
Subject: Re: REBIN needs explaining
Posted by [JD Smith](#) on Tue, 30 Nov 2004 23:56:14 GMT
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On Tue, 30 Nov 2004 16:32:03 -0700, David Fanning wrote:

```
> Hi Folks,
>
> Can someone (Craig?) explain this to me.
>
> Consider:
>
> v = [0, 10]
>
> I understand this:
>
> Print, rebin(v, 20, /Sample)
> 0  0  0  0  0  0  0  0  0
> 0  10 10 10 10 10 10 10 10
> 10 10
>
> What I don't understand is this:
>
> Print, rebin(v, 20)
> 0  1  2  3  4  5  6  7  8
> 9  10 10 10 10 10 10 10 10
> 10 10
>
> Aren't there an awful lot of 10s in there!? Why doesn't this come
> out like this:
>
> 0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8
> 9 9 10 10
>
> I notice REBIN, CONGRID, and even CMCONGRID does this same thing. Why?
```

From the manual:

When expanding an array, REBIN interpolates, it never extrapolates. Each of the $n-1$ intervals in the n -element input array produces m/n interpolates in the m -element output array. The last m/n points of the result are obtained by duplicating element $n-1$ of the input array because their interpolates would lie outside the input array.

So here it has just 1 interval producing 10 points, and 10 points are duplicated from the last value. The manual also recommends the solution:

If this effect is undesirable, use the INTERPOLATE function.

A good question is why they consider the need to avoid extrapolation by duplicating elements, rather than just interpolating on all internal intervals. I'm not sure for what problems the current behavior would be desirable.

JD
