

Chapter 1 • Getting Started

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JMP was developed to help people with questions about their data get the answers they need through the use of graphs and numerical results. For most people, memories of statistics are a very unpleasant, if not forgotten, part of their education. If you see yourself as a new, occasional, or even reluctant user of data analysis, we want you to know that we have written this book for you.

It is important to note that throughout the historical development of statistics as a scientific discipline, people had real problems they needed to solve and developed statistical techniques to help solve them. Statistics can be thought of as sophisticated common sense, and JMP takes a practical, common sense approach to solving data-driven problems.

JMP is the ideal tool for those who need to make good sense of data because it was designed around the workflow of the data analyst rather than as a collection of tools only a statistician can understand. When you think about your data analysis problem, try to formulate the questions that might help you address it. For example, do you need to describe the variation in selling prices of homes in a city or understand the relationship of customer satisfaction with service waiting times? With this mindset, you will find the menus and navigation in JMP to be very compatible with the types of questions you are trying to answer.

Displaying graphs (or pictures) of data is one of JMP's strengths. For most people, an effective graph can convey more information more quickly than a table of numbers or statistics. In any JMP analysis, graphs are presented first and then the appropriate numerical results follow. This is by design. JMP also provides a **Graph** menu that contains additional visualization tools that are independent of numerical results. The goal of this chapter is to introduce you to JMP and its basic navigation. We cover the menus and windows and introduce you to the conventions used throughout the book.

1.1 Using *JMP Essentials*

All but one chapter in this book (Chapter 3, “Index of Graphs”) is laid out in a consistent manner to help you generate results quickly. The format of the book has been designed to be used alongside your computer. After an introduction to the concept, we have designed each page or two-page spread to be self-contained. That is, with few exceptions, the steps required to produce a result begin and end without having to flip through pages.

We provide numbered steps on the left side of the page that generate the result illustrated on the right side of the page (see Figure 1.1).

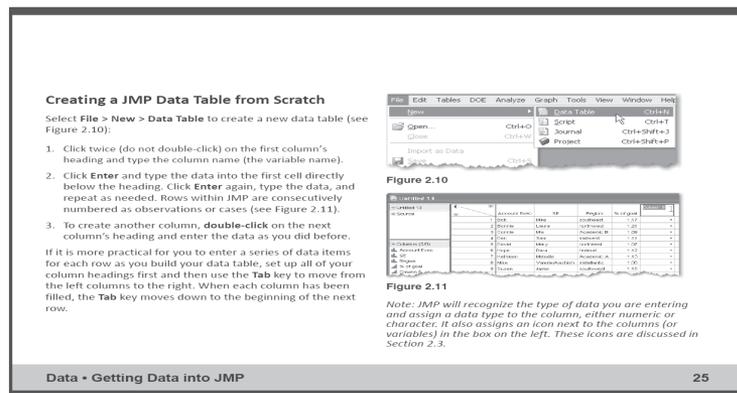


Figure 1.1

Note: This edition of JMP Essentials was written with JMP 8. However, the methods covered in this book are mostly basic and have not substantially changed since the earliest releases of the software. Thus, you will find most instructions contained in this book compatible with earlier and future JMP releases. If you are using JMP 9, you will find the instructions the same except where noted.

Conventions

We are confident that, having made it this far, you know the basic terminology associated with operating a computer, including click, right-click, double-click, drag, select, copy, and paste. We use these terms and they appear in numbered steps (see Figure 1.2). When there is a single or self-evident step, these instructions are included in the body of the text. Each step or action appears in bold type.

In writing this book, we have adopted the same conventions contained in JMP documentation to make your transition to using the documentation easy.

Menu items such as **Graph** are associated with a JMP command such as **Chart**. We use the greater than (>) symbol to indicate the next step in an operation. Thus, **Graph > Chart** indicates that you should select the **Chart** command (or platform) from the **Graph** menu (see Figure 1.3).

1. Select **File > Open**.
The **Big Class.xls** file, which is illustrated here, can be found by selecting **C: > Program Files > SAS > JMP > 8 > Support Files English > Sample Import Data > Big Class.xls**.
2. From the **Files of Type** drop-down menu, select **Excel 97-2003** (or **Excel Files** for files created in Excel 2007 with the .xlsx file extension).
3. Select the file that you want, and then select **Open** (see

Figure 1.2

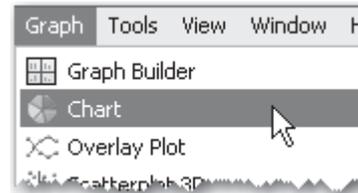


Figure 1.3

Book Features

Most chapters feature one or more examples to illustrate the procedures within that chapter (see Figure 1.4). All of the examples have corresponding data tables that are included in JMP's built-in Sample Data directory (**Help > Sample Data**).

Important definitions are boxed for easy reference (see Figure 1.5).

Example 2.2 Movies

We will use the **Movies.jmp** data table to illustrate the concepts in this section. This data table consists of the 277 top-grossing movies released between 1937 and 2003. The columns are Movie, Type (genre), Rating (movie rating), Year (year in which the movie was released), Domestic\$ (in millions of US dollars), Worldwide\$ (in millions of US dollars), and Director. You can access this data table in the **Sample Data** folder that is installed with JMP by selecting **File > Open > C: > Program Files > SAS > JMP > 8 > Support Files English > Sample Data > Movies.jmp**.

Figure 1.4

Data refers to any values placed in the cell of a JMP data grid. Examples include numeric and/or text descriptions: 3.6, \$2500, Female, somewhat likely, or 9/24/09.

Data type refers to the nature of the data. The data type can be either numeric (numbers) or character (often words and letters but sometimes also numbers). The key difference is whether to treat the data as a number (numeric) or a category (character).

Modeling type refers to how the data within a column should be used in an analysis or a graph. JMP uses three distinct modeling types: continuous, nominal, and ordinal.

Figure 1.5

We include notes, tips, and cautions where appropriate to point out relevant or important information (see Figure 1.6).

*Note: Once you've selected a new value, you can replace that value in the same column, create a new column with these values, or even create a formula column. Be careful! If you select **in Place**, these values cannot be changed because the Recode command replaces values in that column.*

Figure 1.6

Where appropriate, we provide tables that summarize key information or translate jargon into common terms (see Figure 1.7).

What you want...	What that's called in JMP...	How to do it...
I want a bar chart.	Chart	Graph > Chart. Choose the measured column and add it to the Statistics area and choose a function. If you are not sure, choose sum , then click OK .

Figure 1.7

1.2 Launching JMP

Let's begin by launching JMP. To launch JMP from the Microsoft Windows Start menu:

1. Select the **Start** menu.
2. Select **Programs**.
3. Select **JMP 8 > JMP 8** (see Figure 1.8).

Macintosh users can click on the JMP icon (see Figure 1.9) to launch JMP from the application dock.



After JMP has launched, you might notice that two windows have also opened, Tip of the Day and JMP Starter.

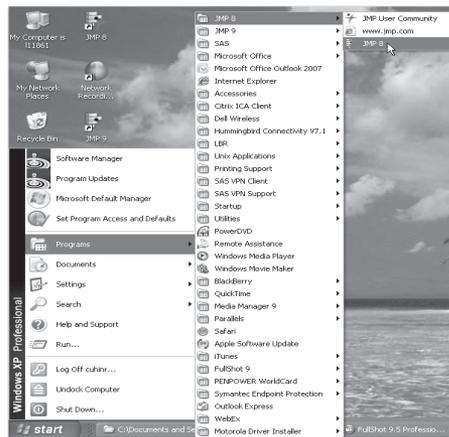


Figure 1.8

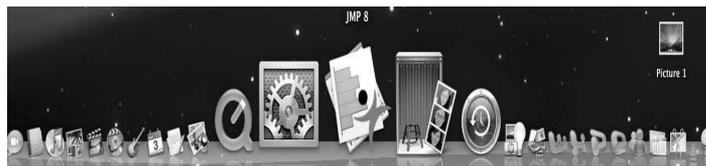


Figure 1.9

Tip of the Day

The Tip of the Day window is the first thing you see because it addresses the most common questions that new users ask, such as “How do I do X?” Well the X in these common questions is represented and answered in 36 different Tip of the Day windows. You can scroll through them by clicking **Next Tip** at the bottom of the window (Figure 1.10). Some of the Tip boxes contain important and basic navigational hints, while others only apply to more advanced features in JMP.

Note also the **Enter Beginner’s Tutorial** button. This tutorial walks you through a basic analysis of data from opening a data table to creating graphs and results. JMP contains several other tutorials that are directed toward more specific types of problems and are found in the **Help** menu.

*Note: If you do not want to see the Tip of the Day window every time you launch JMP, you can simply uncheck the **Show tips at startup** box in the lower left corner of the window.*

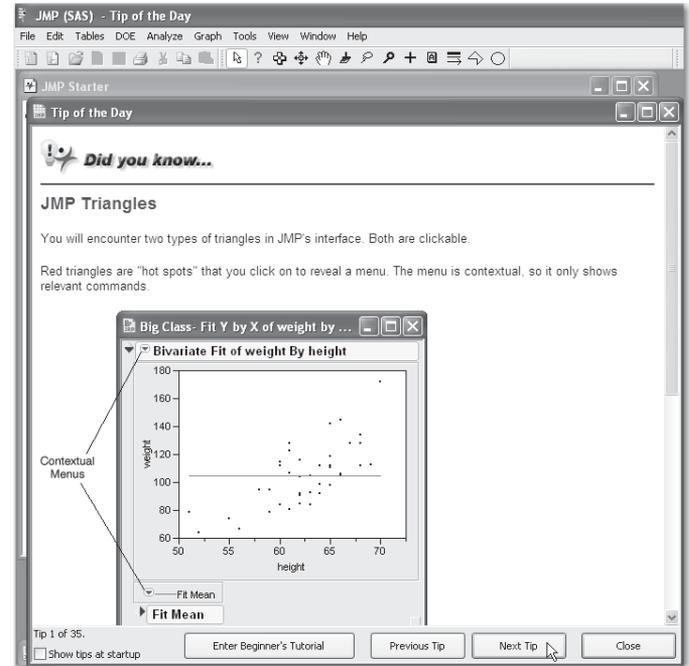


Figure 1.10

JMP Starter

After you close the Tip of the Day window, you see the JMP Starter window. The JMP Starter window is an optional and alternate means to navigate JMP (see Figure 1.11). It duplicates the functionality contained in JMP's native menus that are used throughout this book.

The JMP Starter feature was added to JMP in version 4 to assist those who are comfortable with statistical terminology or who might be transitioning from a competing product. It organizes JMP's features into general categories or families of statistical tools and provides direct links to those tools within a category. A nice feature of the JMP Starter is that it also describes the specific features within those links.

For example, if you click on the category **Graph** (see Figure 1.12), you see a selection of graph buttons to the right with a description of what they produce. Note that if you click on a button at this stage, you are prompted to open a data table (opening data tables is discussed later).

*Note: This book focuses on using JMP's native menus (those that appear at the top of the JMP window). If you do not want the JMP Starter window to appear at start up, select **File > Preferences > General**; uncheck the **Initial JMP Starter Window** box.*

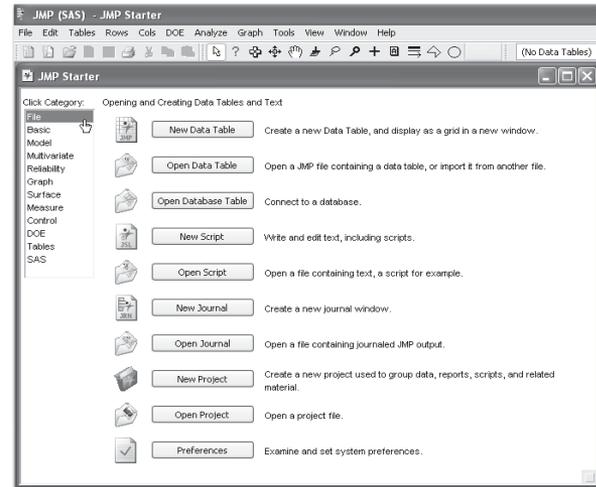


Figure 1.11

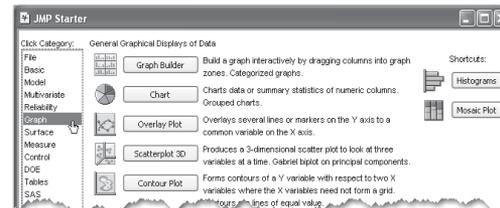
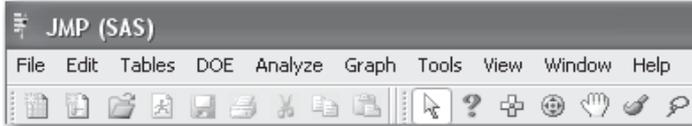


Figure 1.12

1.3 JMP Menus

At the top of the JMP window, you see a series of menus (**File**, **Edit**, **Tables**, and so on). These are the menus we use to illustrate the concepts in this book. They are also the same menus we refer to as JMP's native menus because they have been present in JMP since its first release.

These menus serve to open or import data, to edit or structure it, and to create graphs and analyses of your data. They are also a valuable source for assistance through the **Help** menu, which is discussed later. The menus are organized in a logical sequence from left to right.



- **File** is where you go to open or import data and to save, print, or exit JMP. It is also where you can customize the appearance or settings within JMP through **Preferences** (explained in Section 1.5).
- **Edit** provides the usual cut, clear, copy, paste, and select functions, as well as undo and redo and special JMP functions.
- **Tables** provides the tools to manage, summarize, and structure your data (see Section 2.6).
- **DOE** contains the Design of Experiments tools, which we will not cover in this book. For more information, see **Help > Books > JMP DOE Guide**.
- **Analyze** contains the analysis tools that generate both graphs and statistics and serves as the home for all of JMP's statistical tools from simple to advanced (see Chapters 5 and 6).
- **Graph** contains graph tools that are independent of statistics (at least initially). Graphs in this menu include basic charts to advanced multivariable and animated visualization tools (see Chapters 3 and 4).
- **Tools** allows you to transform your mouse into a help tool, a brushing tool, a selection or scrolling tool, and much more (see Section 7.2).
- **View** provides options to navigate how you work with your files and windows.
- **Window** helps you manage windows within JMP.
- **Help** provides resources for learning and using JMP. Let's start with an introduction to the **Help** menu.

The Help Menu

The **Help** menu (see Figure 1.13) provides access to the learning resources you can use as you expand your knowledge of JMP and its features and learn about statistics and how to interpret results. These resources include indexes, guided tutorials, tips of the day, and searchable as well as printable books including the *JMP User Guide*. Data tables employed in this book and in all JMP documentation are included in the Sample Data directory. We cover the features of the **Help** menu in greater detail in Chapter 8.

JMP also features context-specific help, meaning that when you use the JMP Help Tool* in any graph or statistical result, you are directed to the right spot in the documentation to assist you in understanding the result. In statistical results, JMP provides Hover Help* that provides context-specific interpretations of certain statistics.

*For descriptive graphs or basic summary statistics, interpretation can be straightforward, but as you dig deeper into an analysis or employ more advanced methods it is vitally important that you understand what the results mean, particularly when they are shared or presented. The documentation under **Help > Books** includes over 2,700 pages of reference material in five books that address the needs*

of professional statisticians and analysts. If you encounter results that you do not understand, however, we strongly recommend that you seek assistance from experienced data analysts.

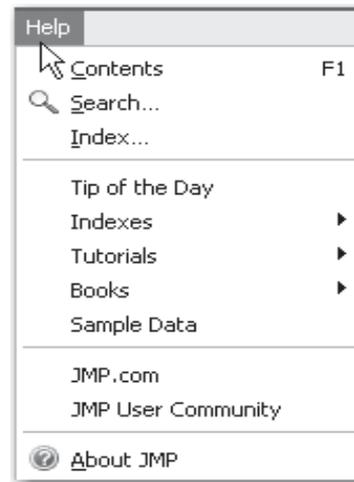


Figure 1.13

**The JMP Help Tool is discussed in Section 8.2. Hover Help is employed in statistical results and provides a context-sensitive interpretation, which is illustrated in Chapter 5.*

The Analyze and Graph Menus

Because most graphs or statistical results begin with the **Analyze** and **Graph** menus, let's explore the structure within these two menus a little bit more here.

Click on the **Analyze** menu at the top of the window. Glance at the choices on the menu. Next, click on the **Graph** menu at the top of the window. Glance at the graph choices. The menus in JMP—specifically the **Analyze** and **Graph** menus (see Figures 1.14a and 1.14b)—are designed to provide both a description and visual cues for analyzing, graphing, and exploring data.

*Note that each entry under these menus has both a name and an icon. For graphical results, it is helpful to have an idea of what the final result will look like. The icons next to the **Graph** menu choices give you a preview of each graph. From the **Analyze** menu, the icons depict the description or relationships you will see in graphs and statistical results (Figure 1.15). You will see this menu item name and icon motif repeated throughout JMP's menus.*

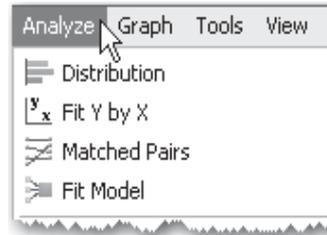


Figure 1.14a

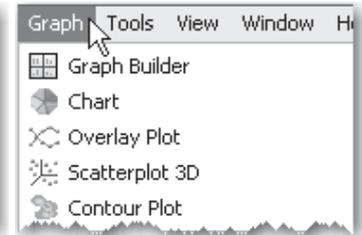


Figure 1.14b

*Note: the **Analyze** menu items produce both graphs and statistical results while the **Graph** menu items produce only graphs.*

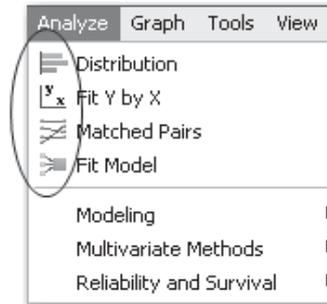


Figure 1.15

Framework of the Analyze Menu

There is a framework to the **Analyze** menu that we will discuss in detail in Chapter 5. As mentioned in the introduction, your exploratory objective will translate to these menu items. This structure streamlines the analysis process; you only need to count how many columns you have and know whether you are trying to describe, compare, or understand their relationship in order to select the correct menu item (see Figure 1.16).

This framework cues you to the correct analysis choice on the menu without exposing you to many statistical terms until you need it. Make no mistake, you still get the statistics when you want them, but you do not have to know all the statistical terms in order to access them.

*Note: JMP's **Analyze** menu contains terms such as **Distribution** and **Fit Y by X** that might be initially unfamiliar, but the ideas behind them are very straightforward. We describe them in simple terms as needed throughout the book. Many items under the **Analyze** and **Graph** menus are referred to as platforms through this book. For example, **Distribution** and **Fit Y by X** are referred to as platforms.*

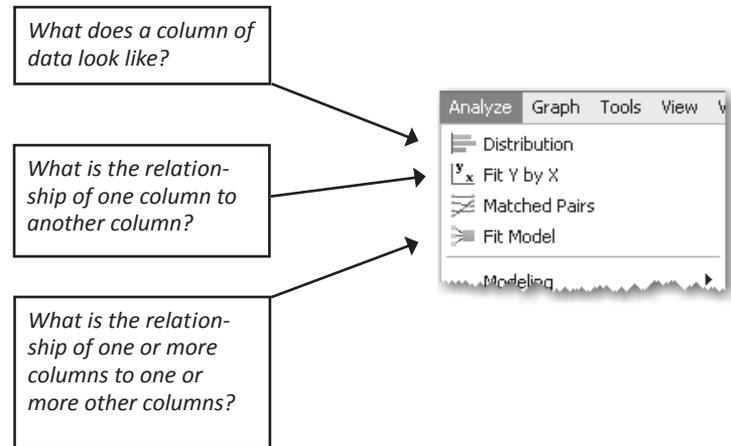


Figure 1.16

1.4 JMP Windows

Throughout this book, each set of instructions used to create a graph or an analysis is prompted by a standardized window that follows a consistent format and execution. To launch a window, however, you must first open a data table.

For purposes of illustration, we will open the Equity.jmp data table:

1. Select **Help > Sample Data > Open the Sample Data Directory > Equity.jmp**.
2. Select **Analyze > Distribution** (see Figure 1.17).
3. This generates the Distribution window with the columns (variables) from the Equity.jmp data table populated under the Select Columns window (see Figure 1.18).

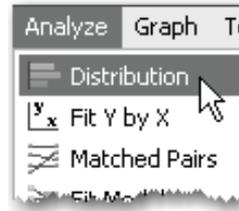


Figure 1.17

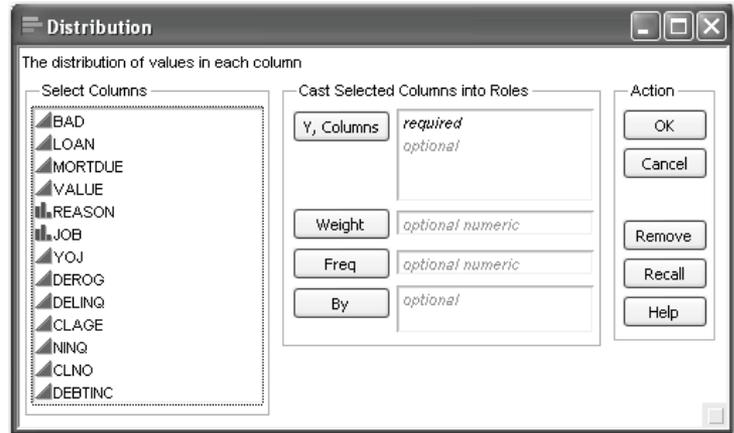


Figure 1.18

Most JMP windows consist of three main elements, organized from left to right (see Figure 1.19):

1. **Available columns** (or variables) of data to analyze from your data table. These appear on the left under **Select Columns**.
2. **Roles** that you want to place (or cast) on the column(s). In this area, you see buttons and empty areas under **Cast Selected Columns into Roles**. Within these empty areas, you are given a hint in italics about which columns are required and which are optional to run the analysis.
3. **Action buttons** to execute commands.

To use this Distribution window or almost any other in JMP, click on a column and select the role (or click and drag the column into that role). Once you are satisfied with your selections, select **OK**.

Almost every analysis and graph window in JMP appears in this format. So, when you learn this one window format, you learn just about every other one.

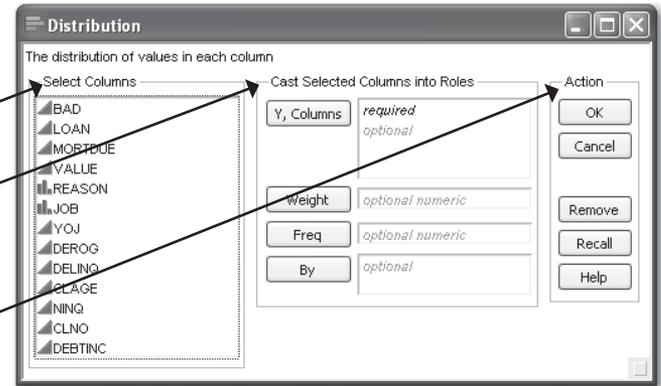


Figure 1.19

*Note: The **Y, Columns** role refers to what column you want to place on the vertical, or y, axis. In other windows, such as *Fit Y by X*, you also have an **X, Columns** role to select that corresponds to the horizontal, or x, axis.*

1.5 JMP Preferences

JMP's **Preferences** determine the way JMP appears or behaves on your machine. There are many preferences that can be adjusted. You can think of these as global settings. If you currently use JMP in a corporate environment, it's possible your JMP administrator has set these preferences to match a corporate standard. In this book, we introduce JMP using the default preferences that are set when JMP is installed. To view the preferences, choose **File > Preferences** (see Figure 1.20).

This generates the Preferences window (see Figure 1.21). Similar to the JMP Starter described earlier, the Preferences window has a panel containing 12 main categories on the left and options within those categories on the right. You can change preferences by checking or unchecking the boxes or by selecting items from drop-down menus. Changing preferences affects such things as the graph or result format, the font, the location of a file, and much more, each and every time you use those features in JMP. If you are unsure about making a change to the preferences, we recommend that you wait until you have a need to do so.

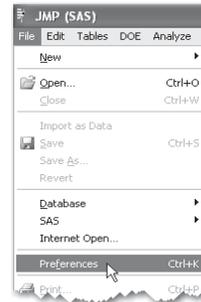


Figure 1.20

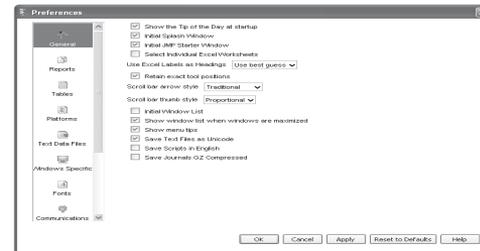


Figure 1.21

If you need to make a change within a single graph or result, note that JMP also provides many of these formatting options within the graphs themselves.

1.6 Summary

JMP was developed to help the business professional, scientist, or engineer get answers to the questions and problems they encounter. The navigation and menus within JMP provide a natural extension of your problem solving and a direct means to explore your data and generate the results you need. This book uncovers the structure of the JMP menus and provides easy steps for producing results. The standardized format of the windows in JMP prompts you through most analysis and graphing. Results can be customized using global detailed preferences.