

ODS Graphics Designer

A Gateway to Quick, Effective Data Visualisation

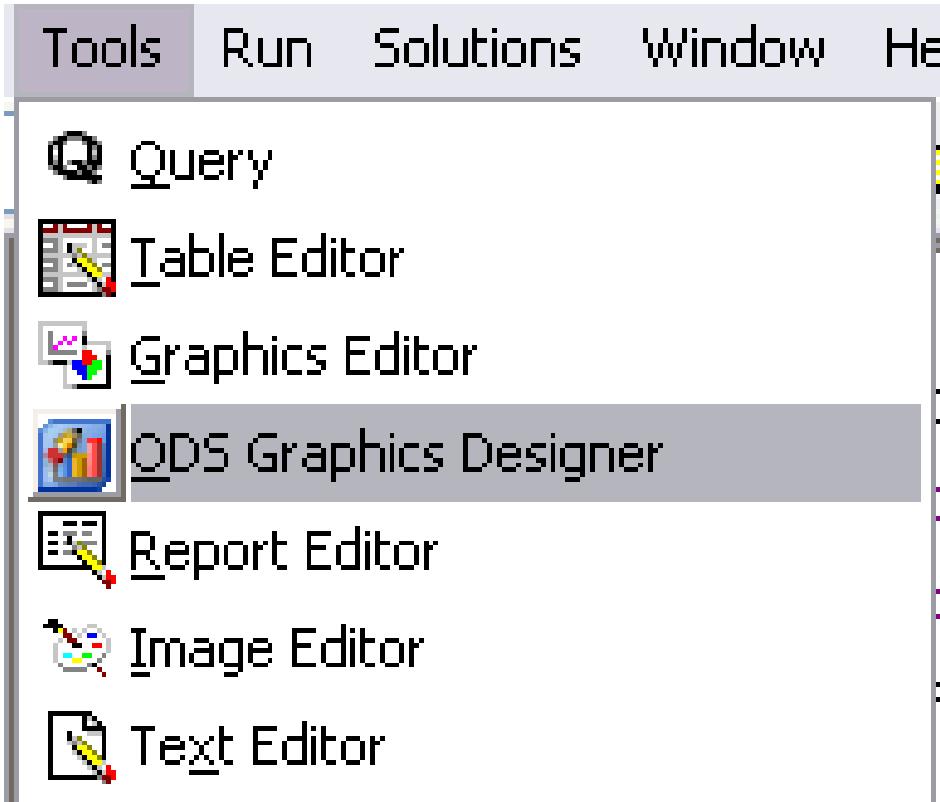
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Hospital for Sick Children
March 1, 2013

Introduction

- Importance of ODS Graphics Designer
- Words of caution
- Objectives
 - Types of Graphs available
 - “Geography” of the Designer
 - How to design and build basic graphs
 - Developing more complex data visualisations
 - Enhancements and “extras” you can use

Geography of the Designer

Where is it?



%SGDESIGN;

Geography cont'd

ODS Graphi

Graph Gallery

File Edit View

Basic Grouped Analytical Custom Matrix Panels

Insets

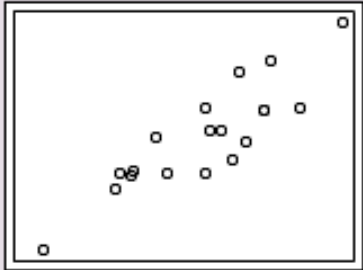
Discret

Cell

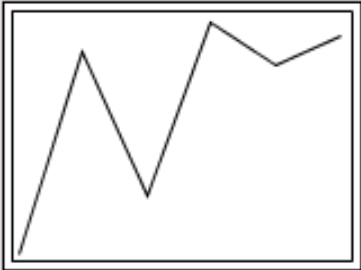
Text

Step

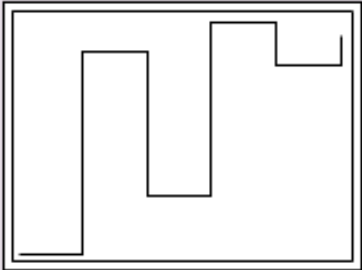
Text Entry



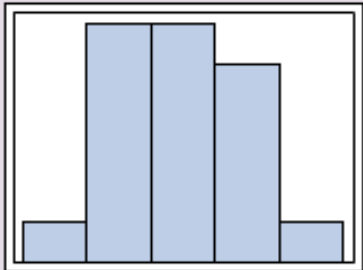
Scatter Plot



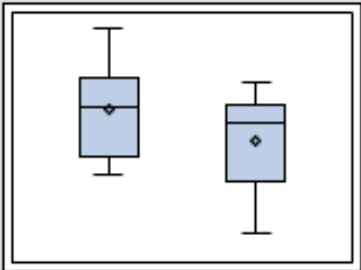
Series Plot



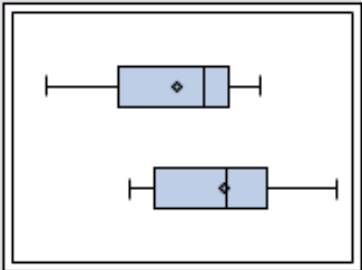
Step Plot



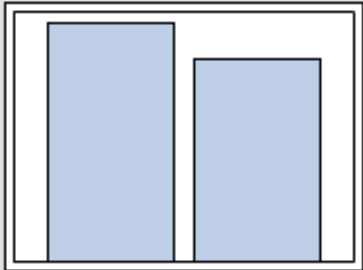
Histogram



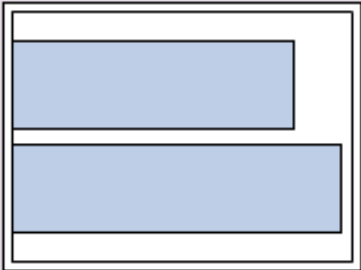
Vertical Box



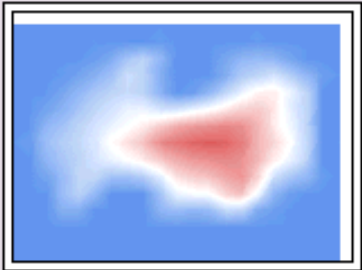
Horizontal Box



Vertical Bar



Horizontal Bar



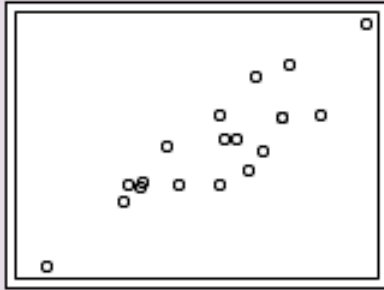
Contour Plot

The image shows a screenshot of the ODS Graph Gallery application. The main window displays a grid of nine different plot types, each with a small preview and a label below it. The plots are arranged in a 3x3 grid. The top row contains a Scatter Plot, a Series Plot, and a Step Plot. The middle row contains a Histogram, a Vertical Box plot, and a Horizontal Box plot. The bottom row contains a Vertical Bar chart, a Horizontal Bar chart, and a Contour Plot. The interface includes a menu bar (File, Edit, View), a toolbar with icons, and a sidebar on the left with 'Insets' and 'Text Entry' sections. The window title is 'Graph Gallery' and it has standard OS window controls (minimize, maximize, close).

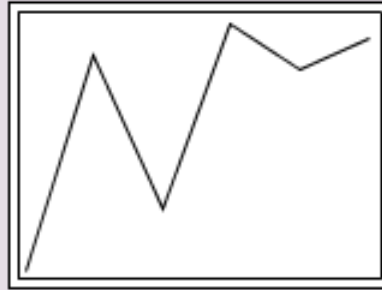
Types of Graphs Available

Basic Grouped Analytical Custom Matrix Panels

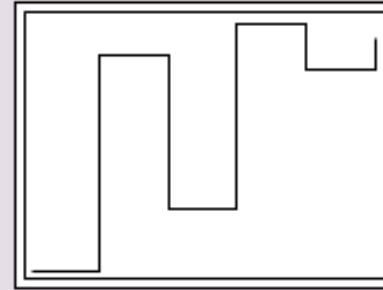
Basic



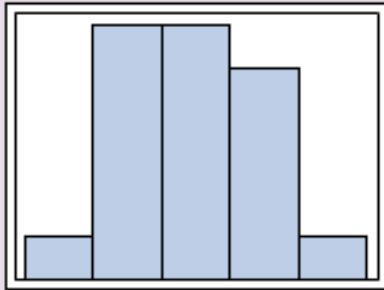
Scatter Plot



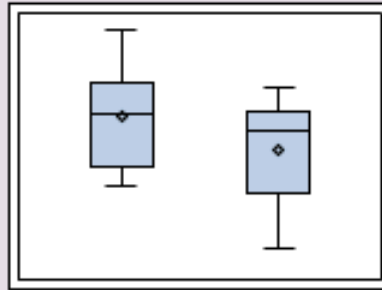
Series Plot



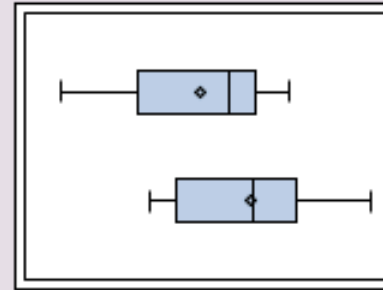
Step Plot



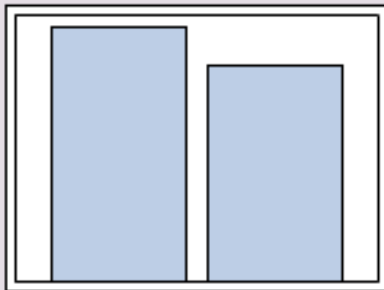
Histogram



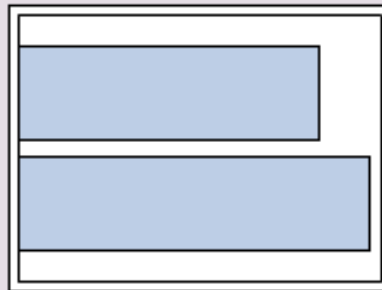
Vertical Box



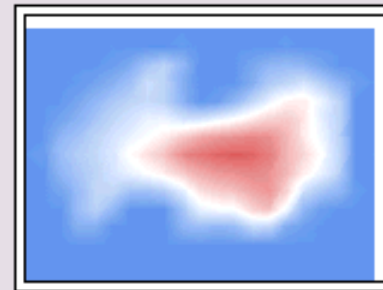
Horizontal Box



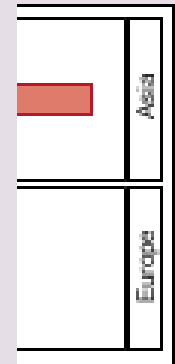
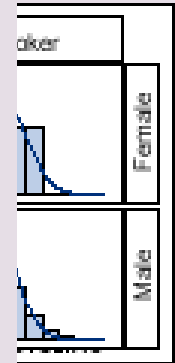
Vertical Bar
Data Profile



Horizontal Bar
Data Profile z



Contour Plot
Survival



al Bar

Basic Graphs

- From a “how-to” perspective, these 5 types of graphs are the more basic ones
- Can become more complex depending on the options selected but can also be very easy to create
- For all Graphs, you can either click on the Graph Gallery or if you’ve already opened a new workspace, click and drag the desired graph type from the Elements menu on the left

Basic Graphs – Scatter plots

Assign Data

Library: SASHELP

Data Set: CLASS

Plot: scatter

Variables

X: HEIGHT

Y: AGE

Group: HEIGHT

Data Label: SEX

WEIGHT

Advanced Options...

OK Cancel

Graph

Weight

140

120

100

80

60

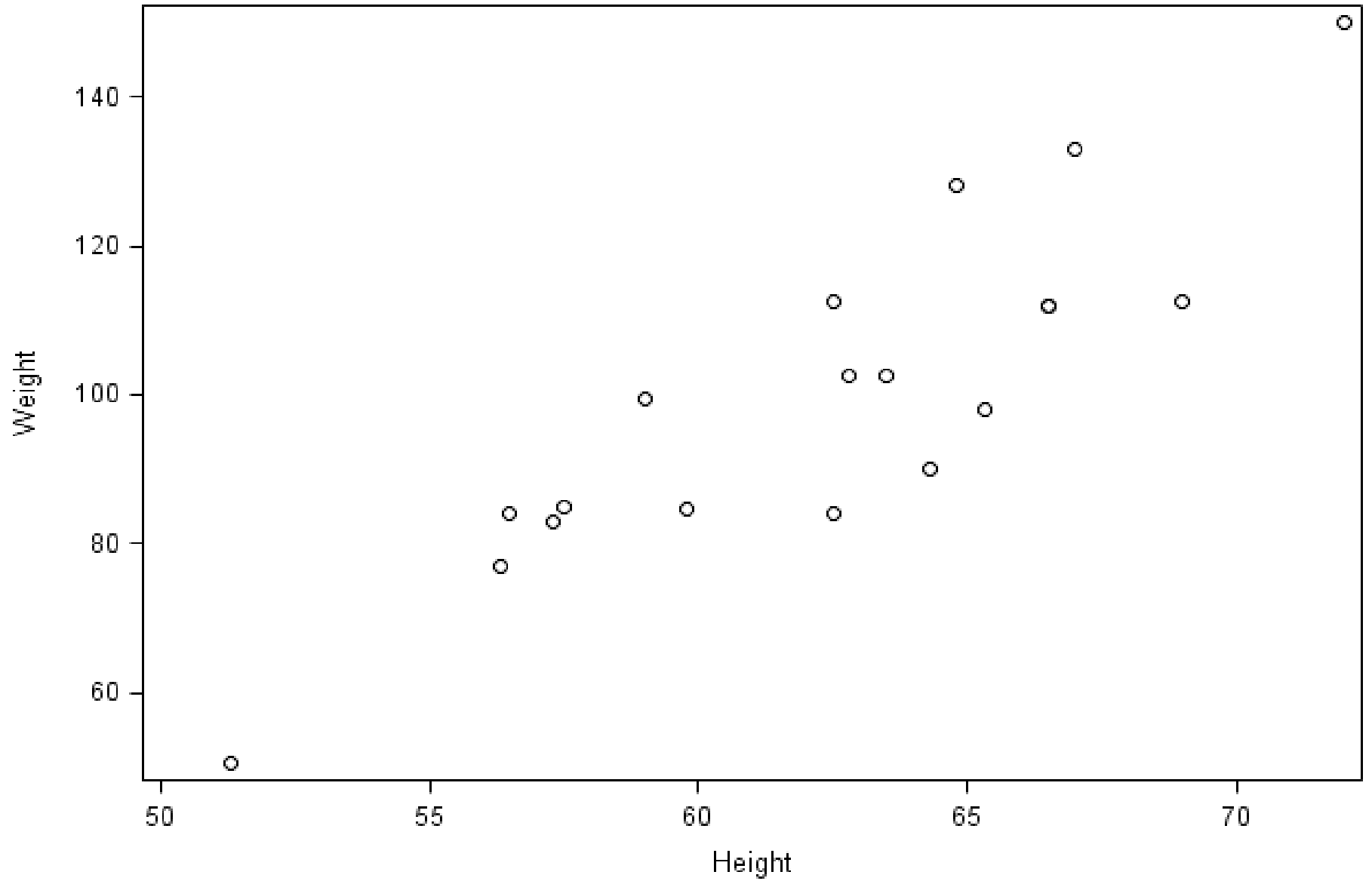
50

65

70

Type in your footnote...

Type in your title...



Type in your footnote...

Basic Plots – Series plots

Assign Data [X]

Library: SASHELP [v]

Data Set: CLASS [v]

Panel Variables Plot Variables

Plot: [series] [v]

Y: HIGH [v]

Curve Label: []
More Variables...

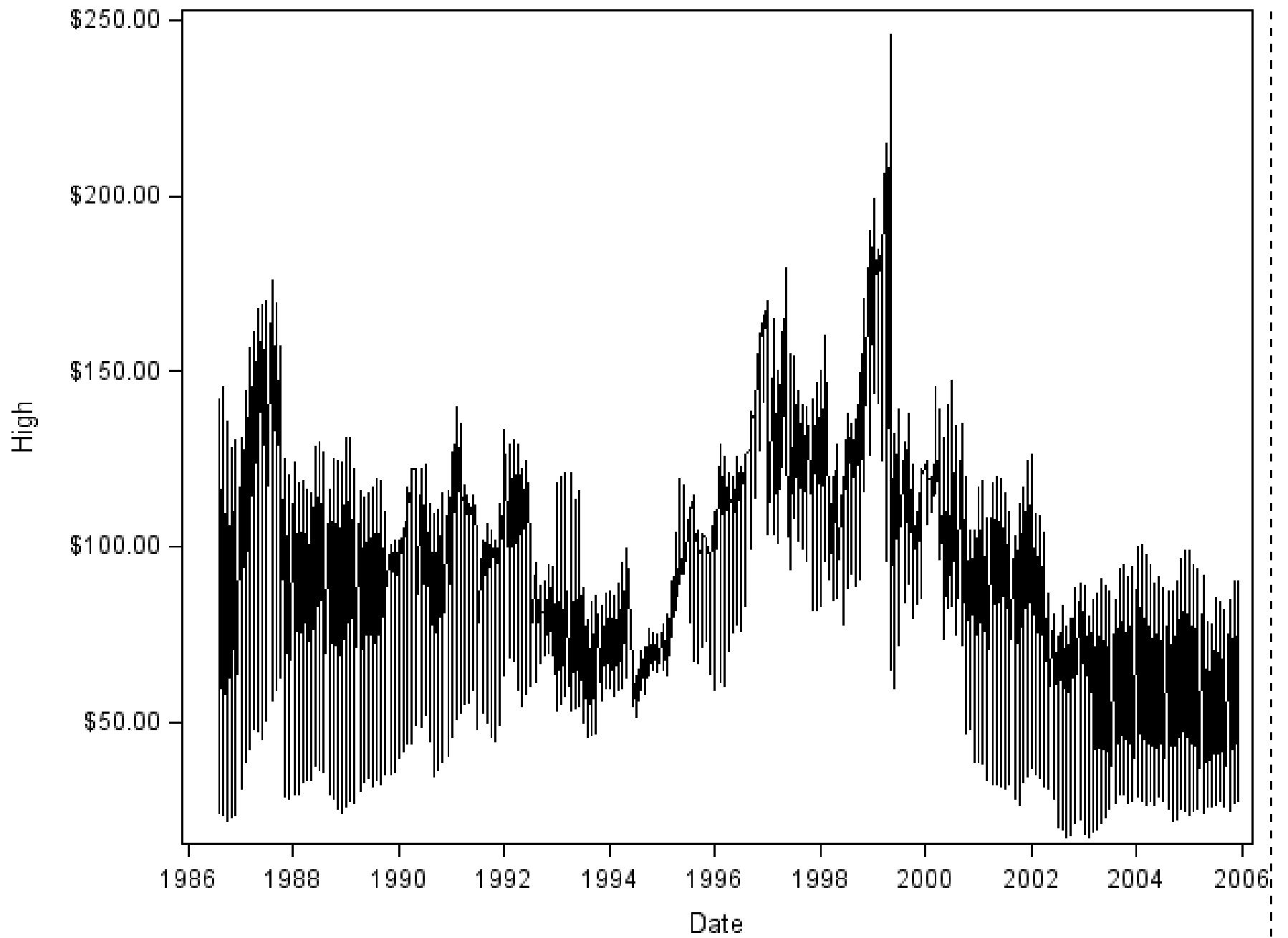
Group Display: Overlay [v]

Name: series


Axis: X [v] Y [v]


Advanced Options...



OK Cancel





Basic Plots - Histograms


Assign Data - Histogram 



Library: SASHELP 


Data Set:  CLASS 



Variables

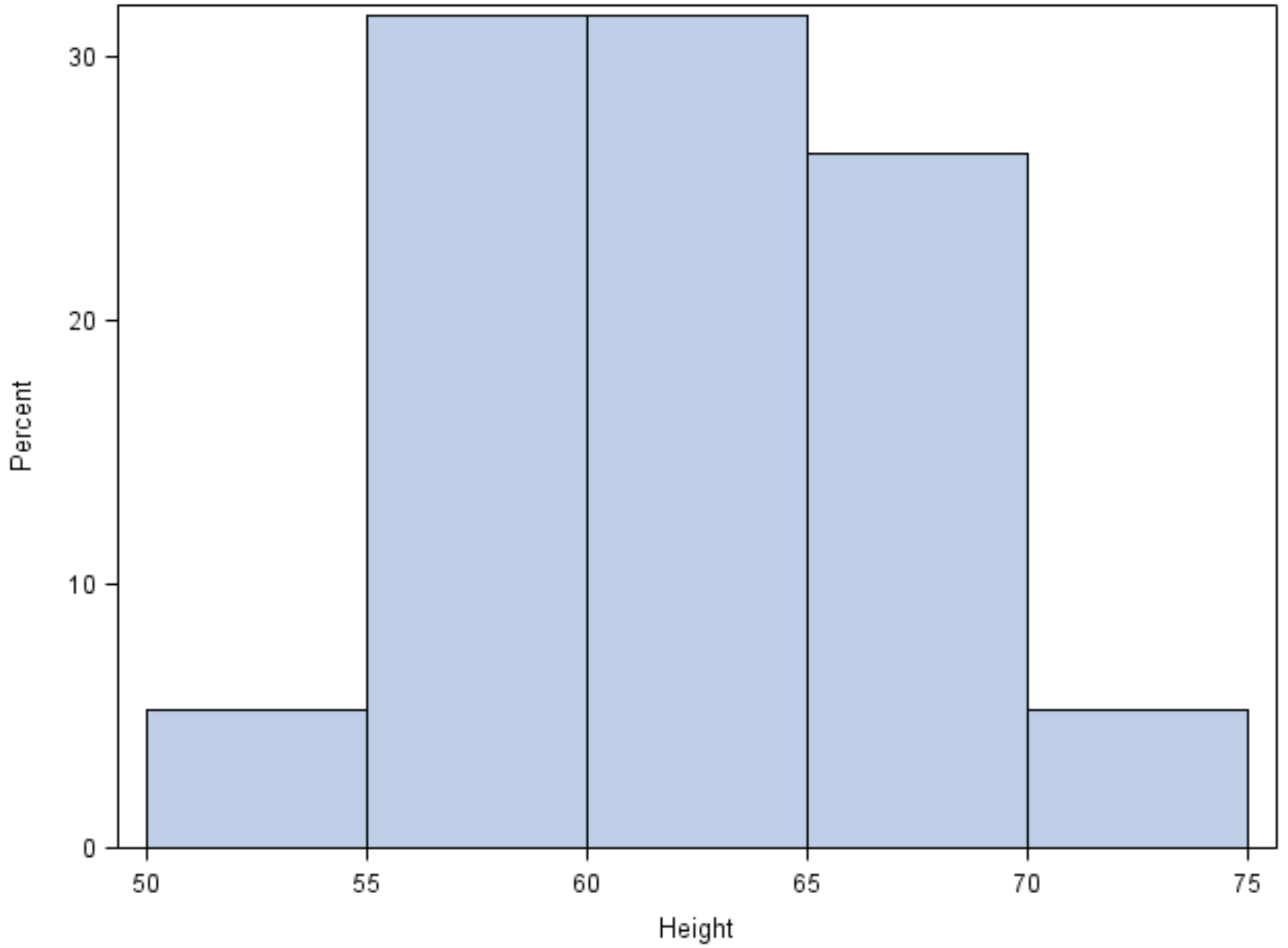
X:  HEIGHT 



Axis: X  Y 





Basic Plots – Box plots

Assign Data - Box ✖

Library: SASHELP

Data Set: CLASS

Panel Variables | **Plot Variables**

Variables

X: <Optional>

Y: <Required>

Group:

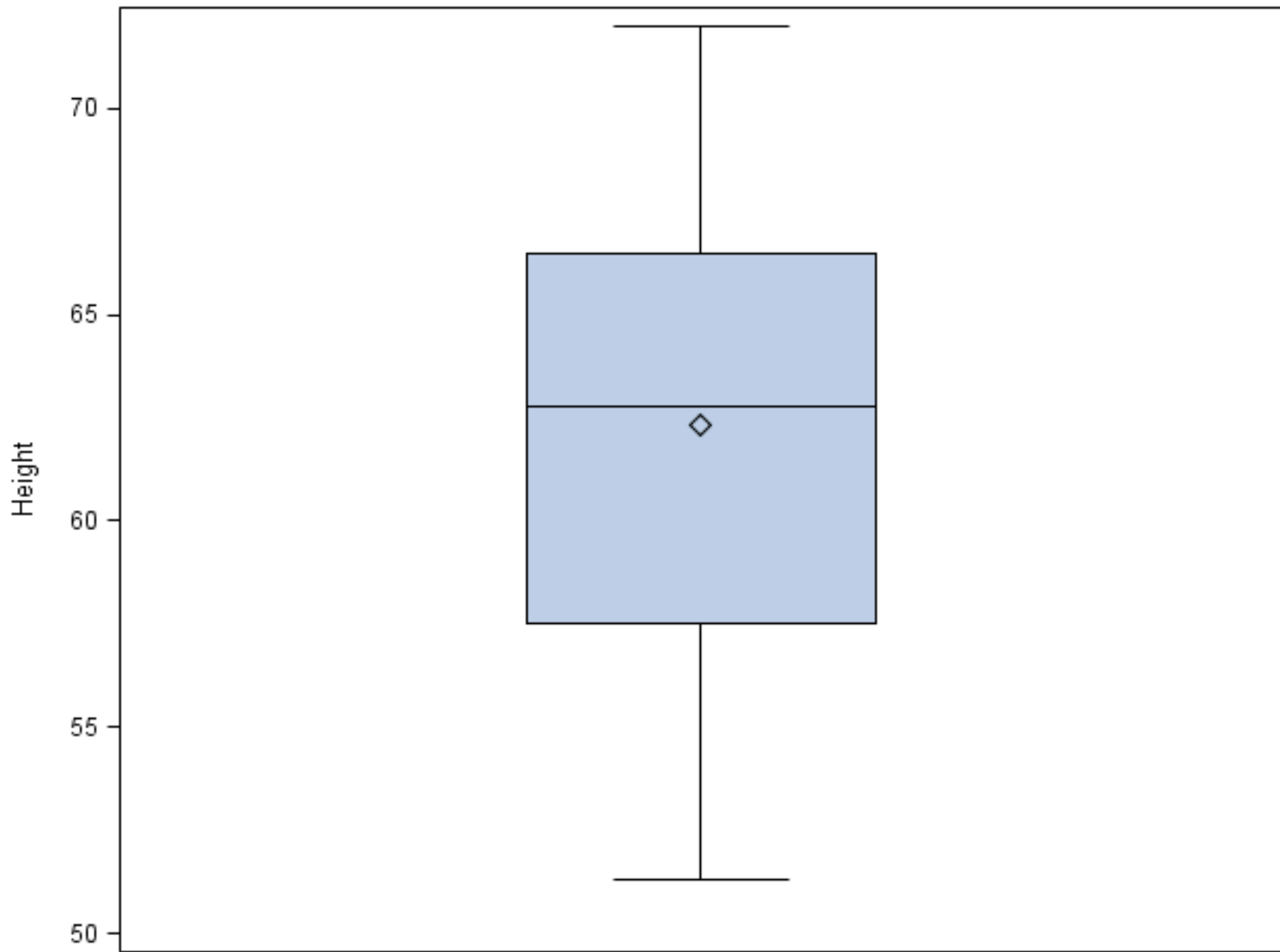
- 123 AGE
- 123 HEIGHT
- 123 WEIGHT

Name: box

Axis: X Y

Advanced Options...

OK Cancel



Advanced Graphs

- With the advanced graphs, you are able to accomplish fairly detailed outputs with the same amount of effort as in the previous ones (Effort<>Understanding!)
- For rudimentary slides for preliminary analyses, quick preparation for meetings, or for a draft copy of a manuscript, these would be more than sufficient and much faster than writing the code

Advanced graphs – Survival Analysis

Assign Data ✕

Library: WORK

Data Set: BONEMARROW

Plot: step

Variables

X: T

Y: SURVIVAL

Group: GROUP

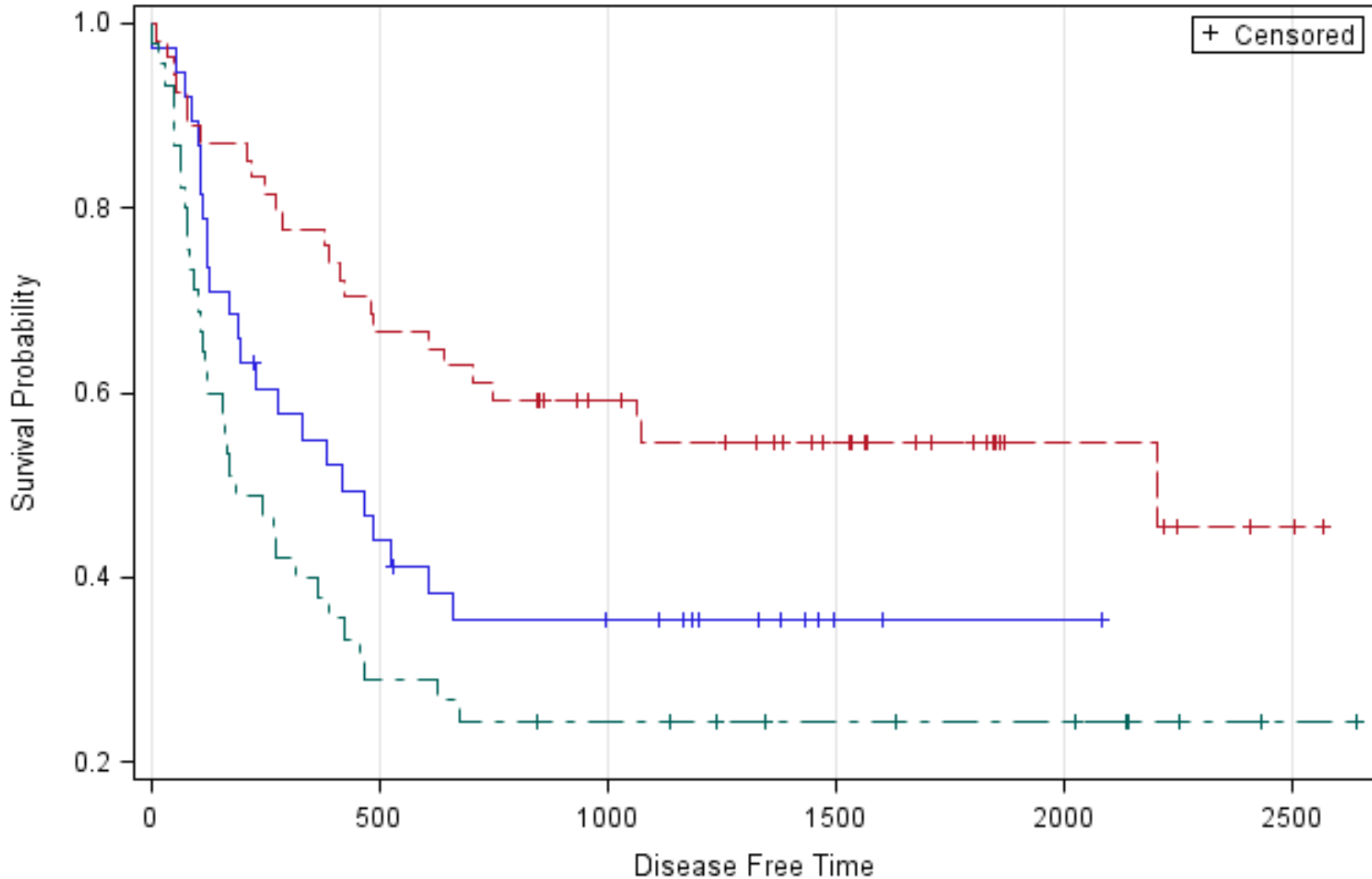
Curve Label: <Optional>

Axis: X Y

Advanced Options...

OK Cancel

Type in your title...



Type in your footnote...

Advanced graphs – Regular Matrix

Assign Data ✕

Library: SASHELP

Data Set: CLASS

Roles

| <input checked="" type="checkbox"/> | Variables | |
|-------------------------------------|------------------|--------|
| <input checked="" type="checkbox"/> | AGE | ↑ ↓ |
| <input checked="" type="checkbox"/> | HEIGHT | |
| <input checked="" type="checkbox"/> | WEIGHT | |

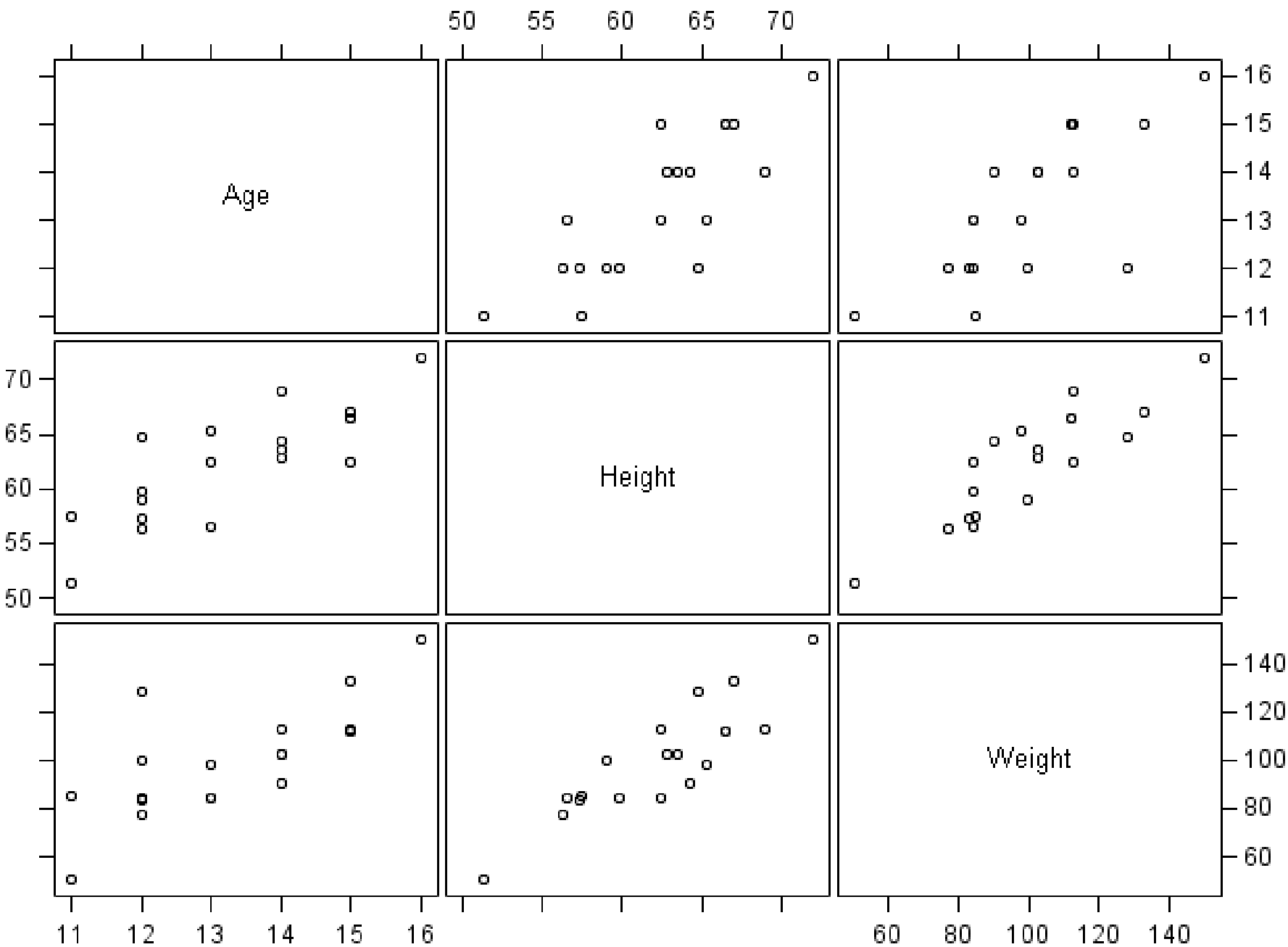
Diagonal Cells

Histogram Normal Kernel

Ellipse

Type: Mean Predicted

Alpha: 0.050



Advanced Graphs – Data Lattice

Library:

WORK

Data Set:



HEART

Panel Variables

Plot Variables

Variables

Column:



SMOKE

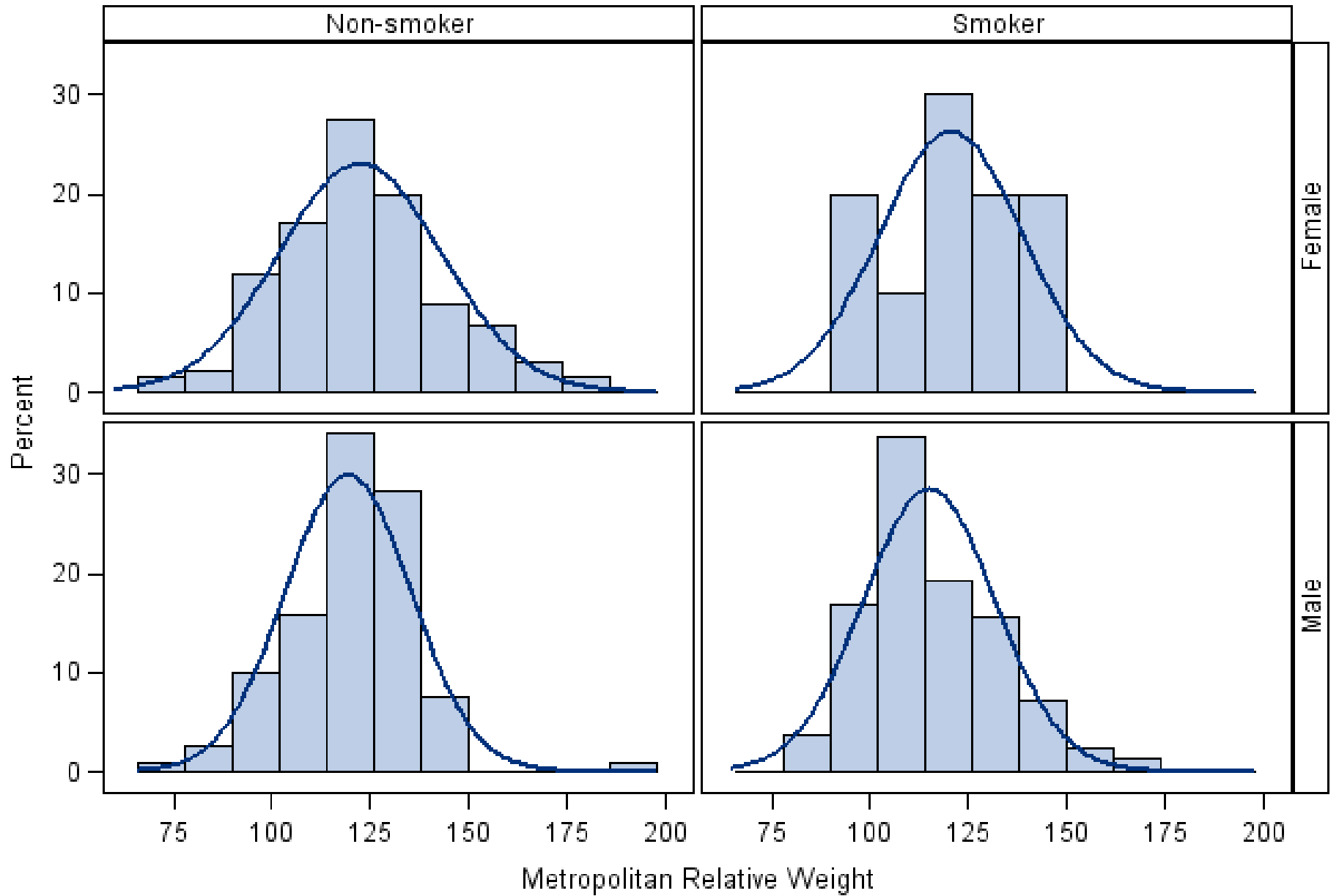
Row:



SEX

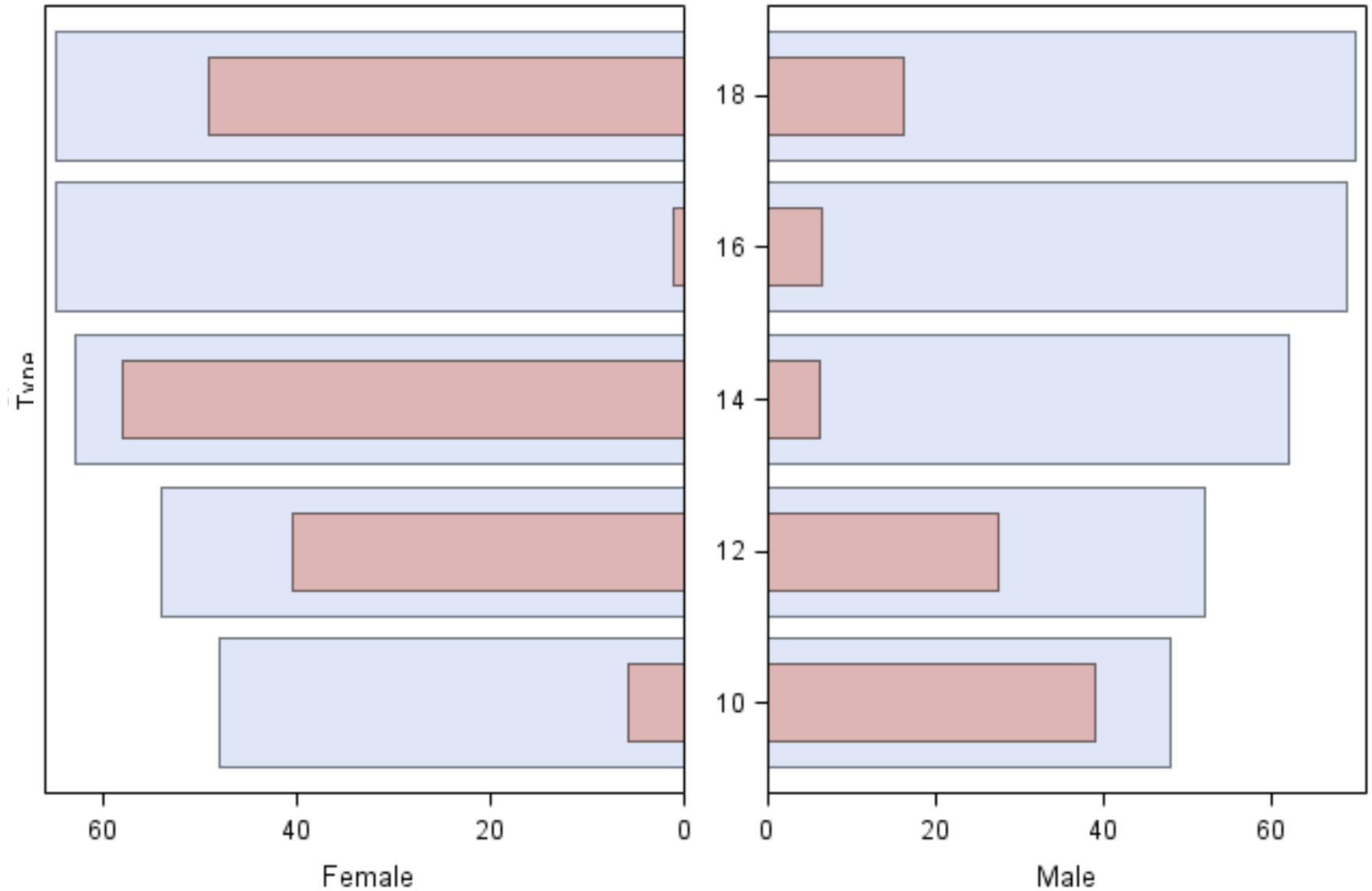
Number of Cells: 4

Type in your title...



Type in your footnote...

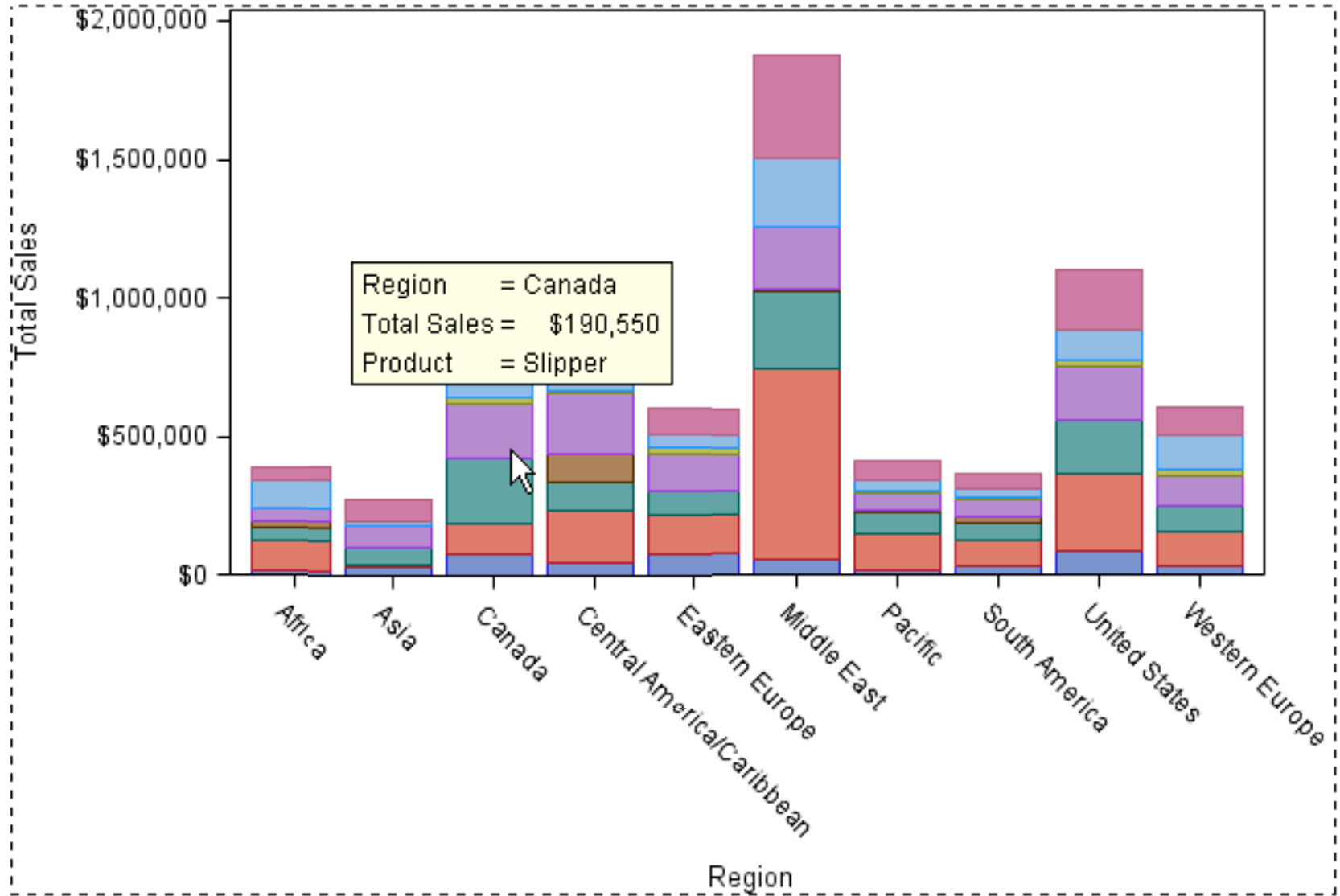
Other Totally Awesome Graphs



Enhancing your ODS Project

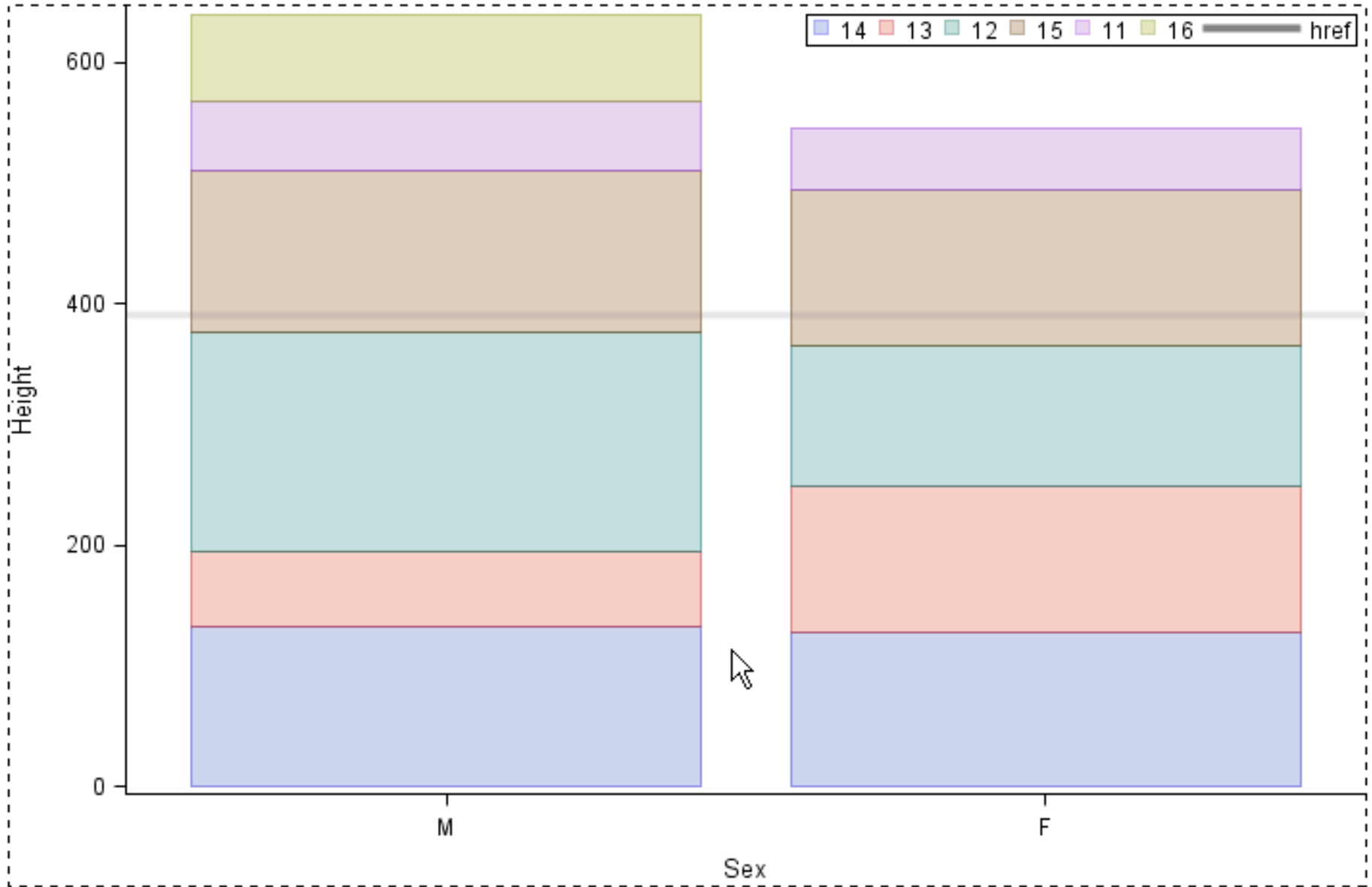
- A huge number of options, features, and tweaks you can use
- Examples will be using a Bar Chart to highlight these enhancements

This is an example of a Stacked Bar Chart



Made by C Battiston in ODS Graphics Designer

Another Example Bar Chart



Code - Graph

```
proc template;
define statgraph sgdesign;
dynamic _SEX _HEIGHT _AGE;
begingraph / designwidth=729 designheight=504;
  entrytitle halign=center 'Another Example Bar Chart';
  layout lattice / rowdatarange=data columndatarange=data rowgutter=10 columngutter=10;
  layout overlay;
    barchart x=_SEX y=_HEIGHT / group=_AGE name='bar' datatransparency=0.6 clusterwidth=1.0;
    discretelegend 'bar' href / opaque=false border=true halign=right valign=top displayclipped=true down=1
order=columnmajor location=inside;
    referenceline y=390.0 / name='href' yaxis=Y curvelabelposition=max lineattrs=(thickness=4 );
  endlayout;
endlayout;
endgraph;
end;
run;

proc sgrender data=SASHELP.CLASS template=sgdesign;
dynamic _SEX="SEX" _HEIGHT="HEIGHT" _AGE="AGE";
run;
```

Summary

- ODS Graphics Designer is an effective, reliable and easy way to quickly produce graphs
- An abundance of features, options and “extras” that can be used to further enhance the graphs
- Not as easy as Graph'n'Go, but with that added level of complexity comes a wider range of visualisations, better outputs, and brings us into the newer version of SAS
- Generates GTL and PROCTEMPLATE in the background, allowing for easy reproducibility, learning new ways to do graphs, and exploring these two components of SAS

References and Further Reading

- ODS Graphics User Guide

<http://support.sas.com/documentation/cdl/en/grstatdesignug/63226/PDF/default/grstatdesignug.pdf>

- Quick Results with SAS ODS Graphics Designer by Mantage, S.

<http://support.sas.com/resources/papers/proceedings12/153-2012.pdf>

- Using the ODS Graphics Designer to Create Your Own Templates by Holland, P.

<http://support.sas.com/resources/papers/proceedings10/034-2010.pdf>

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LinkedIn