

## SAS TUTORIAL: SIMPLE GRAPHICS

Cynthia Deitz, Texas Instruments

### PROBLEM STATEMENT

For the inexperienced or infrequent SAS user, there are graphics techniques that often are not discovered. The following are examples of such techniques.

#### EXAMPLE 1

Often it is desired to capture as much on one graph or chart as possible without confusing the displayed information. One technique is to use the SUBGROUP option as illustrated in the SASGRAPH User's Guide. Another way is to use the GROUP option instead. The same result is achieved but in a clearer format. See Figure 1 for the SAS code and figures 2 and 3 for the output. In addition, using both GROUP and SUBGROUP options will allow for a different pattern for each group. Figure 4 gives the SAS code and Figures 5 and 6 the output.

#### EXAMPLE 2

Another example of capturing as much data as possible on one plot is to overlay several plots on the same axis. This can be done with the OVERLAY option on the PLOT statement. If this method is used, the plots are not labeled so that it is hard to distinguish one from the other. In order to get SASGRAPH to produce a legend, you must plot using a third variable. This may require reorganization of the data set. Figure 7 illustrates the SAS statements to do the data reorganization and Figure 8 is the output generated.

#### EXAMPLE 3

If several graphs or charts are to be contained in a report, one way to conserve space is to place more than one graph or chart on a page. The way to do this is to use the HSIZE and VSIZE options in the GOPTIONS statement. For example, to place 2 graphs per page of 8 1/2 by 11 paper, specify HSIZE=5 and VSIZE=7.

#### EXAMPLE 4

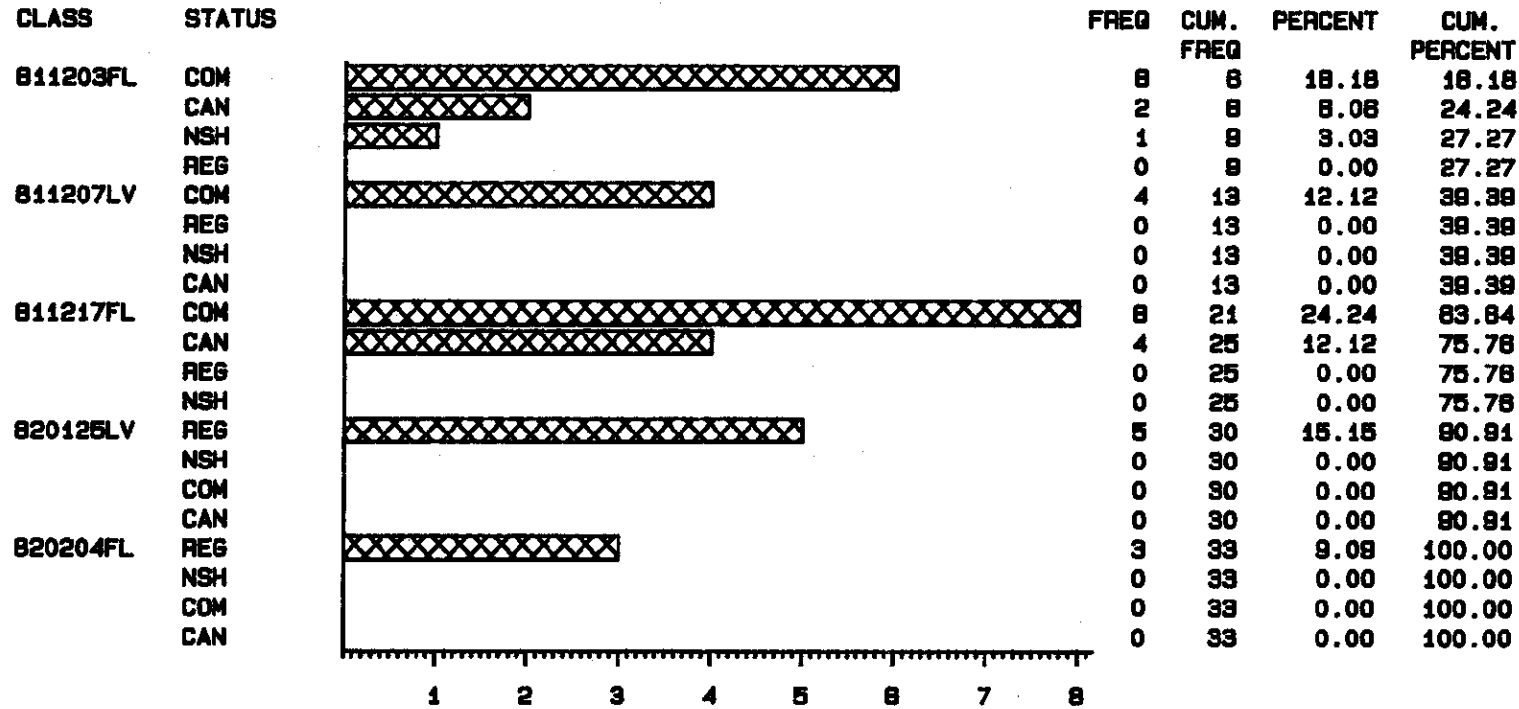
You may want to superimpose a plot over a previously created plot. The only way that this can be done with SASGRAPH is to specify the VAXIS and the HAXIS parameters of PROC GPLOT as nearly as possible as those you are trying to replicate. Then specify the option NOAXES. All that will be drawn is the curve. The determination of where to place the existing plot so that you can draw on top of it is done by trial and error.

```
goptions device=hp7220 baud=1200 fby=script;
title Course Enrollment;
title2 .h=2 Grouped by class and status;
proc gchart data=tems.graph1; by course;
hbar sta/group=class descending; run;
title Course Enrollment ;
title2 .h=2 Grouped by location ;
proc gchart data=tems.graph;
vbar course/group=location ; run;
```

Figure 1

# Course Enrollment

Grouped by class and status  
 COURSE=990001



FREQUENCY

Figure 2

# Course Enrollment

Grouped by location

FREQUENCY

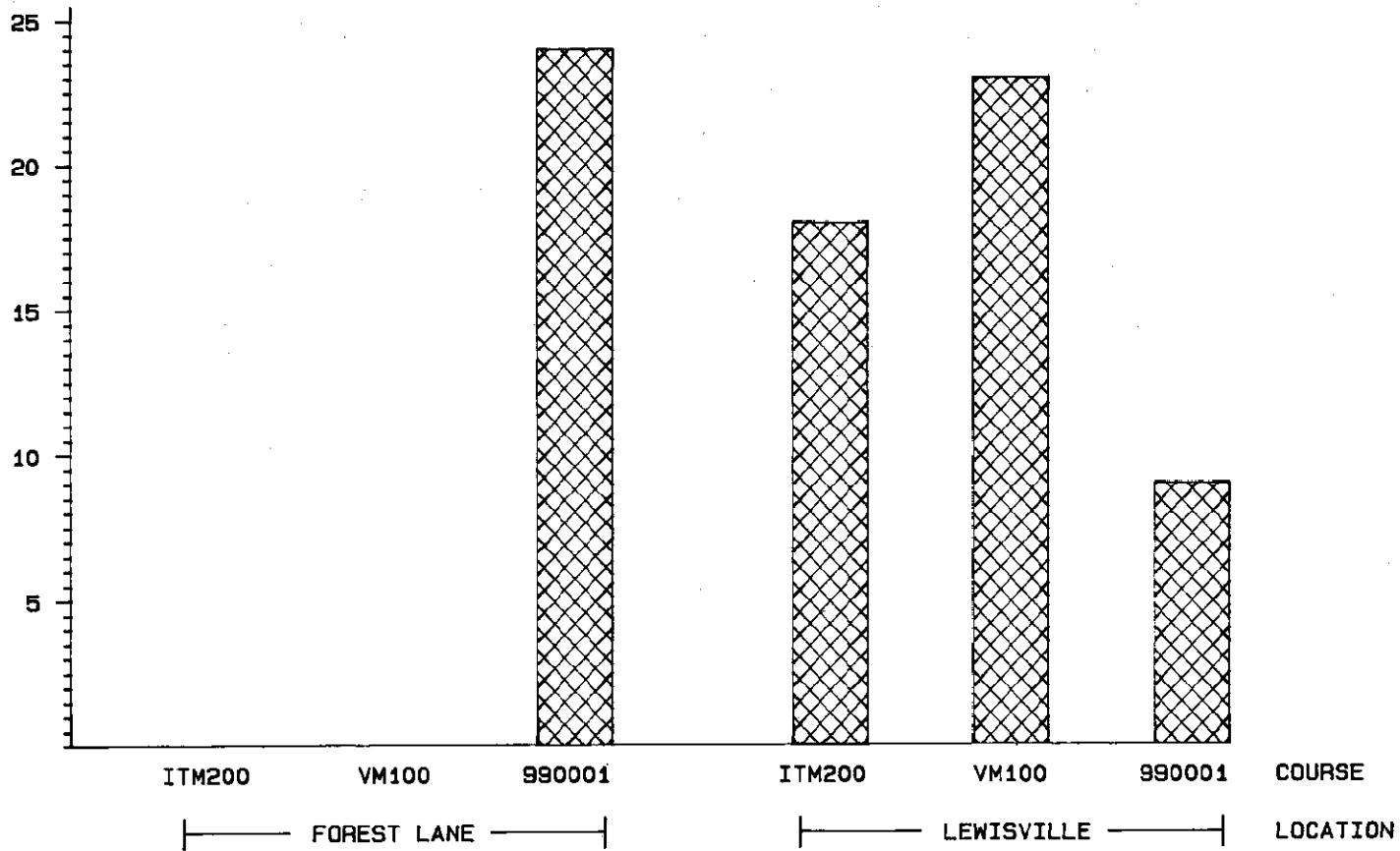


Figure 3

```

goptions device=hp7220 baud=1200 fby=script;
title Course Enrollment;
title2 .h=2 Grouped by class and status;
proc gchart data=tems.graph1; by course;
hbar sta/group=class subgroup=class descending;
pattern1 v=x1 c=red;
pattern2 v=l1 c=green;
pattern3 v=r1 c=blue;
pattern4 v=s c=black;
pattern5 v=e c=black;
run;
title Course Enrollment ;
title2 .h=2 Grouped by location ;
proc gchart data=tems.graph;
vbar course/group=location subgroup=location;
pattern1 v=x1 c=black;
pattern2 v=l2 c=red;
run;

```

Figure 4

```

data all;
cms filedef empdata disk emp bruce a;
infile empdata;
input Year TOTAL White ProfTech Managers Sales Clerical
Blue Craft Operat T_Operat Nonfarm
Service Farm ;

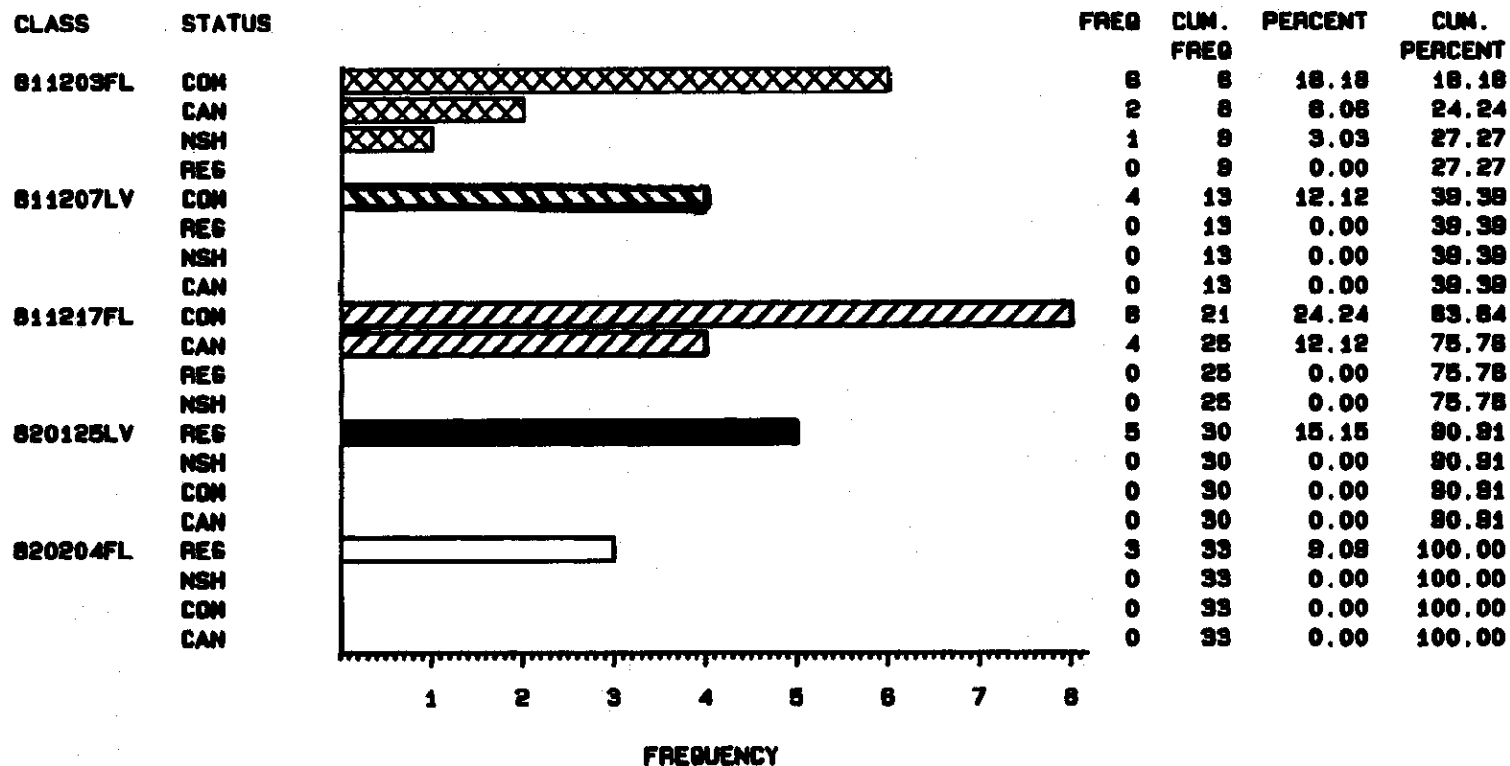
run;
data x1; set all;
occ='white'; emp_proj=white; output;
occ='proftech'; emp_proj=proftech; output;
occ='managers'; emp_proj=managers; output;
occ='sales'; emp_proj=sales ;output;
occ='clerical'; emp_proj=clerical; output;
run;
data x2; set x1;
per_emp=emp_proj/total*100;
run;
goptions device=hp7220 baud=1200;
TITLE PROJECTED U.S. EMPLOYMENT .f=none ;
footnotel .f=script .j=1 Source: Bureau of Labor Statistics .j=
r (in thousands) ;
proc gplot;
plot emp_proj*year=occ;
SYMBOL1 L=1 I=JOIN C=BLACK;
SYMBOL2 L=2 I=JOIN C=BLACK;
SYMBOL3 L=3 I=JOIN C=BLACK;
SYMBOL4 L=4 I=JOIN C=BLACK;
SYMBOL5 L=5 I=JOIN C=BLACK;
run;

```

Figure 7

# Course Enrollment

Grouped by class and status  
 COURSE-990001



LEGEND: CLASS    811203FL    811207LV    811217FL  
                  820125LV    820204FL

Figure 5

# Course Enrollment

Grouped by Location

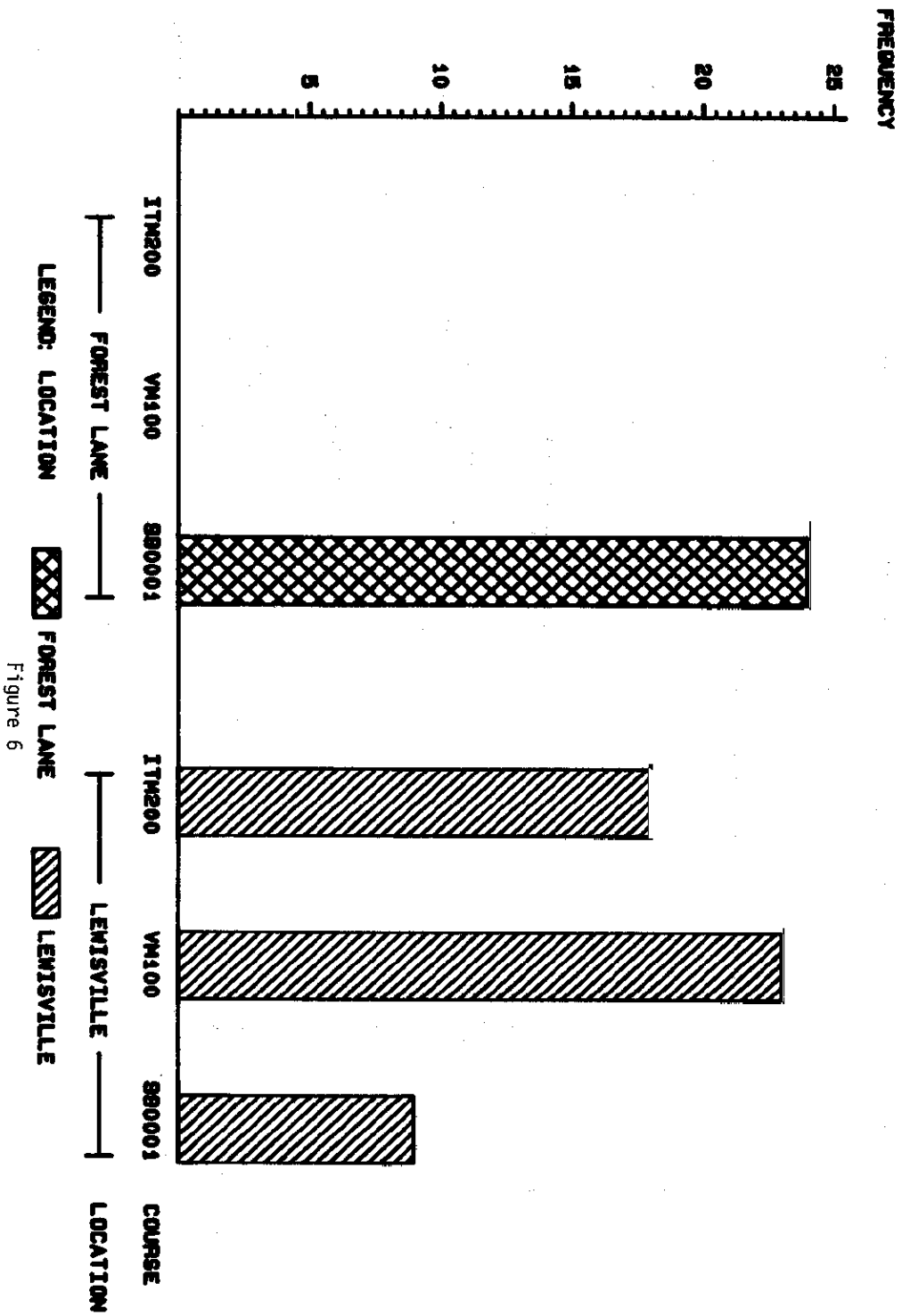


Figure 6

# PROJECTED U.S. EMPLOYMENT

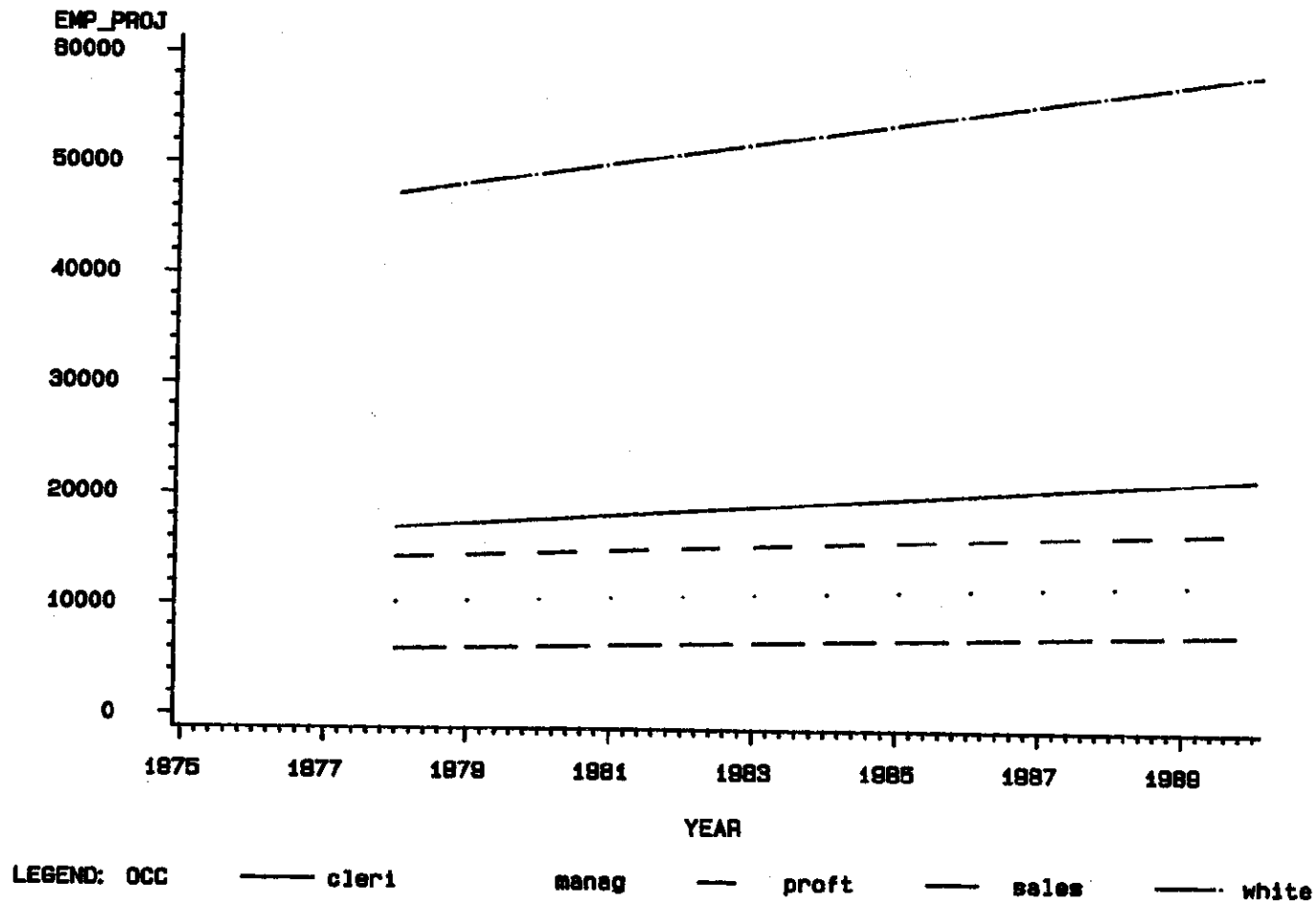


Figure 8

Source: Bureau of Labor Statistics

(in thousands)