Creating a Break in the Axis

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ABSTRACT

Breaking the vertical and/or horizontal axis can simplify the figure, improve aesthetics, and save space. Two SAS samples 48330 and 38765 have provided examples to break the vertical axis. However, using ENTRY and DRAWLINE statements can create a much better break.

INTRODUCTION

Long/Tall plots (e.g. series plots or tall bar charts) with many tick marks on the axis do not look nice if the values (e.g. series plots) are flat over the axis or the shape of plots (e.g. bar chart) has no change. Breaking the axis will make a figure simple and neat, as well as save space. This paper discusses three ways to create a break in the axis using SAS Graph Template Language (PROC TEMPALTE).

All programs presented in this paper were developed on Server SAS® 9.3 in the Windows environment.
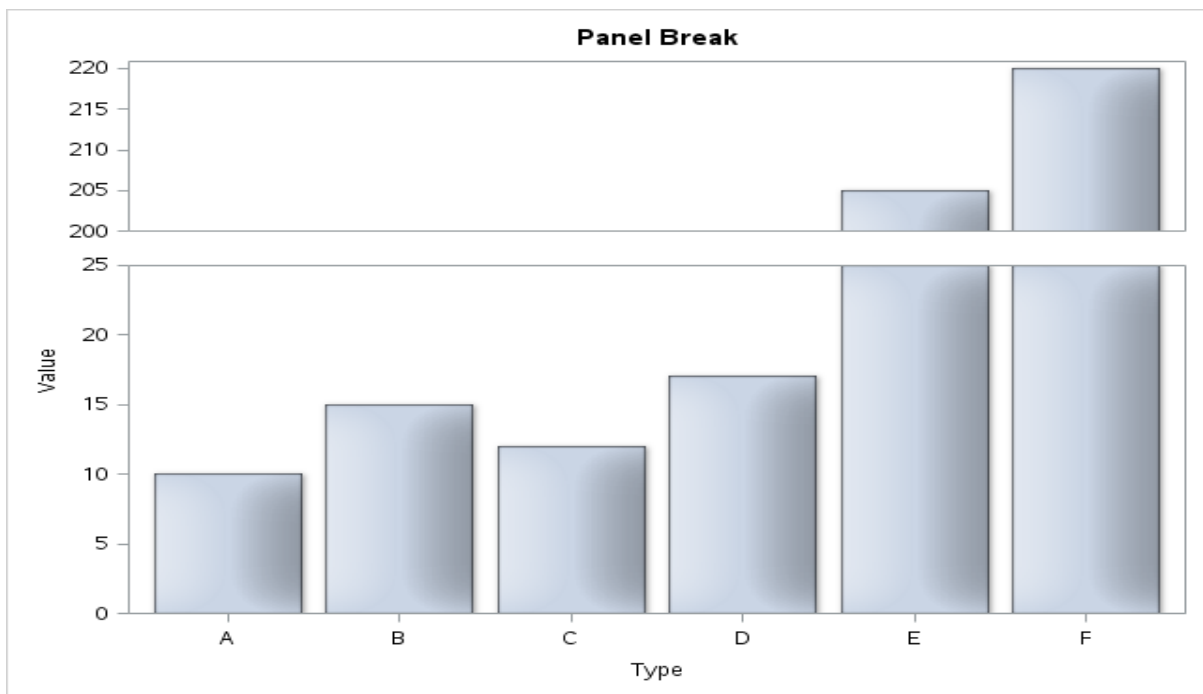
1. SAS SAMPLE 48330 [1]

SAS sample 48330 uses a LAYOUT LATTICE STATEMENT with ROWGUTTER= option, and two LAYOUT OVERLAY blocks to create a "gutters' area, which breaks the Y axis without any break mark. Similarly, COLUMNGUTTER= option can create a break in X axis.

The following code is from sample 48330:

```
LAYOUT LATTICE / ROWGUTTER = 9;

LAYOUT OVERLAY / YAXISOPTS = (LINEAROPTS = (VIEWMIN=200 VIEWMAX=220
                    TICKVALUESEQUENCE = (START=200 END=220 INCREMENT=5)));

LAYOUT OVERLAY / YAXISOPTS = (LINEAROPTS = (VIEWMIN=0 VIEWMAX=25
                    TICKVALUESEQUENCE = (START=0 END=25 INCREMENT=5)));
```
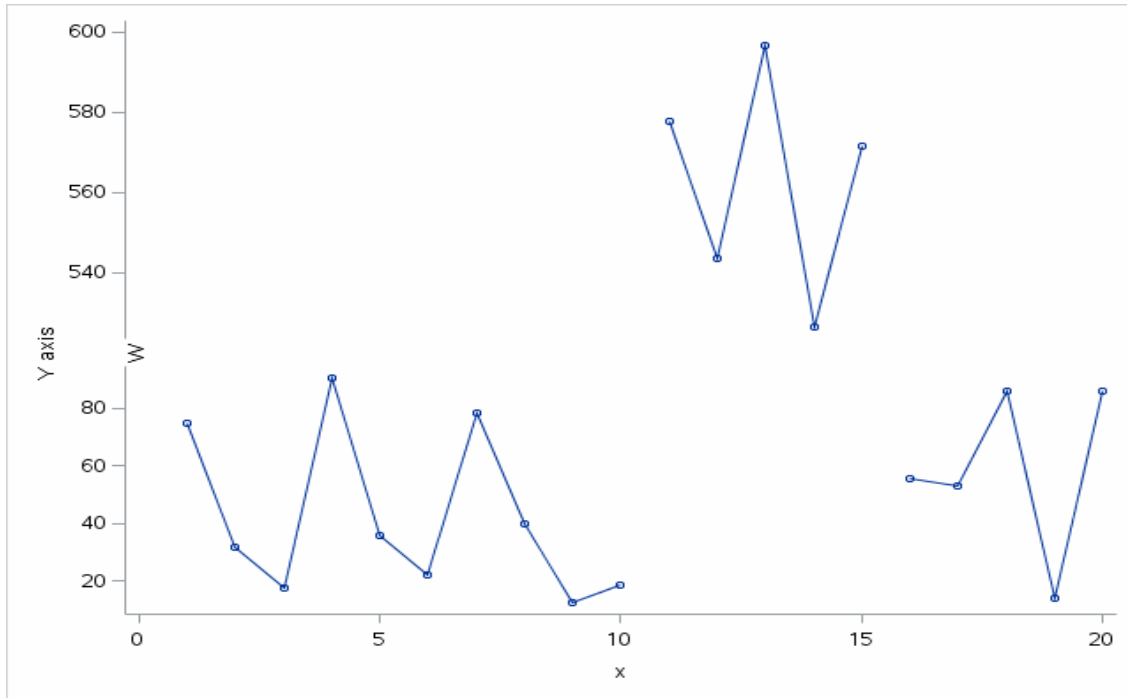
This is the output of SAS sample 48330:

2. SAS SAMPLE 38765 [2]

SAS sample 38765 also uses a LAYOUT LATTICE STATEMENT, but without ROWGUTTER= option. An ENTRY statement within a LAYOUT OVERLAY block adds a letter "W" to break the axis. Here is the code:

```
LAYOUT OVERLAY / PAD = 0;
    ENTRY HALIGN = left TEXTATTRS =(SIZE = 10pt) "W" / ROTATE = 90 PAD = 0;
ENDLAYOUT;
```

This is the output of SAS sample 38765:
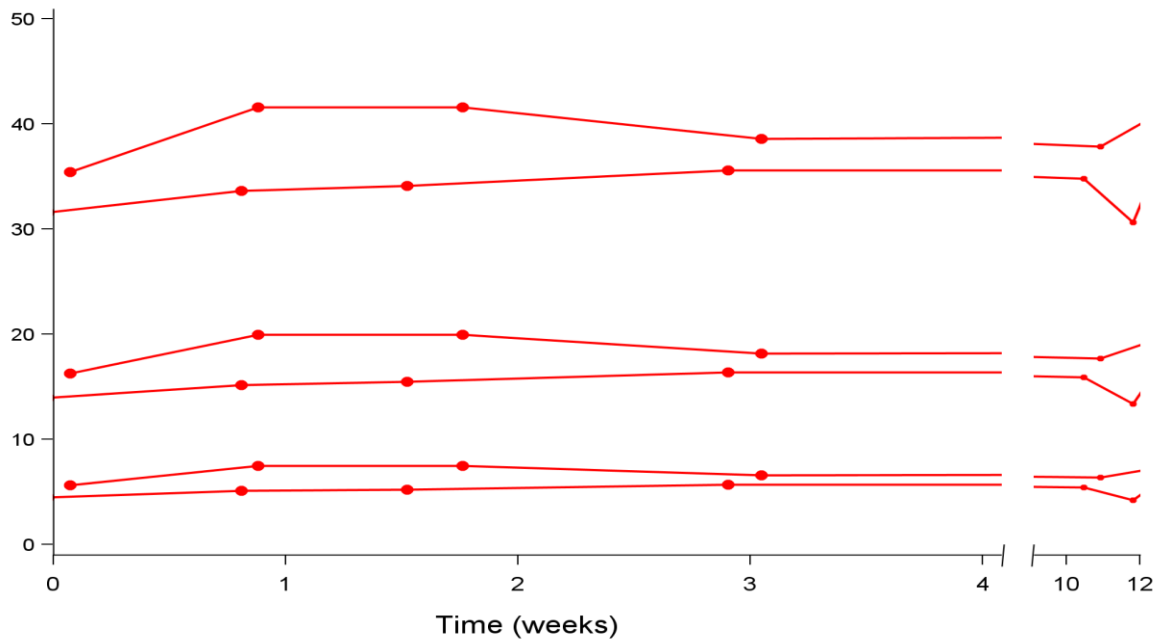

3. USE ENTRY AND DRAWLINE STATEMENTS

The output of SAS sample 38765 does not look pretty. Many people do not like it. People prefer to have two separated forward slashes as an axis break like --/ /-- . Two steps can achieve this. First, use the ENTRY statement within a LAYOUT OVERLAY block to add a blank space (no letter "W"), which breaks the axis.

```
LAYOUT OVERLAY / PAD = 0;
    ENTRY HALIGN = right TEXTATTRS =(SIZE = 10pt WEIGHT = NORMAL) "   " /
          VALIGN = BOTTOM  PAD = (BOTTOM=55);
ENDLAYOUT;
```

Next, insert two forward slashes before and after the blank space. DRAWLINE statements can do this easily. Here is an example:

```
DRAWLINE  X1 = -2  Y1 = -2  X2 = 0 Y2 = 2/ X1SPACE= wallpercent
                                         X2SPACE= wallpercent
                                         Y1SPACE= wallpercent
                                         Y2SPACE= wallpercent ;
```

The output looks like this:

CONCLUSION
The third method is a great alternative to the two SAS samples for breaking an axis. DRAWLINE statements also give the flexibility to use any appropriate break marks of your choice other than forward slashes.

REFERENCES
[1]. http://support.sas.com/kb/48/330.html
[2]. http://support.sas.com/kb/38/765.html

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