Title

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colorstyle — Choices for color

Description

colorstyle sets the color and opacity of graph components such as lines, backgrounds, and bars. Some options allow a sequence of *colorstyle*s with *colorstylelist*; see [G-4] *stylelists*.

Syntax

Set color of ⟨object⟩ to colorstyle

⟨*object*⟩color(*colorstyle*)

Set color of all affected objects to colorstyle

color(*colorstyle*)

Set opacity of ⟨object⟩ to #, where # is a percentage of 100% opacity

⟨*object*⟩color(%*#*)

Set opacity for all affected objects colors to #

color(%*#*)

Set both color and opacity of ⟨object⟩

⟨*object*⟩color(*colorstyle*%*#*)

Set both color and opacity of all affected objects

⟨*object*⟩color(*colorstyle*%*#*)

colorstyle	Description
black	
stc1	color used by scheme stcolor
stc2	color used by scheme stcolor
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.	
stc15	color used by scheme stcolor
stblue	blue used by scheme stcolor
stgreen	green used by scheme stcolor
stred	red used by scheme stcolor
styellow	yellow used by scheme stcolor
gs0	gray scale: 0 = black
gs1	gray scale: very dark gray
gs2	
.	
.	
gs15	gray scale: very light gray
gs16	gray scale: 16 = white
white	
blue	
bluishgray	
brown	
cranberry	
cyan	
dimgray	between gs14 and gs15
dkgreen	dark green
dknavy	dark navy blue
dkorange	dark orange
eggshell	
emerald	
forest_green	
gold	
gray	equivalent to gs8
green	
khaki	
lavender	
lime	
ltblue	light blue
ltbluishgray	light blue-gray, used by scheme s2color
ltkhaki	light khaki

colorstyle, cont.	Description
magenta	
maroon	
midblue	
midgreen	
mint	
navy	
olive	
olive_teal	
orange	
orange_red	
pink	
purple	
red	
sand	
sandb	bright sand
sienna	
stone	
teal	
yellow	
	colors used by *The Economist* magazine:
ebg	background color
ebblue	bright blue
edkblue	dark blue
eltblue	light blue
eltgreen	light green
emidblue	midblue
erose	rose
none	no color; invisible; draws nothing
background or bg	same color as background
foreground or fg	same color as foreground
"# # #"	RGB value; white = "255 255 255"
"# # # #"	CMYK value; yellow = "0 0 255 0"
"hsv # # #"	HSV value; white = "hsv 0 0 1"
colorstyle∗#	color with adjusted intensity; #'s range from 0 to 255
colorstyle%#	color with adjusted opacity; #s range from 0 to 100
∗#	default color with adjusted intensity
%#	default color with adjusted opacity

When specifying RGB, CMYK, or HSV values, it is best to enclose the values in quotes; type "128 128 128" and not 128 128 128.

Remarks and examples

colorstyle sets the color and opacity of graph components such as lines, backgrounds, and bars. Colors can be specified with a named color, such as black, olive, and yellow, or with a color value in the RGB, CMYK, or HSV format. *colorstyle* can also set a component to match the background color or foreground color. Additionally, *colorstyle* can modify color intensity, making the color lighter or darker. Some options allow a sequence of *colorstyle*s with *colorstylelist*; see [G-4] **stylelists**.

To see a list of named colors, use graph query colorstyle. See [G-2] **graph query**. For a color palette showing an individual color or comparing two colors, use palette color. See [G-2] **palette**.

Remarks are presented under the following headings:

> *Adjust opacity*
> *Adjust intensity*
> *Specify RGB values*
> *Specify CMYK values*
> *Specify HSV values*
> *Export custom colors*
> *Video example*

Adjust opacity

Opacity is the percentage of a color that covers the background color. That is, 100% means that the color fully hides the background, and 0% means that the color has no coverage and is fully transparent. If you prefer to think about transparency, opacity is the inverse of transparency. Adjust opacity with the % modifier. For example, type

```
green%50
"0 255 0%50"
%30
```

Omitting the color specification in the command adjusts the opacity of the object while retaining the default color. For instance, specify mcolor(%30) with graph twoway scatter to use the default fill color at 30% opacity.

Specifying *color*%0 makes the object completely transparent and is equivalent to color none.

Adjust intensity

Color intensity (brightness) can be modified by specifying a color, *, and a multiplier value. For example, type

```
green*.8
purple*1.5
"0 255 255*1.2"
"hsv 240 1 1*.5"
```

A value of 1 leaves the color unchanged, a value greater than 1 makes the color darker, and a value less than 1 makes the color lighter. Note that there is no space between *color* and *, even when *color* is a numerical value for RGB or CMYK.

Omitting the color specification in the command adjusts the intensity of the object's default color. For instance, specify bcolor(*.7) with graph twoway bar to use the default fill color at reduced brightness, or specify bcolor(*2) to increase the brightness of the default color.

Specifying *color**0 makes the color as light as possible, but it is not equivalent to color none. *color**255 makes the color as dark as possible, although values much smaller than 255 usually achieve the same result.

For an example using the intensity adjustment, see *Typical use* in [G-2] **graph twoway kdensity**.

Specify RGB values

In addition to specifying named colors such as yellow, you can specify colors with RGB values. An RGB value is a triplet of numbers ranging from 0 to 255 that describes the level of red, green, and blue light that must be emitted to produce a given color. RGB is used to define colors for on-screen display and in nonprofessional printing. Examples of RGB values are

```
red     =   255    0    0
green   =     0  255    0
blue    =     0    0  255
white   =   255  255  255
black   =     0    0    0
gray    =   128  128  128
navy    =    26   71  111
```

Specify CMYK values

You can specify colors using CMYK values. You will probably only use CMYK values when they are provided by a journal or publisher. You can specify CMYK values either as integers from 0 to 255 or as proportions of ink using real numbers from 0.0 to 1.0. If all four values are 1 or less, the numbers are taken to be proportions of ink. For example,

```
red     =     0  255  255    0   or, equivalently,     0     1   1     0
green   =   255    0  255    0   or, equivalently,     1     0   1     0
blue    =   255  255    0    0   or, equivalently,     1     1   0     0
white   =     0    0    0    0   or, equivalently,     0     0   0     0
black   =     0    0    0  255   or, equivalently,     0     0   0     1
gray    =     0    0    0  128   or, equivalently,     0     0   0    .5
navy    =    85   40    0  144   or, equivalently,  .334  .157   0  .565
```

Specify HSV values

You can specify colors with HSV (hue, saturation, and value), also called HSL (hue, saturation, and luminance) and HSB (hue, saturation, and brightness). HSV is often used in image editing software. An HSV value is a triplet of numbers. So that Stata can differentiate them from RGB values, HSV colors must be prefaced with hsv. The first number specifies the hue from 0 to 360, the second number specifies the saturation from 0 to 1, and the third number specifies the value (luminance or brightness) from 0 to 1. For example,

```
red     =   hsv    0     1      1
green   =   hsv  120     1   .502
blue    =   hsv  240     1      1
white   =   hsv    0     0      1
black   =   hsv    0     0      0
navy    =   hsv  209  .766   .435
```

Export custom colors

graph export stores all colors as RGB+opacity values, that is, RGB values 0–255 and opacity values 0–1. If you need color values from Stata in CMYK format, use the graph export command with the cmyk(on) option, and save the graph in one of the following formats: PostScript, Encapsulated PostScript, or PDF.

You can set Stata to permanently use CMYK colors for PostScript export files by typing translator set Graph2ps cmyk on and for EPS export files by typing translator set Graph2eps cmyk on.

The CMYK values returned in graph export may differ from the CMYK values that you entered. This is because Stata normalizes CMYK values by reducing all CMY values until one value is 0. The difference is added to the K (black) value. For example, Stata normalizes the CMYK value 10 10 5 0 to 5 5 0 5. Stata subtracts 5 from the CMY values so that Y is 0 and then adds 5 to K.

Video example

Transparency in Stata graphs

References

Jann, B. 2018. Color palettes for Stata graphics. *Stata Journal* 18: 765–785.

——. 2023. Color palettes for Stata graphics: An update. *Stata Journal* 23: 336–385.

Morris, T. P. 2019. Stata tip 131: Custom legends for graphs that use translucency. *Stata Journal* 19: 738–740.

Also see

[G-2] **palette** — Display palettes of available selections

[G-4] **Schemes intro** — Introduction to schemes