Subject: axis ystyle=0 double rounding problem
Posted by Joost Aan de Brugh on Wed, 21 Jan 2009 15:33:56 GMT
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Hello all,

I just encountered a problem I could solve because I have done quite some work on plotting and axes. But for anyone, this could make hidden errors that ruin a lot of work.

Suppose you want to make a plot with left and right y-axes to plot two different properties in one graph. You do something like: (I reduce a lot of complex things from my own work, I hope that I do not make any trivial mistakes by doing so).

; Plot the left graph
plot,x,lefty,ystyle=8,....

! Plot the right graph
plot,x,righty,ystyle=4,/NoErase,...

! Now make the right axis
axis,yaxis=1,...

The hidden problem occurs when bit one of ystyle is not set in the axis-command.

I encountered the problem when I had some data ranging from 0 to 1.22 for my right y-axis.
I do the plot-command (plot,x,righty,ystyle=4,/NoErase)
I did not set the 1-bit of ystyle, so the y-range will be from 0 to 1.4 (steps 0.2) and that is indeed what I want. The !y.crange will be set to [0,1.4].
Now I do the axis-command (axis,yaxis=1) ; Note: ystyle=0
And now the problem occurs. IDL is 'plotting' from 0 to 1.4 (the ! y.crange) for the axis and autoscales again to 0 - 1.5. So my axis goes from 0 to 1.5, while the data is plot as if the axis goes from 0 to 1.4, confusing the values.

I tackled this problem because I had to compare data sets that should be equal (one on the left axis and one on the right). The graphs overlapped, but one axis ranged from 0 to 1.4 and the other from 0 to 1.5. But If I would have had a different case, I could have caused a lot of problems.
The problem is solved by always setting ystyle=1 to an axis-command.

Does anyone knows an example in which it makes sense to use this axis-command with the 1-bit not set?

Regards,
Joost