Subject: Re: cgcolorbar problem in postscript
Posted by David Fanning on Mon, 05 Nov 2012 12:42:42 GMT
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Ailie writes:

> I'm trying to make a discrete colorbar for an image and plotting straight to postscript. But cgcolorbar.pro is giving some unexpected behaviour.
>
> Basically, I'm trying to plot a discrete colorbar (using the DISCRETE keyword) with 6 colors in postscript. If I plot in using the X device, it behaves as I expect, producing a colorbar with six, distinct divisions, each division filled with a solid block of color.
>
> But when I plot in postscript, my resulting colorbar most definitely has more than 6 colors and instead appears to have graduating color. I'm not sure exactly how many colors, but it's far more than 6. In particular, at the division where my ticks and labels are, the color spans the tick.
>
> Here's my snippet:
>
> cgloadct,0
> cgloadct,2,bottom=1,ncolors=6,/rev
> nc=6
> levels = indgen(7)*5
> lab=string(levels,format='(i3)')
> lab=strcompress(lab,/remove_all)
> cgcolorbar, ticknames=lab, charsize=4, charthick=2,/discrete, $
> bottom=1, ncolors=nc, annotatecolor=cgcolor('black'), font=1, $
> /right, /vert, title = 'levels', pos=[0.87,0.10,0.89,0.90]
>
> As I said, if I plot this in a window using the X device, it's fine and as I expect, but using the postscript device gives far more than 6 levels, with graduating color particularly visible around the tickmarks. You'll note that I load the second colorbar into the first 6 color indices only, but the postscript still results in graduating colors over those 6 colors.
>
> I'm using IDL 8.1 on OS 10.6.5, but have also tried this on IDL 7.0 and IDL 8.2.1 and the same thing happens every time.

This is not a problem with the PostScript file, nor with cgColorbar. Rather, it is a problem with the PostScript viewer on the Mac. It just doesn't want to deal with less than 256 colors, apparently, so it makes them up if they aren't there.

If you made a PNG file out of this PostScript file, you would see only six colors. And if you use a different PostScript viewer (say GhostView), you will see only six colors.

I don't own a Mac, so I don't know if it is possible to
get the Mac PostScript viewer to see what is actually
there. Does anyone else know?

Cheers,

David

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

Subject: Re: cgcolorbar problem in postscript
Posted by Ailie on Mon, 05 Nov 2012 16:47:47 GMT
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Thank you! That is EXACTLY what the problem is! The issue was with Preview.app on the Mac (I also tried with Powerpoint for Mac and same issue). I'll switch to a native viewer like ghost view from now on.

On Monday, November 5, 2012 4:42:43 AM UTC-8, David Fanning wrote:
> Ailie writes:
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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.dfanning.com/
> Sepore ma de ni thue. ("Perhaps thos speakest truth.")

Subject: Re: cgcolorbar problem in postscript
Posted by Phillip M. Bitzer on Wed, 07 Nov 2012 16:22:52 GMT
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Like David said, this is not a problem with the file or cgColorbar, but
I don't think this is a "problem" exactly with Preview either - it seems

to be an issue with aliasing. Consider the program below, which is similar to yours (note I don't load in a color bar, rather I specify the RGB palette). After producing the eps file, open it in Preview. You'll probably see the graduated colors, which I think is what you are reporting.

If you go to Preferences->PDF, and toggle the Check box for "Smooth text and line art", then you will see your discrete color bar reappear. The text won't look as nice, however. This is an issue with the default aliasing used by Preview - smoothing introduces the graduated colors you see.

For reference, here's what I see:
https://www.dropbox.com/s/rvax832ot0t8l2b/colorbar_nosmooth. png

https://www.dropbox.com/s/2b2k8jj1taifpk0/colorbar_smooth.pn g

```
PRO pmbtest, Do_Ps = do_ps

  colors = [ 'hot pink',  'indian red',  'dark green', 'green', $
    'sky blue',  'cadet blue',  'grey',  'blue',  'purple',  'red']

  n_color = N_ELEMENTS(colors)

  do_ps = KEYWORD_SET(do_ps)
  IF do_ps THEN BEGIN
    PS_START, filename='test.eps', /ENCAP, /NOMATCH, $
     XSIZE=6, YSIZE=2, /INCHES
  ENDIF ELSE cgERASE, 'white'

  rgb = cgCOLOR(colors, /TRIPLE)

  ;display the colorbar
  cgCOLORBAR, /DISCRETE, NCOLORS=n_color, PALETTE = rgb, POSITION=[0.1,
0.2, 0.9, 0.9]

  IF do_ps THEN PS_END

END
```

Subject: Re: cgcolorbar problem in postscript
Posted by David Fanning on Wed, 07 Nov 2012 16:29:30 GMT
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Phillip M. Bitzer writes:

> Like David said, this is not a problem with the file or cgColorbar, but
> I don't think this is a "problem" exactly with Preview either - it seems

> to be an issue with aliasing.

Ah, thank you, Phillip. I'll add this to the article
I've written about this.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
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Subject: Re: cgcolorbar problem in postscript
Posted by Phillip M. Bitzer on Wed, 07 Nov 2012 16:30:02 GMT
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Like David said, this is not a problem with the file or cgColorbar, but I don't think this is a "problem" exactly with Preview either - it seems to be an issue with aliasing. Consider the program below, which is similar to yours (note I don't load in a color bar, rather I specify the RGB palette). After producing the eps file, open it in Preview. You'll probably see the graduated colors, which I think is what you are reporting.

If you go to Preferences->PDF, and toggle the Check box for "Smooth text and line art", then you will see your discrete color bar reappear. The text won't look as nice, however. This is an issue with the default aliasing used by Preview - smoothing introduces the graduated colors you see.

For reference, here's what I see:
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https://www.dropbox.com/s/2b2k8jj1taifpk0/colorbar_smooth.pn g

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PRO pmbtest, Do_Ps = do_ps

  colors = [ 'hot pink',  'indian red',  'dark green', 'green', $
    'sky blue',  'cadet blue',  'grey',  'blue',  'purple',  'red']

  n_color = N_ELEMENTS(colors)

  do_ps = KEYWORD_SET(do_ps)
```

```
  IF do_ps THEN BEGIN
    PS_START, filename='test.eps', /ENCAP, /NOMATCH, $
      XSIZE=6, YSIZE=2, /INCHES
  ENDIF ELSE cgERASE, 'white'

  rgb = cgCOLOR(colors, /TRIPLE)

  ;display the colorbar
  cgCOLORBAR, /DISCRETE, NCOLORS=n_color, PALETTE = rgb, POSITION=[0.1,
0.2, 0.9, 0.9]

  IF do_ps THEN PS_END

END
```