Subject: Re: -0.0
Posted by pgrigis on Thu, 20 Jan 2011 19:11:24 GMT
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On Jan 20, 1:40 pm, kisCA <ki...@hotmail.com> wrote:
> Hi there,
>
> I am trying to make a plot with xaxis from -0.6 to 0.6. On the xaxis
> it gaves me a -0.0 ? I tried xtickformat='(F4.1)' and '(F0.1)' but no
> success...
>
> pcit= -.6+indgen(13)*.1
>
> !p.font=0 ;use postscript fonts
> set_plot, 'ps'
> ext='.eps'
> cs=0 ;charcter size
> !p.thick=3 ;data
> !x.thick=2 ;x axis
> !y.thick=2 ;y axis
> device, filename='Response Solar Cycle - Annual Mean'+ext,
> encapsulated=eps, $
> /helvetica,/isolatin1, xsize=8, ysize=12,font_size=8, landscape=0,
> decomposed=0, color=1
> plot,pcit,Zproxy,/nodata,ystyle=1,yrange=[15,50],xtickformat ='(F4.1)'
> oplot,Solarcoef*100,Zproxy,color=0,linestyle=0
> oplot,(Solarcoef+Solarstd)*100,Zproxy,color=204,linestyle=1
> oplot,(Solarcoef-Solarstd)*100,Zproxy,color=204,linestyle=1
> oplot,limiteY,Zproxy,color=0,linestyle=2
> for z=0,n_elements(Zproxy)-1 do begin
> oplot,[(Solarcoef(z)-Solarvar(z))*100,(Solarcoef(z)
> +Solarvar(z))*100],[Zproxy(z),Zproxy(z)],color=226,linestyle =0
> endfor
> oplot,[-.500,-.400],[48,48],color=0,linestyle=0
> xyouts,-.350,48,'Mean'
> oplot,[-.500,-.400],[47,47],color=204,linestyle=1
> xyouts,-.350,47,'Std'
> oplot,[-.500,-.400],[46,46],color=226,linestyle=0
> xyouts,-.350,46,'Error'
> device,/close
>
> Do you have an idea ?
>
> Cheers

This falls into the "sky is falling" category, although with
a slight different twist.

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

Signed zeros are allowed in the IEEE 754 standard for floating point
arithmetic.

```
IDL> print,-2.0*0
     -0.00000
IDL> print,2.0*0
      0.00000
```

If you don't like that in the plot (and I agree that it looks ugly),
you should
manually change that tick label using the xtickname keyword.

However, that is painful to do, so you could try the following hack:

```
xrange=[-0.6,0.6]
plot,[0,0],/nodata,/xstyle,xrange=xrange,title='this looks bad'

;workaround
epsilon=1e-6
xrange=[-0.6,0.6]
xrange=xrange+epsilon*[-1,2]
plot,[0,0],/nodata,/xstyle,xrange=xrange,title='better now'
```

You see what happened there? Care to guess why it worked?

Ciao,
Paolo

Subject: Re: -0.0
Posted by David Fanning on Thu, 20 Jan 2011 19:16:45 GMT
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Paolo writes:

> This falls into the "sky is falling" category, although with
> a slight different twist.
>
> http://www.dfanning.com/math_tips/sky_is_falling.html
>
> Signed zeros are allowed in the IEEE 754 standard for floating point
> arithmetic.
>
> IDL> print,-2.0*0

> -0.00000
> IDL> print,2.0*0
> 0.00000
>
> If you don't like that in the plot (and I agree that it looks ugly),
> you should
> manually change that tick label using the xtickname keyword.
>
> However, that is painful to do, so you could try the following hack:
>
> xrange=[-0.6,0.6]
> plot,[0,0],/nodata,/xstyle,xrange=xrange,title='this looks bad'
>
> ;workaround
> epsilon=1e-6
> xrange=[-0.6,0.6]
> xrange=xrange+epsilon*[-1,2]
> plot,[0,0],/nodata,/xstyle,xrange=xrange,title='better now'
>
>
> You see what happened there? Care to guess why it worked?

Here is another solution.

```
FUNCTION zeroAxis, axis, index, value

  absvalue = Abs(value)
  PRINT, value, absvalue, Format='(2(F0.8,2x))'
  IF absvalue LT 0.001 THEN value = 0.0
  IF value LT 0 THEN BEGIN
      strValue = '-' + String(absvalue, Format='(F0.1)')
  ENDIF ELSE BEGIN
      strValue = String(absvalue, Format='(F0.1)')
  ENDELSE

  RETURN, strValue

END

x =  -.6+indgen(13)*.1
plot, x, findgen(11), /nodata, $
  xstyle=1, xtickformat='ZeroAxis'

END
```

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: -0.0
Posted by kisCA on Thu, 20 Jan 2011 19:22:58 GMT
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I like this "sky is falling" things :-)

I guess that it could be a problem of precision with float...the range
should be higher in positive value in order to have 0 on the positive
side?

Thanks!

Subject: Re: -0.0
Posted by kisCA on Thu, 20 Jan 2011 19:26:49 GMT
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On Jan 20, 11:22 am, kisCA <ki...@hotmail.com> wrote:

> Thanks!

Both of you!

Subject: Re: -0.0
Posted by pgrigis on Thu, 20 Jan 2011 22:29:50 GMT
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On Jan 20, 2:22 pm, kisCA <ki...@hotmail.com> wrote:
> I like this "sky is falling" things :-)
>
> I guess that it could be a problem of precision with float...the range
> should be higher in positive value in order to have 0 on the positive
> side?
>
> Thanks!

Well yes. What happens is that when you do

plot,[0,0],xrange=[-0.6,0.6],xtickv=vvv

is that the plot range is given by

r=!X.crange

print,r,format='(f13.10)'
-0.6000000238
 0.5999999762

IDL presumably uses the following formula to create 7 tick marks:

tickv=r[0]+(r[1]-r[0])/6.0*findgen(7)

print,tickv,format='(f13.10)'
-0.6000000238
-0.4000000238
-0.2000000238
-0.0000000238
 0.1999999762
 0.3999999762
 0.5999999762

When rounded to something more useful for plots:

print,tickv,format='(f4.1)'
-0.6
-0.4
-0.2
-0.0
 0.2
 0.4
 0.6

That's how you get the negative zero.

Ciao,
Paolo

Subject: Re: -0.0
Posted by kisCA on Sat, 22 Jan 2011 00:13:32 GMT
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On Jan 20, 2:29 pm, Paolo <pgri...@gmail.com> wrote:
> On Jan 20, 2:22 pm, kisCA <ki...@hotmail.com> wrote:

>
>> I like this "sky is falling" things :-)
>
>> I guess that it could be a problem of precision with float...the range
>> should be higher in positive value in order to have 0 on the positive
>> side?
>
>> Thanks!
>
> Well yes. What happens is that when you do
>
> plot,[0,0],xrange=[-0.6,0.6],xtickv=vvv
>
> is that the plot range is given by
>
> r=!X.crange
>
> print,r,format='(f13.10)'
> -0.6000000238
> 0.5999999762
>
> IDL presumably uses the following formula to create 7 tick marks:
>
> tickv=r[0]+(r[1]-r[0])/6.0*findgen(7)
>
> print,tickv,format='(f13.10)'
> -0.6000000238
> -0.4000000238
> -0.2000000238
> -0.0000000238
> 0.1999999762
> 0.3999999762
> 0.5999999762
>
> When rounded to something more useful for plots:
>
> print,tickv,format='(f4.1)'
> -0.6
> -0.4
> -0.2
> -0.0
> 0.2
> 0.4
> 0.6
>
> That's how you get the negative zero.
>
> Ciao,

> Paolo

Well demonstrated. Thanks for the teaching!

Cheers
