Subject: ROT is ROTTEN
Posted by Bhautik Jitendra Josh on Wed, 21 Nov 2001 04:56:04 GMT
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Hi all,

The question I put to you all today is this: is ROT completely and utterly broken?

Lets take a nice and normal 5x5 float array:

```
MOO>a=findgen(5,5) & print, a
      0.00000      1.00000      2.00000      3.00000      4.00000
      5.00000      6.00000      7.00000      8.00000      9.00000
      10.0000      11.0000      12.0000      13.0000      14.0000
      15.0000      16.0000      17.0000      18.0000      19.0000
      20.0000      21.0000      22.0000      23.0000      24.0000
```

Now, lets do a quick checksum:

```
MOO>print, total(a)
      300.000
```

So any 90 degree rotations we perform should maintain this. Lets try it out:

```
MOO>print, total(rot(a,90))
      296.000
```

OMG! *world in crisis* How to fix? Use interpolation.

```
MOO>print, total(rot(a,90,/INTERP))
      300.000
```

phew Lets do a clockwise rotation instead.

```
MOO>print, total(rot(a,-90,/interp))
      300.000
```

So, for those who can remember their high school math, -90 degrees is the same as a 270 degree rotation.

```
MOO>print, total(rot(a,270,/interp))
      290.000
```

argh! 360 degrees - a complete rotation, no difference, right?

```
MOO>print, total(rot(a,360,/interp))
```

```
     290.000
```

Perhaps its the interpolation thats stuffing it up. Lets leave it out.

```
MOO>print, total(rot(a,360))
     262.000
```

brain melts

It doesn't make a difference whether you use the interp or cubic keywords, nor if you shift it so that the centre of rotation is set to be the corner of the pixel rather than the centre of the pixel. If it doesn't work for multiples of 90 it certainly is going to have issues with arbitrary angles.

ROT is bad. Can it be fixed? Is there a (fast) alternative?

Cheers,
Bhautik

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 ____________________________________________________________
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