

# ODS Graphics Designer

## A Gateway to Quick, Effective Data Visualisation

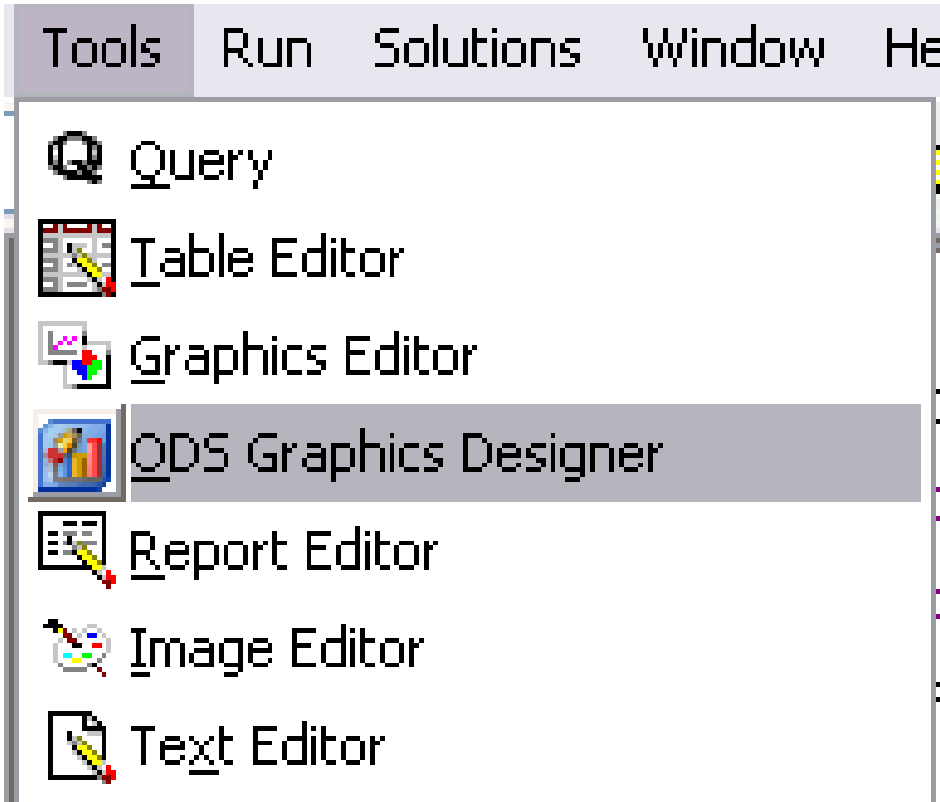
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Hospital for Sick Children  
March 1, 2013

# 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

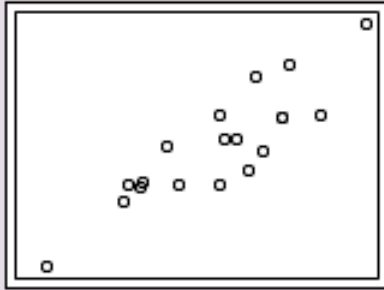
The screenshot displays the ODS Graph Gallery application window. The title bar reads "ODS Graph Gallery". The menu bar includes "File", "Edit", and "View". Below the menu bar is a toolbar with icons for file operations. On the left side, there is a vertical "Insets" panel with several icons and labels: "Discret", "Cell", "Text", and "Step". The main area of the window is titled "Graph Gallery" and features a tabbed interface with the following tabs: "Basic", "Grouped", "Analytical", "Custom", "Matrix", and "Panels". The "Basic" tab is currently selected and displays a grid of nine chart types, each with a preview image and a label below it:

- Scatter Plot:** A plot showing several data points scattered across the coordinate plane.
- Series Plot:** A line graph showing a single data series with multiple peaks and troughs.
- Step Plot:** A plot showing a series of horizontal and vertical line segments, representing a step function.
- Histogram:** A bar chart with five bars of varying heights, representing the frequency distribution of data.
- Vertical Box:** A box plot oriented vertically, showing the median, quartiles, and range of a data set.
- Horizontal Box:** A box plot oriented horizontally, showing the median, quartiles, and range of a data set.
- Vertical Bar:** A bar chart with two bars of different heights.
- Horizontal Bar:** A bar chart with two horizontal bars of different lengths.
- Contour Plot:** A plot showing a red, irregularly shaped region on a blue background, representing a contour or density plot.

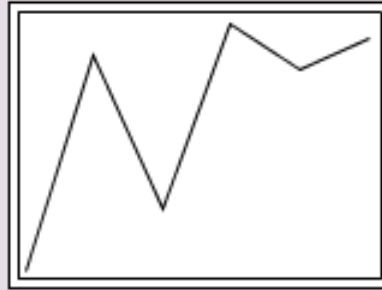
# Types of Graphs Available

Basic Grouped Analytical Custom Matrix Panels

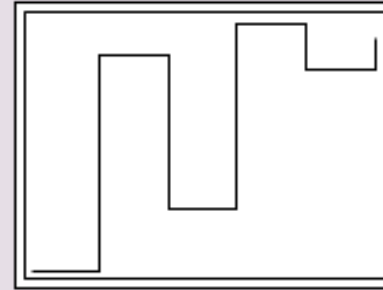
Basic



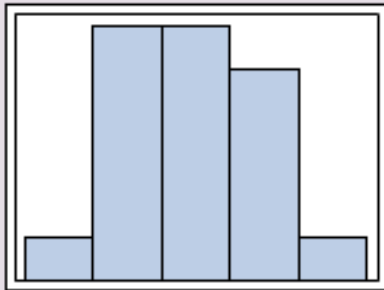
Scatter Plot



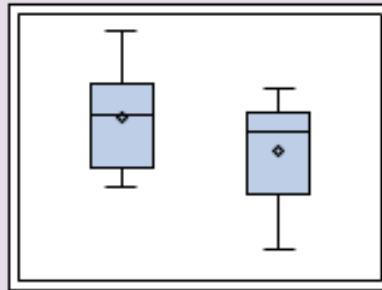
Series Plot



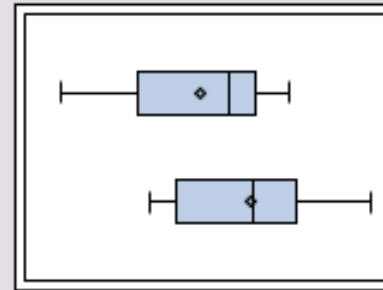
Step Plot



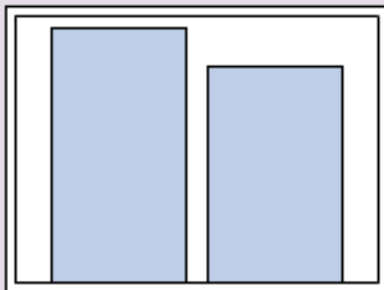
Histogram



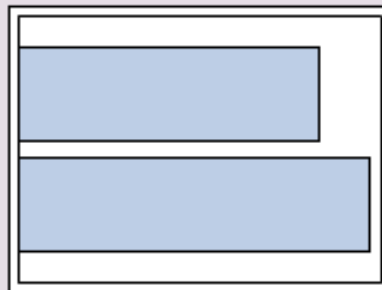
Vertical Box



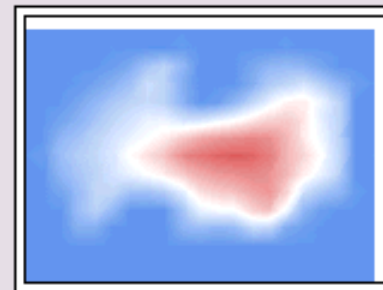
Horizontal Box



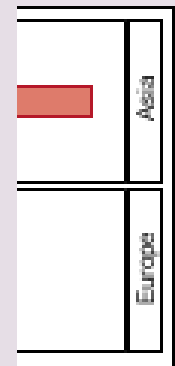
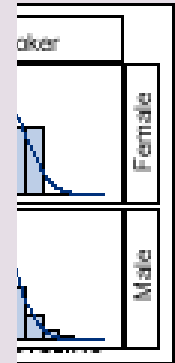
Vertical Bar  
Data Profile



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

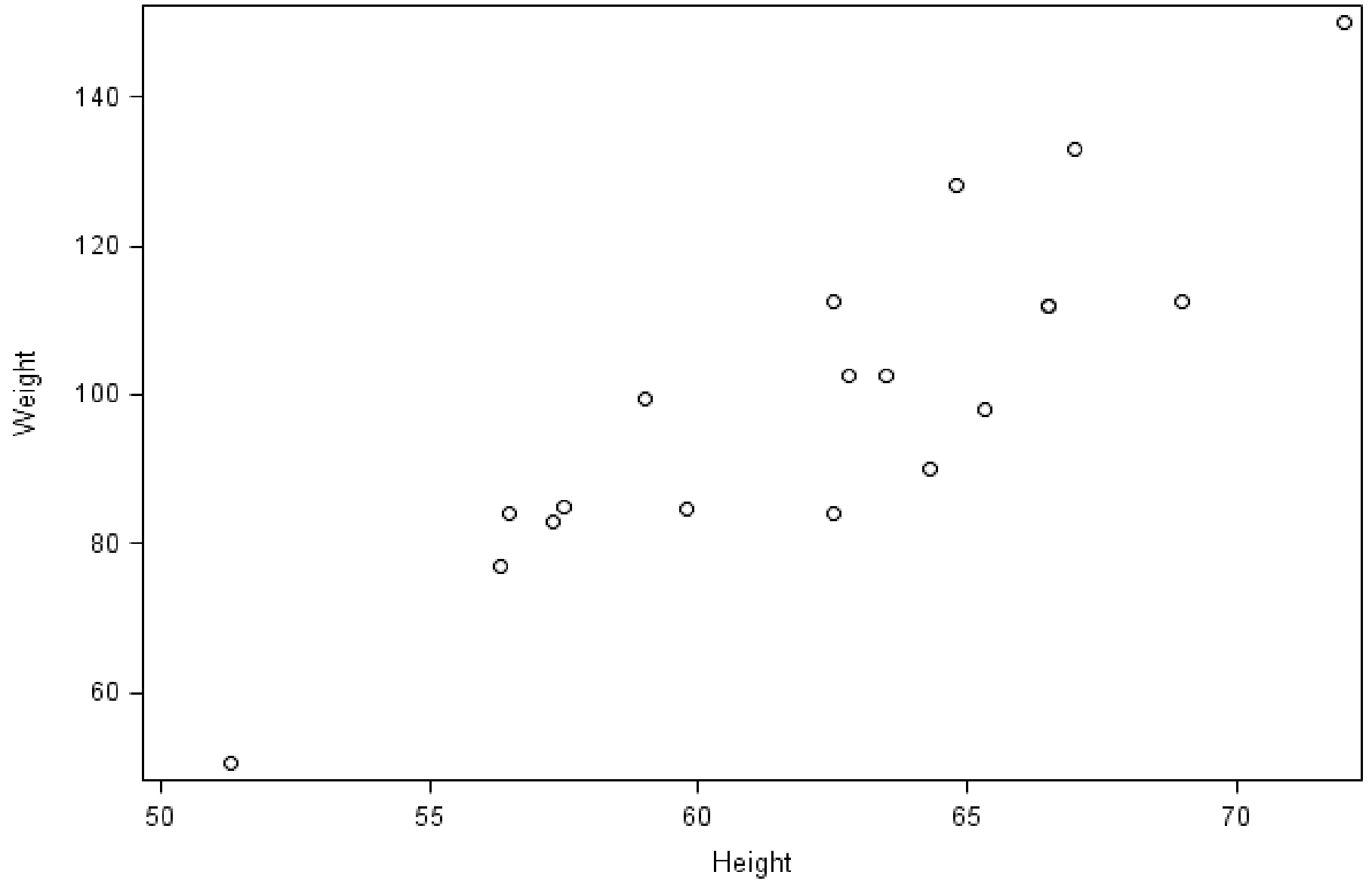
50

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...

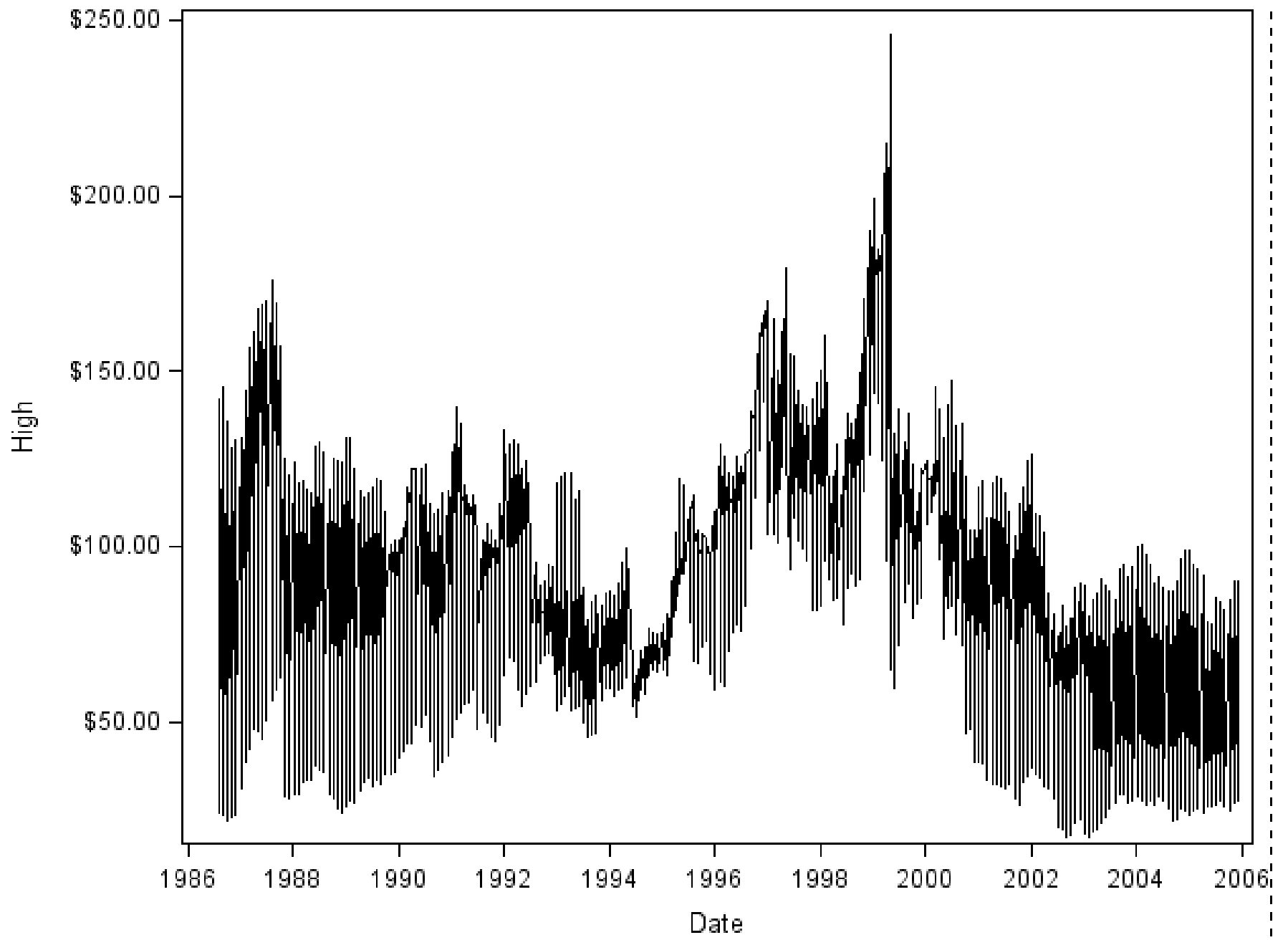
Group Display: Overlay [v]

Name: series


Axis: X [v] Y [v]


Advanced Options...



OK Cancel





# Basic Plots - Histograms


**Assign Data - Histogram** 



Library: SASHELP 


Data Set:  CLASS 



**Variables**

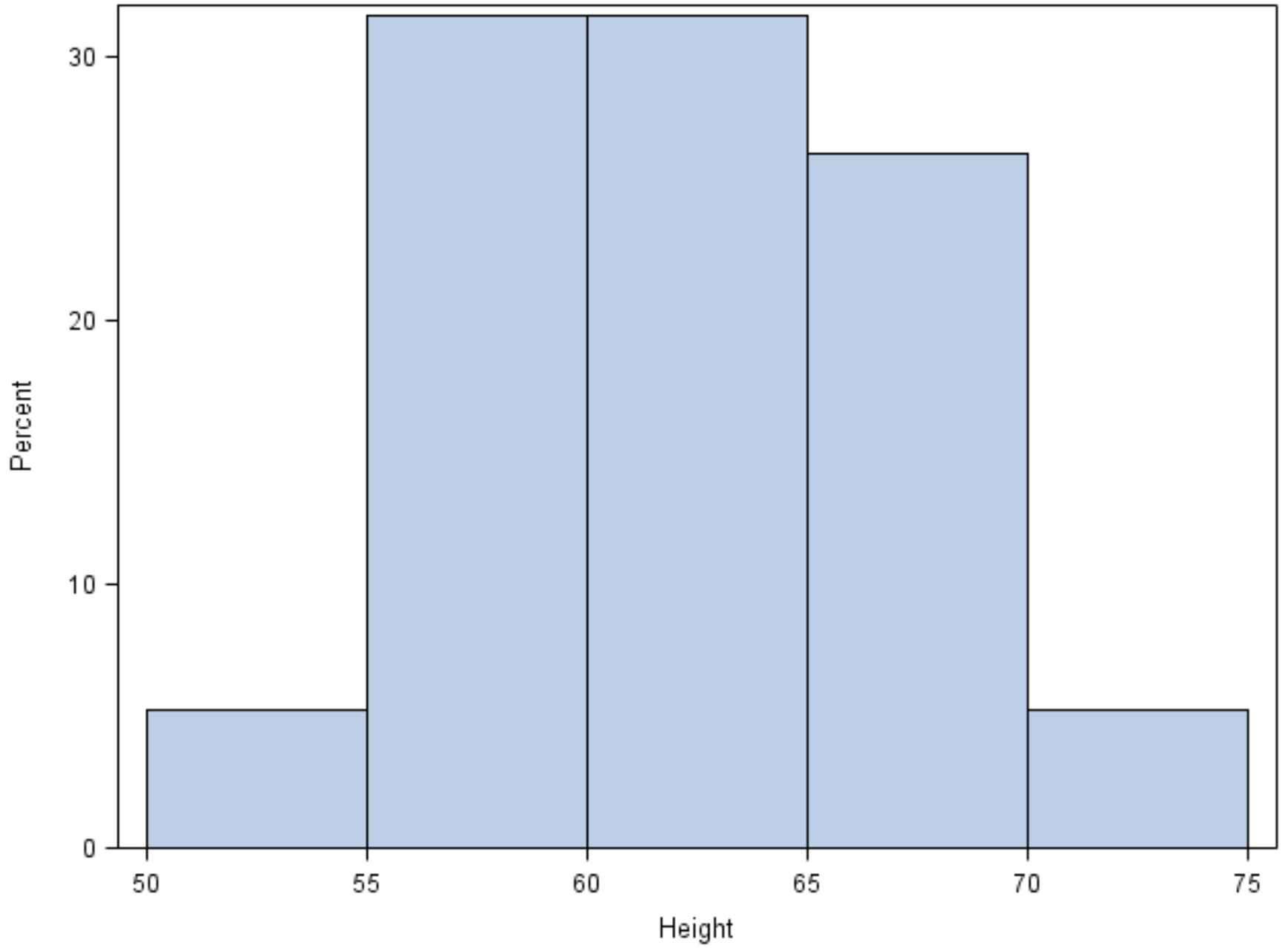
X:  HEIGHT 



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:

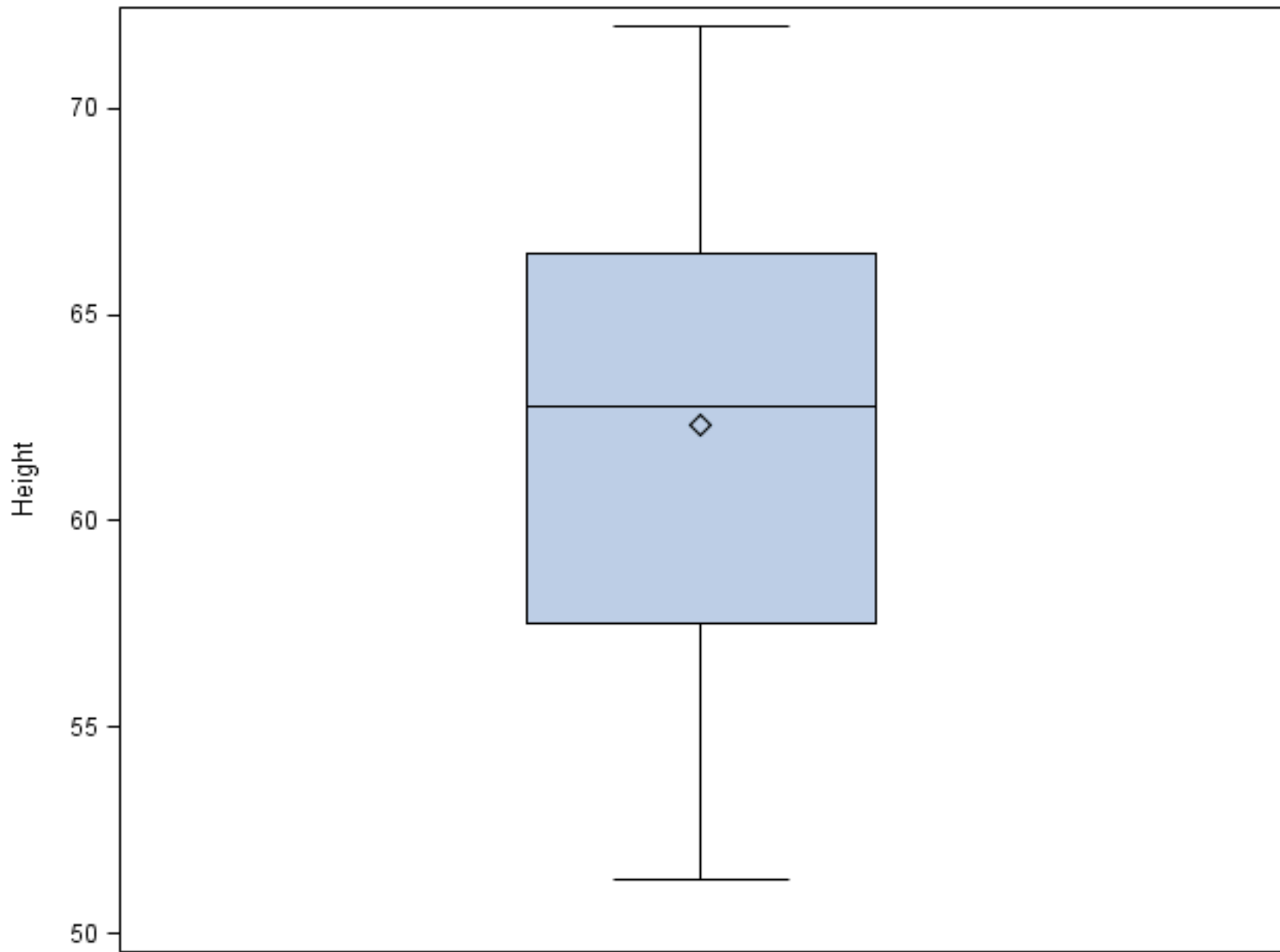
- AGE
- HEIGHT
- WEIGHT

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>

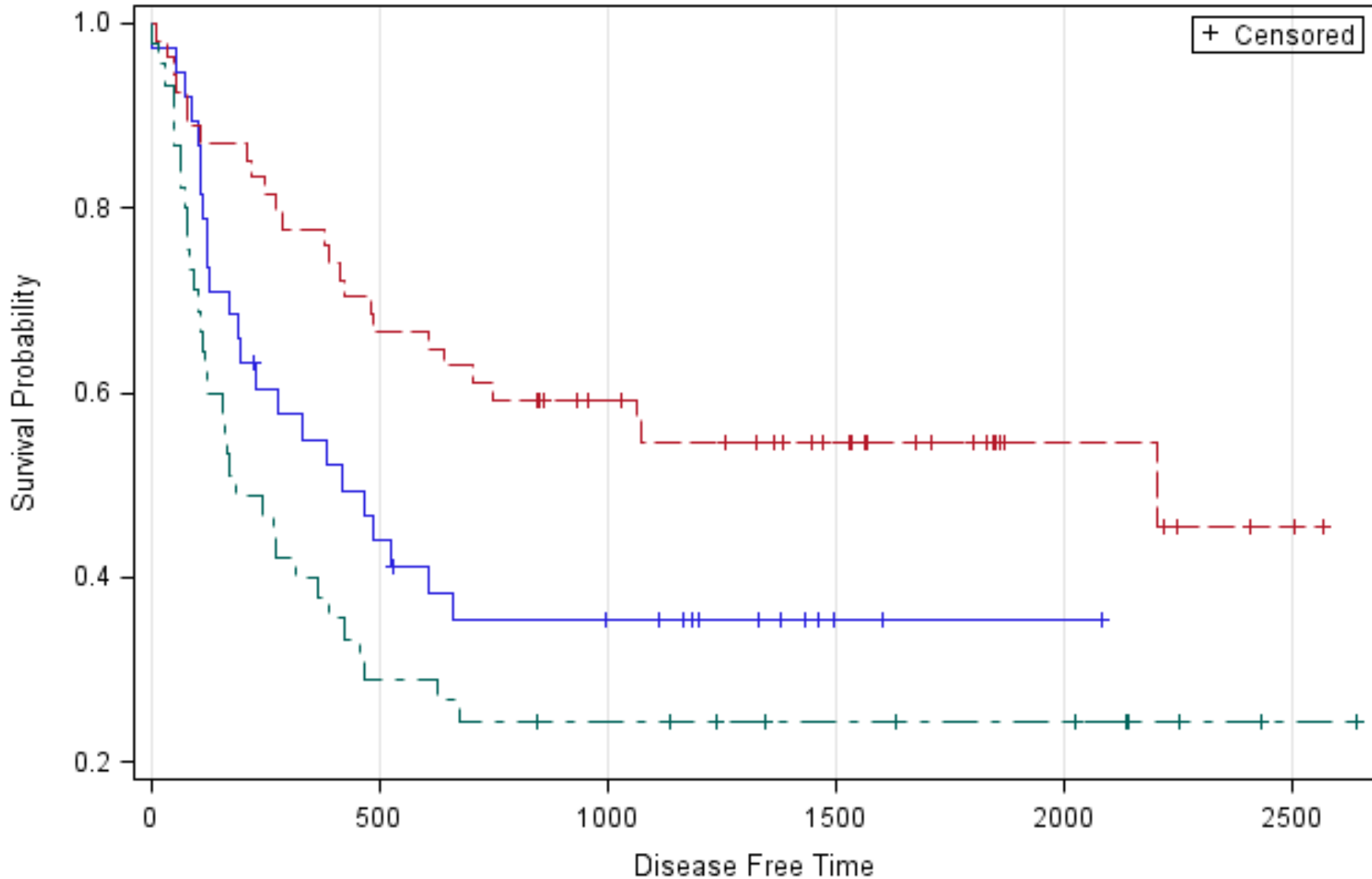
Axis: X Y

Advanced Options...

OK Cancel



Type in your title...



Group: All Low Risk High Risk

Type in your footnote...

# Advanced graphs – Regular Matrix

**Assign Data** ✕

Library: SASHELP

Data Set: CLASS

**Roles**

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

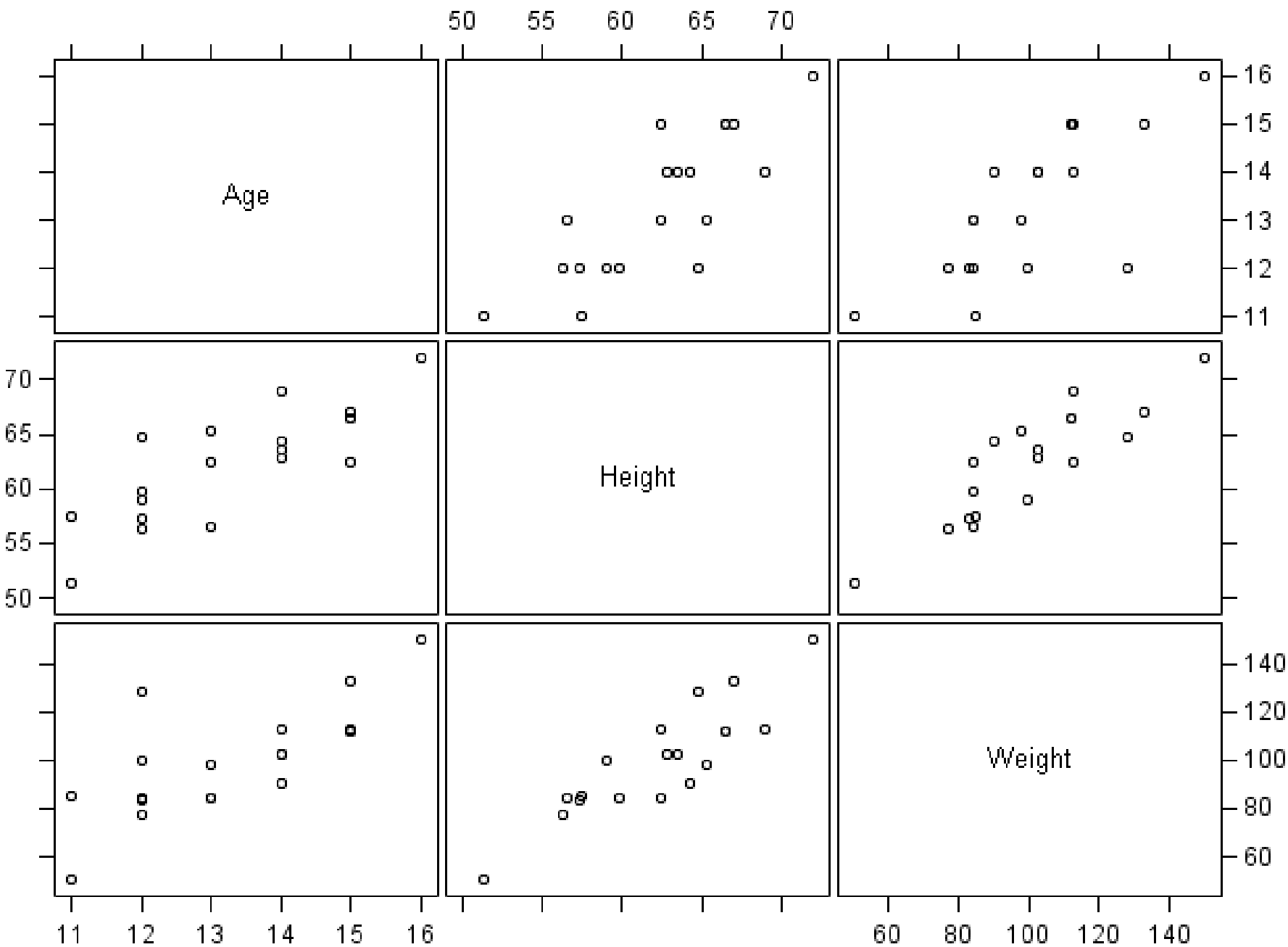
**Diagonal Cells**

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

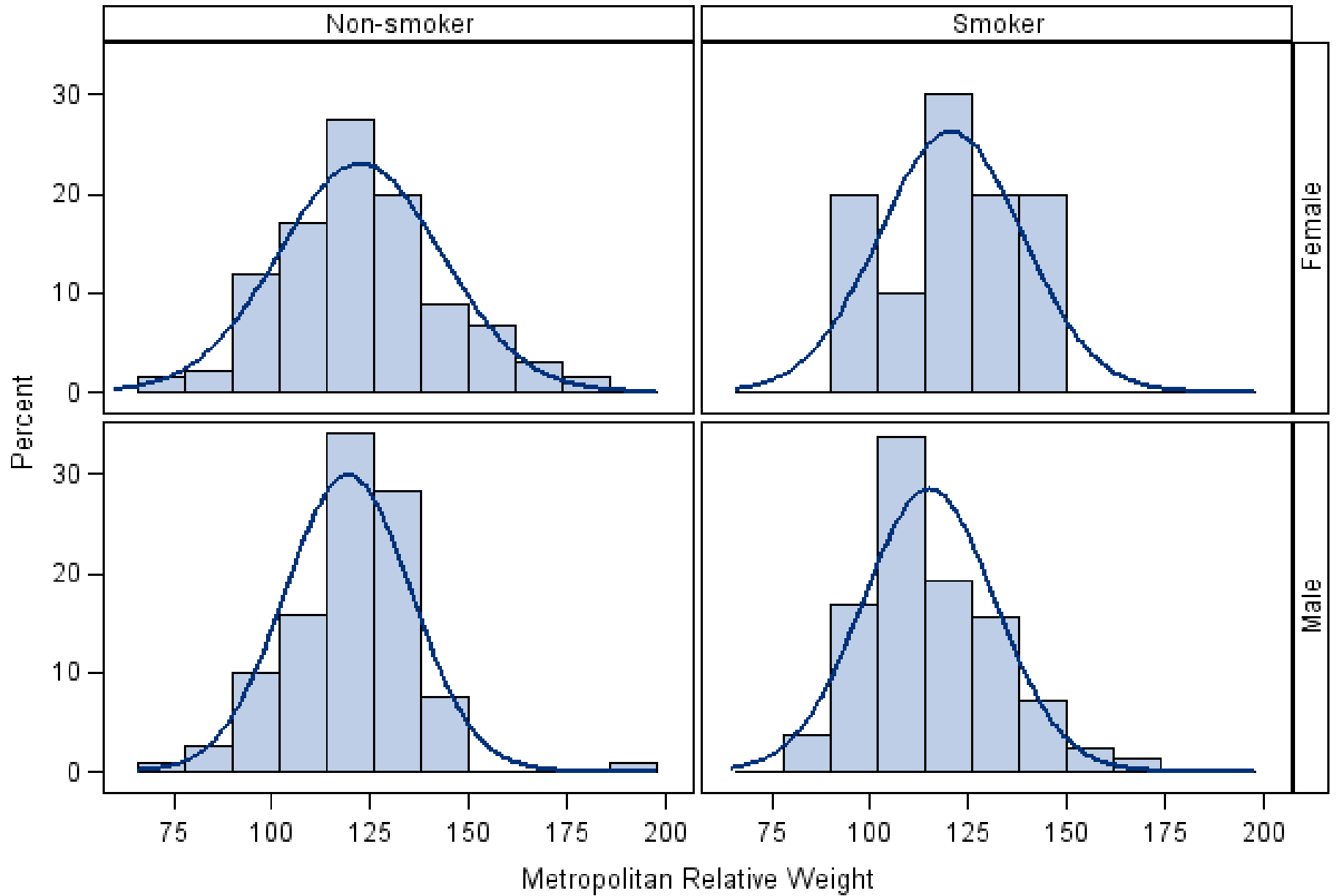
Row:



SEX

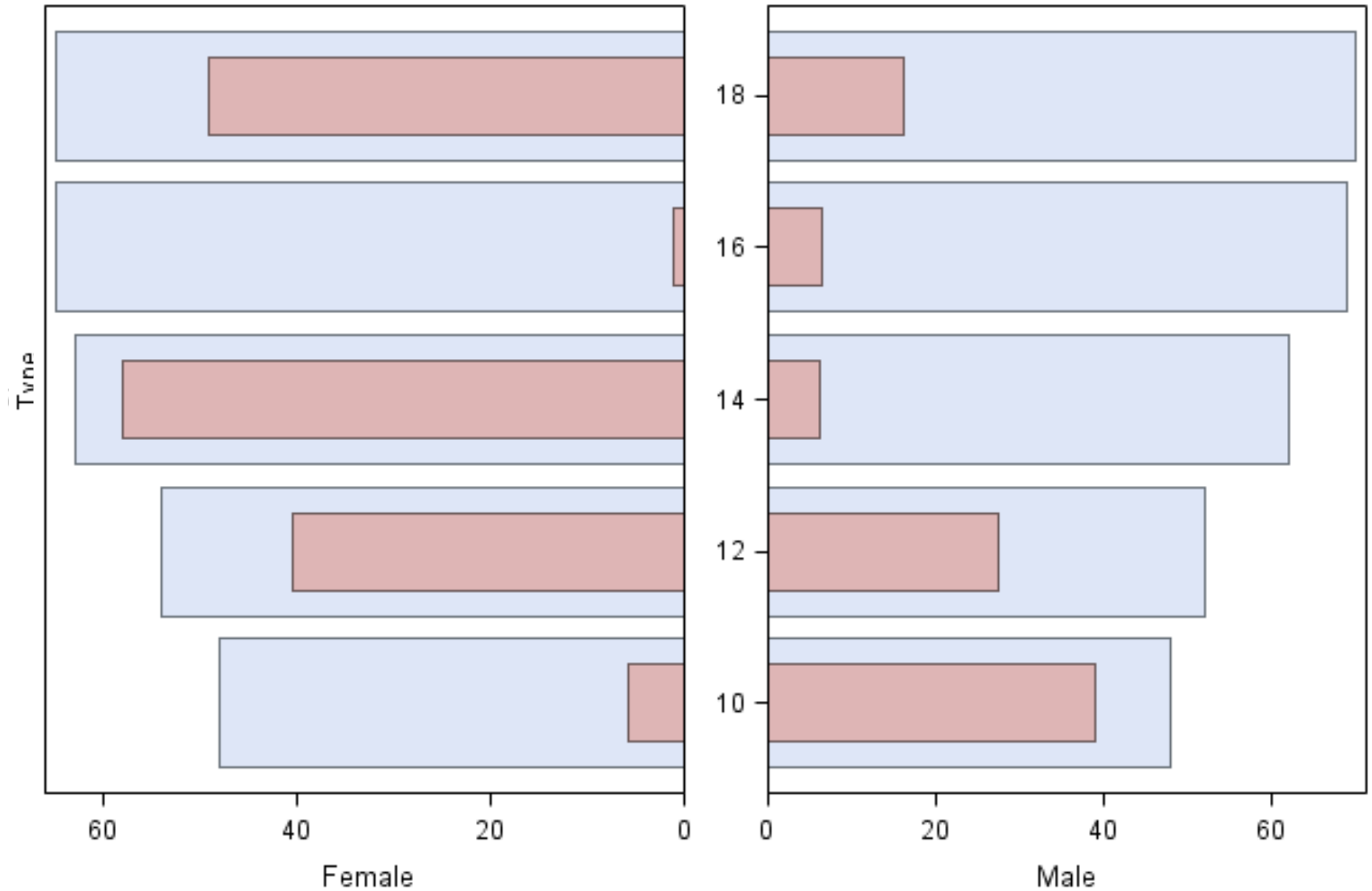
Number of Cells: 4

Type in your title...



Type in your footnote...

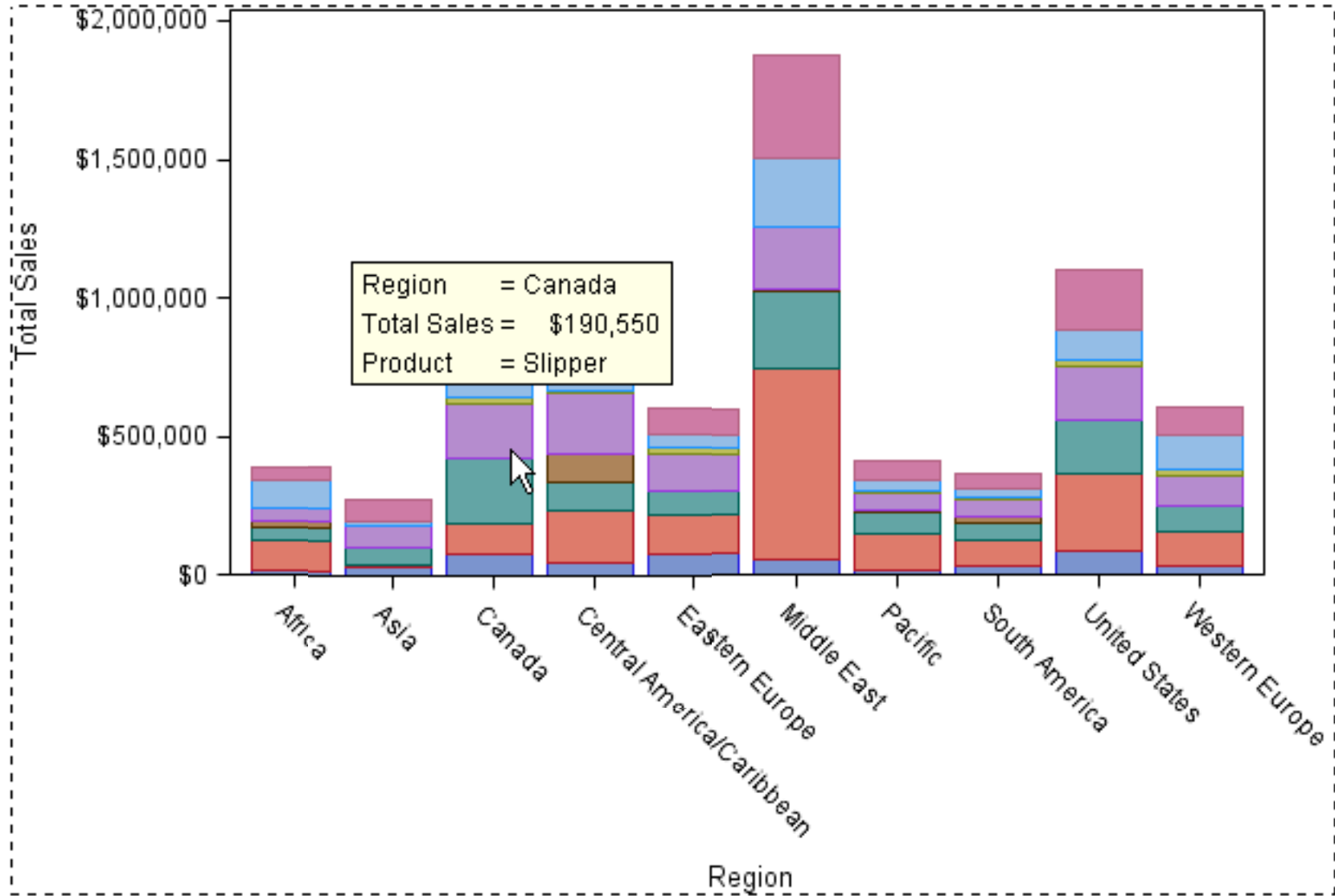
# Other Totally Awesome Graphs



# Enhancing your ODS Project

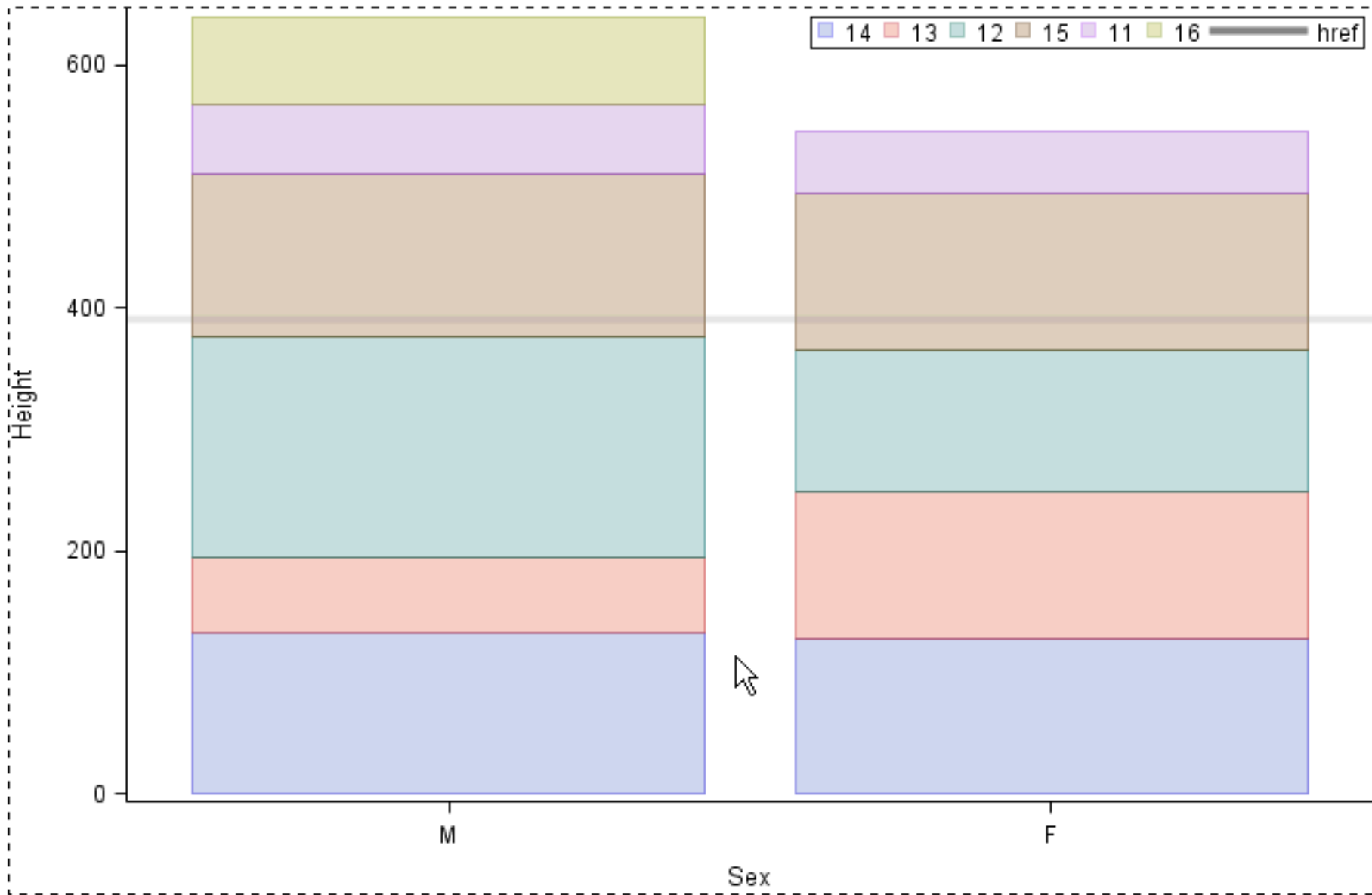
- A huge number of options, features, and tweaks you can use
- Examples will be using a Bar Chart to highlight these enhancements

# This is an example of a Stacked Bar Chart





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>

# Contact Information

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