Subject: Re: ROT is ROTTEN (a solution)
Posted by Wayne Landsman on Wed, 21 Nov 2001 18:41:39 GMT
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Martin Downing wrote:

> line 128 of rot.pro:
>
> from:
>
> theta = -angle/!radeg ;angle in degrees CLOCKWISE.
>
> to:
>
> theta = (-angle MOD 360) *acos(0.0d)/90 ;angle in degrees CLOCKWISE. (mod
> MRD 21/11/2001 to correct for precision error)
>

That's neat how the double precision improves things. But I 'd still
emphasize that if you are rotating by a multiple of 90 degrees then you should
be using ROTATE() and not ROT() for two reasons:

(1) ROTATE() is much faster (almost a factor of 4 on my Solaris machine)
(2) Using ROTATE() will ensure that you have the exactly correct numbers in the
output array (since it simply moves elements within the array and performs no
arithmetic operations). The improved ROT() is much better but it is not
perfect. For example

```
{ sparc sunos unix 5.3 Nov 11 1999}
IDL>a = dist(2048)
IDL>print,total(a)
  3.28828e+09
IDL>print,total(rot(a,90))     ;use improved ROT with double precision !RADEG
  3.28830e+09
IDL>print,total(rotate(a,1))
  3.28828e+09
```

So possibly one could add to the beginning of ROT() something like:

```
theta = angle mod 90
if theta EQ 0 then return, rotate(a, theta/90)
```

although one needs to also worry if the user has also set the magnification or
pivot keywords

--Wayne Landsman landsman@mpb.gsfc.nasa.gov