
Subject: Re: making a checkerboard array?

Posted by [JD Smith](#) on Wed, 26 Sep 2007 17:27:37 GMT

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On Tue, 25 Sep 2007 15:52:33 -0600, David Fanning wrote:

> JD Smith writes:

>

>>> I'm trying to make a checkerboard mask for an array, but I'm missing

>>> something that is likely to be obvious to the IDL array masters.

>>

>> l=lindgen(nx,ny)

>> l=(l mod (xside*2) lt xside) XOR (l/nx mod (yside*2) ge yside)

>

> Well, uh, it's not obvious to me. :-(

Well, $l \bmod (xside*2)$ produces a horizontal ramp from 0... $xside*2$, repeating over and over, the same for each row (as long as the array width is an even multiple of $xside$). Comparing this ramp to $xside$, ala $(ramp \text{ lt } xside)$ produces alternating vertical bars of width $xside$. Similarly for l/nx (the row number), producing alternating horizontal bars of height $yside$. Put them on top of each other and you have a lovely quilt pattern. But we don't want a quilt, we want a checkerboard, i.e. we want only those spots where the two bar patterns don't overlap, hence the exclusive or (XOR).

In case that wasn't clear, here it is dfanning style ;)

```
theRamp = LINDGEN( theNumberOfXPixels , theNumberOfYPixels )
```

```
theCheckerBoardHorizontalPeriod = 2 * theCheckWidth
```

```
theHorizontalRamp = theRamp MOD theCheckerBoardHorizontalPeriod
```

```
theHorizontalBands = theHorizontalRamp LT theCheckWidth
```

```
theRowNumbers = theRamp/theNumberOfXPixels
```

```
theCheckerBoardVerticalPeriod = 2 * theCheckHeight
```

```
theVerticalRamp = theRowNumbers MOD theCheckerBoardVerticalPeriod
```

```
theVerticalBands = theVerticalRamp GE theCheckHeight
```

```
theCheckerBoard = theHorizontalBands XOR theVerticalBands
```

JD
