Subject: second Y axis.
Posted by limiqt on Mon, 16 Dec 2013 13:32:59 GMT
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Dear all,

I was wondering if someone has a suggestion to produce a second Y axis, using the coyote graphic libraries, similar to the figure at:
http://www2.astro.psu.edu/xray/docs/TARA/ae_users_guide/img1 05.png

The second Y axis looks like is floating in the graph.

I will appreciate any suggestions.

Cheers,

Lim

Subject: Re: second Y axis.
Posted by David Fanning on Mon, 16 Dec 2013 13:59:39 GMT
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Lim writes:

> I was wondering if someone has a suggestion to produce a second Y axis, using the coyote graphic libraries, similar to the figure at:
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>
> The second Y axis looks like is floating in the graph.
>
> I will appreciate any suggestions.

Have you checked the Coyote Plot Gallery? Almost guaranteed to find what
you are looking for there. :-)

http://www.idlcoyote.com/gallery/index.html

Cheers,

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

Subject: Re: second Y axis.
Posted by limiqt on Wed, 18 Dec 2013 20:07:34 GMT
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On Monday, December 16, 2013 8:59:39 AM UTC-5, David Fanning wrote:
> Lim writes:
>
>
>
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> Cheers,
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> David
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> --
>
> David Fanning, Ph.D.
>
> Fanning Software Consulting, Inc.
>
> Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
>
> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Hi David, There is a tiny diference between your example at http://www.idlcoyote.com/gallery/additional_axes_plot.pro and the figure I mentioned: the second Y axis in your example follows the length of the primary Y axis. In the example I mentioned the second Y axis on the right looks like it is independent of the Y axis on the left. Probably I am missing something.

Thanks
Lim

Subject: Re: second Y axis.
Posted by David Fanning on Thu, 19 Dec 2013 00:07:14 GMT
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Lim writes:

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>
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>
> I will appreciate any suggestions.

Ah, I see. Well, this is one place where object graphics probably has an advantage over direct graphics. I think you are going to have to do something like this. Here is modified code from what you can find on my web page:

```
PRO Additional_Axes_Plot

   ; Create some data.
   data_1 = cgScaleVector(cgDemodata(17), 0.0, 1.0)
   data_2 = cgScaleVector(cgDemodata(17), 0.0, 1000.0)
   data_3 = (Findgen(101)+1) / 5

   thick = (!D.Name EQ 'PS') ? 4 : 2

   ; Open a window and draw the plot without either of the Y axes.
   cgDisplay, 600, 450
   cgPlot, data_1, YStyle=4, Position=[0.15, 0.15, 0.7, 0.820], /NoData

   ; Draw the first Y axis in red.
   cgAxis, YAxis=0.0, /Save, Color='red7', YTitle='Data 1'
   cgOPlot, data_1, Color='red7', Thick=thick

   ; Draw the second Y axis in green.
```

```
   cgAxis, YAxis=1.0, /Save, Color='grn7', YTitle='Data 2', $
     YRange=[0,1000]
   cgOPlot, data_2, Color='grn7', LineStyle=2, Thick=thick

   ; Draw the third Y axis in blue.
   thisWindow = !D.Window
   cgDisplay, !D.X_Size, !D.Y_Size, /Free
   cgPlot, data_1, YStyle=4, Position=[0.15, 0.15, 0.7, 0.650], /NoData
   WDelete, !D.Window
   WSet, thisWindow

   cgAxis, 0.85, 0.15, /Normal, YAxis=1.0, /Save, Color='blu7', $
      YTitle='Data 3', YRange=[0.1,100], /YLog
   cgOPlot, data_3, Color='blu7', LineStyle=1, Thick=thick


END  ;****************************************************** ******
```

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
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Subject: Re: second Y axis.
Posted by limiqt on Thu, 19 Dec 2013 14:18:25 GMT
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On Wednesday, December 18, 2013 7:07:14 PM UTC-5, David Fanning wrote:
> Lim writes:
>
>
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    cgDisplay, 600, 450
    cgPlot, data_1, YStyle=4, Position=[0.15, 0.15, 0.7, 0.820], /NoData

    ; Draw the first Y axis in red.
    cgAxis, YAxis=0.0, /Save, Color='red7', YTitle='Data 1'
    cgOPlot, data_1, Color='red7', Thick=thick

    ; Draw the second Y axis in green.
```

```
>
>    cgAxis, YAxis=1.0, /Save, Color='grn7', YTitle='Data 2', $
>
>       YRange=[0,1000]
>
>    cgOPlot, data_2, Color='grn7', LineStyle=2, Thick=thick
>
>
>
>    ; Draw the third Y axis in blue.
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>    thisWindow = !D.Window
>
>    cgDisplay, !D.X_Size, !D.Y_Size, /Free
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>
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>
>       YTitle='Data 3', YRange=[0.1,100], /YLog
>
>    cgOPlot, data_3, Color='blu7', LineStyle=1, Thick=thick
>
>
>
>
>
> END  ;****************************************************** ******
>
>
>
> Cheers,
>
>
>
> David
>
> --
>
> David Fanning, Ph.D.
>
> Fanning Software Consulting, Inc.
```

>
> Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
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Hi David, yes, your solution is very cool. thank you so much.

Subject: Re: second Y axis.
Posted by David Fanning on Thu, 19 Dec 2013 14:32:37 GMT
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Lim writes:

> Hi David, yes, your solution is very cool. thank you so much.

Well, I woke up in the middle of the night with a more elegant solution based in my cgCoord object. It *should* be possible to replace all the pixmap stuff with this:

```
coord = cgCoord(Position=[0.15, 0.15, 0.7, 0.650])
coord -> Draw
```

The Draw method of the object does *exactly* what the whole pixmap thing is doing. Except that it doesn't work! I really don't know why. I've fooled with it some this morning, but I'm no closer to understanding it. Everything I "test" in the environment is exactly the same, but for some reason the overplot doesn't recognize that it is overplotting onto a log axis, even though the axis is drawn as a log axis in the right place.

I have a full day, so I don't know if I'll be able to get back to it anytime soon. This is the kind of thing that drives me crazy, though. :-)

Cheers,

David
--
David Fanning, Ph.D.
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Subject: Re: second Y axis.
Posted by David Fanning on Thu, 19 Dec 2013 14:59:34 GMT

David Fanning writes:

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>
> I have a full day, so I don't know if I'll be able to get back to it
> anytime soon. This is the kind of thing that drives me crazy, though.
> :-)

OK, it drove me crazy enough, I thought I would just figure it out. :-)

So, I replaced this:

```
thisWindow = !D.Window
cgDisplay, !D.X_Size, !D.Y_Size, /Free
cgPlot, data_1, YStyle=4, Position=[0.15, 0.15, 0.7, 0.650], /NoData
WDelete, !D.Window
WSet, thisWindow
```

With this (initially):

```
coord = cgCoord(Position=[0.15, 0.15, 0.7, 0.650]
coord.draw
```

The axis is drawn in the right place, but the plot is wrong.

What is happening is that the default ranges are 0 to 1. So that when I overdraw the plot onto the coordinates I set up, I am only seeing that part of the plot from 0 to 1 in X, instead of from 0 to 100. What I should have done is set up the coordinate object like this:

```
coord = cgCoord(Position=[0.15, 0.15, 0.7, 0.650], XRange=[0,100])
coord.draw
```

This works correctly, as I expected. :-)

Cheers,

David
--
David Fanning, Ph.D.
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