
Subject: Re: something (wrong?) with CONGRID?

Posted by [David Fanning](#) on Mon, 02 May 2011 04:13:41 GMT

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JP writes:

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> I think I came across a bug with CONGRID, but I'll be happy to be shown wrong.
>
> in the following example all goes as expected:
>
> a = lindgen(95, 74)
> b = congrid(a, 95*10, 74*10)
> Histo_b = Histogram(b, BINSIZE=1)
> help, b
> minmax, Histo_b
>
> I get:
> B          LONG      = Array[950, 740]
>    100      100
>
> so far, so good, b is an array 10 times larger and wider than a and all the elements of a are
repeated 100 times in b.
>
> now I change the size of the array a:
>
> a = lindgen(958, 745)
> b = congrid(a, 958*10, 745*10)
> Histo_b = Histogram(b, BINSIZE=1)
> help, b
> minmax, Histo_b
>
> This time I get:
> B          LONG      = Array[9580, 7450]
>    90      120
>
> the size of b is OK, but there are some elements repeated 90 times and some others repeated
120 times!!?? I was expecting again 100 and 100.
>
> If I go a bit further and do:
> Histo_b = REFORM(histo_b, 958, 745)
> cgIMAGE, histo_b, SCALE=1
>
> I can see that the values of a repeated 90 times (instead as 100 as expected) are in two
columns to the right and the values repeated 120 times are in the last column to the right...
>
>
> Is there anything wrong with CONGRID or I am missing something there?
```

I don't know exactly why this is happening. But I have seen enough of this kind of thing over the years to feel confident that it is yet another (although interesting) variation of the "sky is falling" phenomenon.

http://www.idlcoyote.com/math_tips/sky_is_falling.html

In other words, when the replication isn't exact, interpolation has to play a role and computers just cannot represent every number exactly. Some numbers must fall on the "razor's edge" and this fact results in some slight imbalancing of the number of repeats.

http://www.idlcoyote.com/math_tips/razoredge.html

I don't think there is anything particularly alarming about this. It is really no different then learning that even mathematical theories cannot be complete. It just means that whatever we do, there is mystery in the world. I happen to think that is **exactly** the way it should be. :-)

Cheers,

David

--

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Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>

Sepore ma de ni thui. ("Perhaps thou speakest truth.")
