

Book Review

Title: Multiple-Plot Displays: Simplified with Macros

Author: Perry Watts

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Over the past few years I have made a conscious effort to move away from spreadsheet generated graphics to SAS/GRAPH. In my opinion, SAS graphs are more efficient than graphs generated in spreadsheets from SAS output summaries. The spreadsheet approach is often tedious and prone to errors when copying information from output files or the SAS OUTPUT window.

About 2 years ago I was given a project that required multiple SAS Graphs to be placed on one page from within SAS. I struggled a bit with PROC GREPLAY to accomplish the task but felt that the panel definitions were confusing enough to warrant looking into setting up macros to define the parameters required to generate multiple images per page. While attending NESUG15 in Buffalo, NY I came across this book by Perry Watts, which addressed my need to streamline PROC GREPLAY so that it can be easily tailored to a large number of applications where more than one graph is to be placed on a page.

The first chapter introduces the concept of Multiple-Plot Displays. The chapter illustrates a few examples of cluttered charts and graphs that would benefit from multiple displays. Chapter 2 reviews the GREPLAY syntax and its use for generating more than one display per page. The author effectively illustrates how confusing the syntax can be and the need for a set of macros to handle the calculation of multiple coordinates for multiple graph display. I still find it confusing why one needs 8 coordinate definitions as opposed to 4 for each graphic image.

Chapter 3 introduces the set of 4 macros that will calculate coordinate definitions based on user requirements. The major requirement is the maximum number of rows and columns needed for each multiple plot display. The text is rather detailed and if you want to jump fast into testing the code, download the macros from the companion SAS website and go to Section 3.8; Putting It Together: Calling the Macros in the Right Order. The section describes the correct order of macro calls and graphics PROCs.

Chapter 4 is titled "Visual Thinning". The idea is to think about minimizing redundant information in plots. Examples of redundant information are often non-data elements such as grid marks and axis lines. Perry Watts illustrates a few examples of visual thinning. One example shows how to provide Y-axis labels only on the left most columns of graphs and X-axis labels only to the bottom row of graphs resulting in larger proportion of display being allocated to the information component of the graph.

The final chapter looks at incorporating ODS into multiple-plot displays. A number of examples show how to use ODS to capture statistical output from SAS PROCs into SAS data and then apply the information within graphs using the Annotate facility. Since acquiring the book, I have used these techniques to incorporate statistical significance metrics and accuracy measures in graphical output. The final section of the chapter looks at how to generate HTML drill down graphs using ODS.

The only criticism I have of the book is that some of the macros and inputs had to be modified from what was provided. The suggested Window Driver values for XMAX and YMAX parameters in one macro resulted in tiny graphs filling only a small section of the entire page. Multiplying the values by 10 resulted in perfect sized images, but SAS warned that values had to be scaled down by SAS to fit on the page. A final adjustment had also had to be made in the macro code since we noticed that under certain conditions, not all graphs were being outputted.

Even with these minor criticisms, I would have to say that this little book was the most useful book for me over the past year. I currently incorporate multiple-plot displays using these macros and have become a fan of the Annotate facility, which I have not used much until opening this book.