some one has suggested what may probably be the best (fastest) way to do this:

for k=0,n-1 do a(0,0,k) = a(*,*) * b(k) .

However there is a way to do this without loops. Let's take a more general
situation. Let

A = FLTARR(x,y)
B = FLTARR(z)
C = FLTARR(x,y,z)

to get C(i,j,k) = A(i,j) * b(k) do the following (make sure you are doing
integer math here).

```
; Make the indicies
 ma   = LINDGEN(x,y,z) mod (x*y)
 mb   = LINDGEN(x,y,z) / (x*y)
; define the destination array
 c    = fltarr(x,y,z)
; DO IT!
 c(*) = a(ma(*)) * b(mb(*))
```

That is all there is to it. I'll argue that you have done way too much math

this way then you would have done with the signle loop idea. Some may agrue that the use of LINDGEN is an implicit loop. I won't argue with that either.

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