
Subject: Re: TOTAL() and NaNs, again

Posted by [Craig Markwardt](#) on Mon, 25 Mar 2013 23:35:01 GMT

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On Monday, March 25, 2013 5:30:30 PM UTC-4, Fabien wrote:

```
> Dear IDLers,
>
>
>
> I know my problems with NaNs do bother just my little person. Maybe I am
>
> the only one having crappy data to deal with, or I am the only one using
>
> NaNs to mask out things in my 3D data arrays... Anyways, I'll try to
>
> make this is my last post about NaNs.
>
>
>
> I've been complaining lately about MEAN throwing a math error in this case:
>
> IDL> array = [!VALUES.F_NAN, !VALUES.F_NAN]
>
> IDL> print, MEAN(array, /NAN)
>
>      -NaN
>
> % Program caused arithmetic error: Floating illegal operand
>
>
>
> I think, personally, that the result of mean in this case should be a
>
> NaN, and that this should not throw a math error. Because, afterwards,
>
> if I do:
>
> IDL> print, (array[0] + array[1]) / 0.
>
>      NaN
>
>
>
> This is an ugly divide by zero but there is no math warning here. But
>
> the problems comes from TOTAL:
>
> IDL> print, TOTAL(array, /NAN)
```

```
>
> 0.00000
>
> And of course:
>
> IDL> print, TOTAL(array, /NAN) / TOTAL(FINITE(array))
>
> -NaN
>
> % Program caused arithmetic error: Floating illegal operand
>
>
>
> To be honest, this is described in the Doc: "Since the value NaN is
>
> treated as missing data, if Array contains only NaN values the TOTAL
>
> routine will return 0."
>
>
>
> But I don't see why it is so. This is not coherent with what one would
>
> expect TOTAL to do: the sum of all the elements in the array...
>
>
>
> Anyone to convince me that TOTAL() *has* to return 0 in this case?
```

I agree, it's pretty annoying. But it would be more annoying if IDL changed its behavior now and caused existing code to go crazy.

Write your own version of MEAN(), it's not that hard.

Craig
