Subject: Re: IDL 8.2.2 and PLOT with NaN values
Posted by Lajos Foldy on Wed, 27 Mar 2013 21:39:22 GMT
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On Wednesday, March 27, 2013 10:10:23 PM UTC+1, wlandsman wrote:
> Not only are the math errors hardware dependent, but today I came across the fact that it can depend on how the array is ordered.
>
> IDL> print,min([2.,!values.f_nan,3.])
> 2.00000
> IDL> print,min([!values.f_nan,3.,2.])
> NaN
> IDL> print,!version
> { x86_64 linux unix linux 8.2.2 Jan 23 2013 64 64}
>
> The help for MIN says
>
> "Note: If the MIN function is run on an array containing NaN values and the NAN keyword is not set, an invalid result will occur."
>
> but this should probably read
>
> Note: If the MIN function is run on an array containing NaN values and the NAN keyword is not set, an invalid result **may** occur.

This can be explained: a MIN function implementation may look like:

```
min=arr[0]
for j=1,n_elements(arr)-1 do min=min<arr[j]
```

so a non-NaN first elements is vital (without /NaN). For small arrays, only this first element counts. For large arrays, multithreading comes into the picture and there are multiple first elements (each thread has one somewhere in the array).

regards,
Lajos