Subject: Re: Comparison operators and floating-point errors
Posted by penteado on Mon, 19 Apr 2010 19:18:45 GMT
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On Apr 19, 3:31 pm, Ed Hyer <ejh...@gmail.com> wrote:
> IDL> nan=1/0.0
> % Program caused arithmetic error: Floating divide by 0
> IDL> print, -0.1 > nan
> Inf
> IDL> print, -0.1 < nan
> -0.100000
> IDL> print, 1 gt nan
> 0
> IDL> print, 1 lt nan
> 1
>
> I thought the rule was "Any calculation involving a NaN will produce
> NaN."
> Has it been this way since the dawn of time? I'm sure it has.
>
> I have found a few uses for NaN in IDL over the years, and now I have
> to come up with new ones.
>
> For instance (the one that led me to track this down), I use NaN to
> exclude areas from contour plots. There are other ways, but none quite
> as simple and flexible.

This all looks right to me, for one thing because there are no NaNs
around. The variable you called nan is infinity, no NaN.

Subject: Re: Comparison operators and floating-point errors
Posted by Craig Markwardt on Mon, 19 Apr 2010 20:36:40 GMT
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On Apr 19, 3:18 pm, pp <pp.pente...@gmail.com> wrote:
> On Apr 19, 3:31 pm, Ed Hyer <ejh...@gmail.com> wrote:
>
>
>
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> This all looks right to me, for one thing because there are no NaNs
> around. The variable you called nan is infinity, no NaN.

Right. Try setting NAN=0.0/0.0 or NAN=!values.f_nan.

Craig

Subject: Re: Comparison operators and floating-point errors
Posted by MarioIncandenza on Mon, 19 Apr 2010 21:24:07 GMT
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On Apr 19, 1:36 pm, Craig Markwardt <craig.markwa...@gmail.com> wrote:
> Right. Try setting NAN=0.0/0.0 or NAN=!values.f_nan.

OK, so for the purpose of masking an array with a binary mask, I had
been using

MASKED_DATA = DATA / FLOAT(MASK)

and should instead use

MASKED_DATA = (DATA * MASK) / FLOAT(MASK)

in order to ensure that the masked values are all NaN.

Subject: Re: Comparison operators and floating-point errors
Posted by penteado on Mon, 19 Apr 2010 21:45:41 GMT
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On Apr 19, 6:24 pm, Ed Hyer <ejh...@gmail.com> wrote:

> On Apr 19, 1:36 pm, Craig Markwardt <craig.markwa...@gmail.com> wrote:
>
>> Right. Try setting NAN=0.0/0.0 or NAN=!values.f_nan.
>
> OK, so for the purpose of masking an array with a binary mask, I had
> been using
>
> MASKED_DATA = DATA / FLOAT(MASK)
>
> and should instead use
>
> MASKED_DATA = (DATA * MASK) / FLOAT(MASK)
>
> in order to ensure that the masked values are all NaN.

Or

w=where(~mask,nw)
if (nw gt 0) then masked_data[w]=!values.d_nan

Subject: Re: Comparison operators and floating-point errors
Posted by R.G.Stockwell on Mon, 19 Apr 2010 22:23:07 GMT
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"pp" <pp.penteado@gmail.com> wrote in message
news:54eb565d-1480-43e8-b202-1e938bebb5e6@n20g2000prh.google groups.com...
On Apr 19, 6:24 pm, Ed Hyer <ejh...@gmail.com> wrote:
> On Apr 19, 1:36 pm, Craig Markwardt <craig.markwa...@gmail.com> wrote:
>
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> MASKED_DATA = (DATA * MASK) / FLOAT(MASK)
>
> in order to ensure that the masked values are all NaN.

> Or

> w=where(~mask,nw)
> if (nw gt 0) then masked_data[w]=!values.d_nan

Definitely good advice. You want people to understand your
code when they read it, and if you want nans, then explicitly
put in nans. There is no way a person can know what is
in your mask array, and know that you are NANing out values.

cheers,
bob
