Subject: Cleaver 2d reverse indicies?
Posted by Brian Larsen on Mon, 03 Nov 2008 20:54:05 GMT
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All,

I am using hist_nd.pro from J.D. Smith to find the indices that are in each bin of a 2d mapping of data.

I have 3 arrays:

```
THEMIS> help, theta, lshell, pxxm
THETA           DOUBLE    = Array[282576]
LSHELL          DOUBLE    = Array[282576]
PXXM            FLOAT     = Array[282576]
```

I want the mean pxxm in each of the theta-lshell 2d space.

This is accomplished with:

```
nd = hist_nd(transpose([[theta],[lshell]]), $
          [size_theta_bin, size_l_bin], $
          min = [min(theta) > min_theta, min(lshell) > min_lshell],
$
          max = [max(theta) < max_theta, max(lshell) < max_lshell],
$
          reverse_indices = ri)
```

OK so here is the part where I want some cleverness. I have not figured out how to do this without nested for loops and those are evil (as we all know).

```
bins_mean = fltarr(size(nd, /dim))
nx = (size(nd, /dim))[0]
ny = (size(nd, /dim))[1]
FOR i = 0UL, nx-1 DO BEGIN
  FOR j = 0UL, ny-1 DO BEGIN
    ind_ri = [i+nx*j]
    IF ri[ind_ri] EQ ri[ind_ri+1] THEN CONTINUE ; nothing to do in
this iteration
    ri_sel = ri[ri[ind_ri]:ri[ind_ri+1]-1]
    bins_mean[i, j] = mean(pxxm(ri_sel), /nan)
  ENDFOR
ENDFOR
```

Is there some other/better way to do this? I am wondering if I am missing a trick, or just thinking about this wrong, or I have it right. The reverse indices is always cool and always a bit of voodoo for me.

Thanks all,

Brian

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