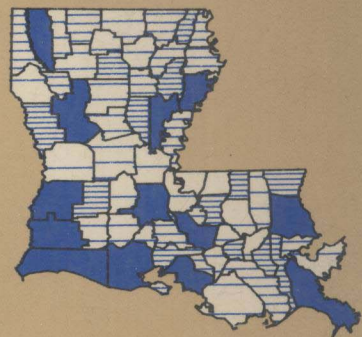
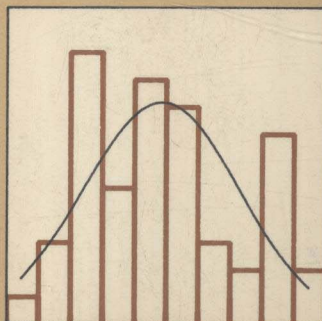
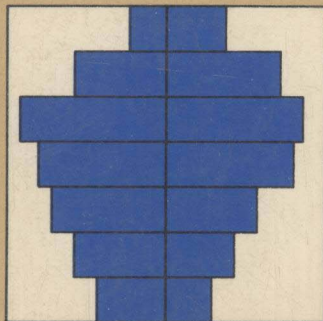
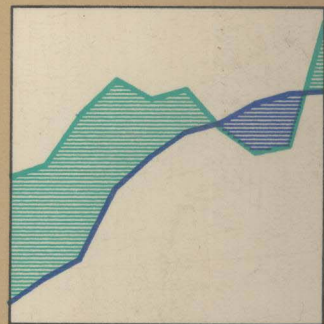
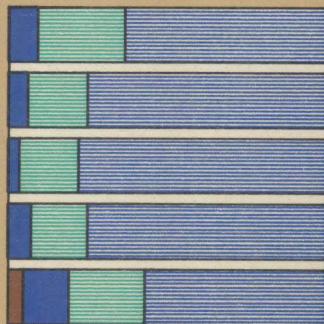
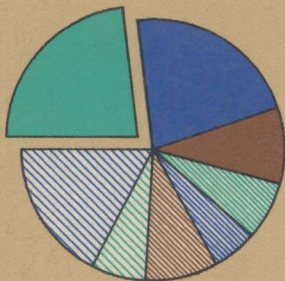
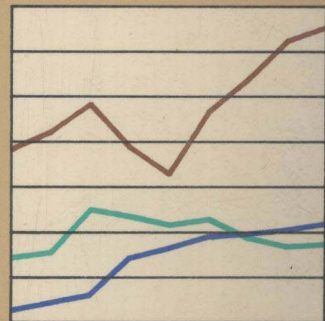
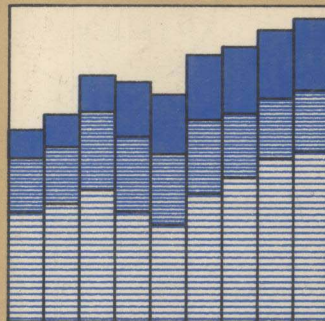
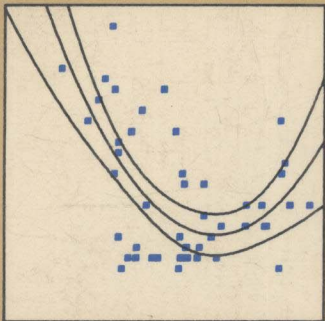
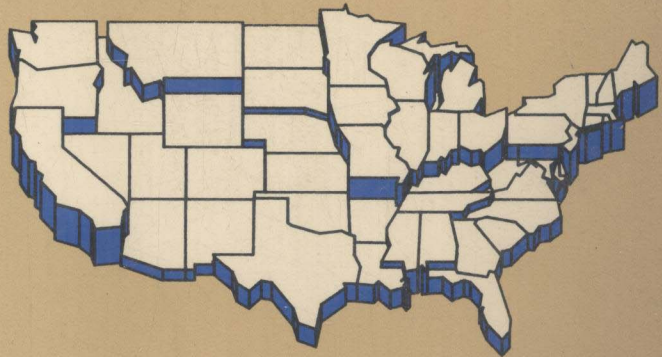
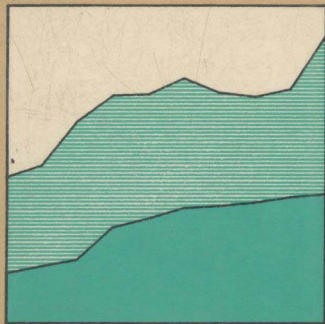
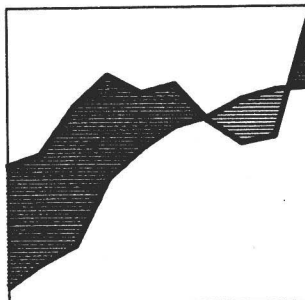
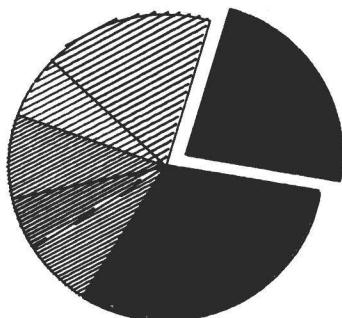
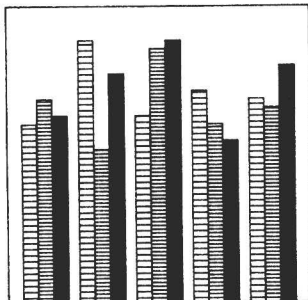


SPSS Graphics



SPSS Inc.

SPSS Graphics



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Preface

This manual documents the first release of SPSS Graphics, a system that generates high-quality charts, maps, and text pages on a wide variety of graphics terminals and plotters. SPSS Graphics is the product of both graphics designers, who provided specifications for the highest aesthetic standards, and system designers, who developed a control structure of menus and fill-out forms that guide the novice through the steps of chart creation and still give all users full control over nearly every graphic element.

SPSS Graphics complements the SPSS^x Information Analysis System by reading directly SPSS^x system files. This provides an easy link between the data management, tabulation, and statistical analysis facilities of SPSS^x and the wide range of graphical representation available in SPSS Graphics. However, SPSS Graphics functions independently in a fully interactive environment and can accept data entered from the keyboard or from external files.

Initially, SPSS Graphics is being released for IBM CMS and OS (MVS) and Digital VAX VMS systems. Versions for other computers and operating systems are scheduled to follow.

The system requires an alphanumeric terminal to handle the menus and forms and a graphics device to draw the images (most graphics CRTs can perform both functions). It supports most commonly available graphics CRTs and plotters and the IBM PC. For general information about using alphanumeric and graphics devices, consult Chapter 8 of this manual. More detailed information about particular devices is distributed to SPSS Graphics sites along with the system and is available separately from SPSS Inc.

For a full and up-to-date list of the computer systems on which SPSS Graphics is available and the alphanumeric and graphics devices it supports, contact the SPSS Inc. Marketing Department at (312) 329-3500.

Recognizing that new users require detailed instructions while more experienced users want concise reference materials, this manual contains both a user's guide and a reference guide. The first chapter of the user's guide introduces the system and its basic operations. It includes a working example that can be followed as a tutorial. Subsequent chapters present step-by-step directions for setting up data and for creating and modifying charts, maps, text pages, and combinations of charts, maps, and text.

The reference guide includes materials you can consult as your experience with the system grows. The section on chart types (R10) is of particular interest, as it contains examples of all available chart types (except maps, text pages, and combinations, which are treated separately).

See the annotated Table of Contents following this preface for a quick summary of the information available in each chapter and reference section, and the opening page of each chapter for a more detailed listing of contents.

Contents

User's Guide

1 Overview

After a brief introduction to the mechanics of operating the system, this chapter contains a walk-through of a session, showing how to enter data and then create and modify a basic chart.

2 Setting up a Graphics Data Set

This chapter illustrates the data structures that you can use in SPSS Graphics and methods of entering data directly and from an SPSS-X system file. It then works through a series of quick examples using the data-modification facilities built into the system.

3 Choosing a Chart Type

SPSS Graphics offers many different types of charts, and often you can choose between several types to display the same data. In this chapter are considerations for choosing one chart type or another, based on the data you are presenting and the aspects of that data you wish to emphasize.

4 Editing the Design of a Chart

SPSS Graphics allows you to specify almost every aspect of your chart's visual appearance. This chapter covers both the principles of effective chart design and the design options available in SPSS Graphics.

5 Creating Maps

SPSS Graphics includes map boundary files that let you generate high-quality maps for displaying geographically organized data. This chapter shows you how to set up your data for drawing maps and then create a map. Special considerations for map design and related cartographic concepts are also explained.

6 Creating Text Pages

In this chapter you can find out how to design charts or slides containing only text, in a wide variety of formats and using any of the fonts and other text attributes built into SPSS Graphics.

7 Combining Images

One of the most powerful features of this system is the ability to combine several different images on a single page. Here a series of examples show how to specify the placement and priority of different images, how to suppress certain features from the individual images, and how to add titles and a legend for the page as a whole.

8 Input and Output Devices

Charts must ultimately be produced on a graphics device, such as a graphics CRT or a plotter. This chapter shows you how to specify the graphics device you are using and also discusses implications of using different types of terminals to conduct your interactive graphics session.

9 Using the System Efficiently

In this chapter are collected some subtle points about using the system that can simplify your initial sessions. Among the topics discussed are using templates effectively, saving images as library pictures, changing text attributes globally, and managing your graphics libraries.

Reference Guide

R1 SPSS Graphics Menus and Forms

This is a system chart--a diagram showing the menus and forms that you use and the routes that you can take during your interactive graphics session.

R2 Guide to Menu Choices

You normally move through the system by making choices on menus. In this section you can find all the menus, with a brief explanation of why you might use each menu selection.

R3 Operating Instructions

This is a full set of rules for using SPSS Graphics: making menu choices, entering information on forms, using the function keys on your terminal, global keywords to speed your movement through the system, getting help at any time, and so on.

R4 Templates and Library Pictures

In SPSS Graphics, a template contains the specifications for drawing a chart, a text page, or a combination page. This section discusses the effects of changing the default specifications, of using different data sets with the same template, and of resetting, clearing, and saving templates. The saving of graphics images as library pictures is also treated.

R5 The Library System

An SPSS Graphics library can contain graphics data sets, templates, library pictures, and device specifications. The mechanisms by which you save members into your private library and use or copy members from shared or public libraries are explained here.

R6 Data Structures

This section covers the structure and terminology of graphics data sets, as well as the facilities for creating them, both from SPSS-X system files and by direct entry from your keyboard or from an external file. The presentation here is systematic rather than instructional.

R7 Data Modification

This section explains how to edit the definition or contents of graphics data sets and describes also the requirements, assumptions, and effects of invoking the facilities that revise the structure of existing tables.

R8 Chart Elements and Options

Some features are common to many or all of the different types of chart provided by SPSS Graphics: data bars and lines, axes, page and axis titles, axis labels, legends, and so forth. These chart elements are defined and illustrated in this section.

R9 Attributes of Chart Elements

SPSS Graphics allows you to modify the default attributes--color, pattern, marker type, line interpolation method--of most elements on any chart. For text elements, you can change such attributes as font, size, and justification. This section lists the attributes that can be modified for each type of chart element and includes tables showing the available fill patterns, marker types, fonts, and so forth.

R10 Chart Types

This section includes a section on each chart type (except maps, text pages, and combination pages) with an annotated example, small examples to illustrate options, a discussion of appropriate data structures, a sample Assign Variables form showing how the variables are assigned to parts of the chart, and an explanation of default chart labeling from each data structure.

R11 Maps

SPSS Graphics draws both choropleth and prism maps. These two types of maps, the data structures needed to draw them, the use of built-in map boundary files, and map display options are explained here.

R12 Text Pages

The rules for entering text--directly or from an external file, setting text attributes, and formatting pages of text are presented in this section.

R13 Combination Pages

Combination pages can be made up of charts, maps, text pages, and other combination pages. This section gives rules for placing individual images on the page, specifying priorities for overlapping images, and creating a legend for the page as a whole.

R14 Glossary

Provides brief definitions of terms used in the system and in this book.

Appendixes

A Geocodes

SPSS Graphics uses standardized geographic codes, or "geocodes," to associate the contents of a map data set with the area boundaries in its map boundary file. This appendix lists the numeric values corresponding to geographic units.

B SPSS-X Facilities

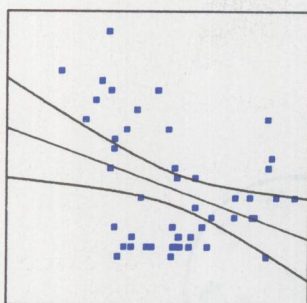
Several files are distributed with SPSS Graphics to simplify the creation and use of map data sets for people who have access the SPSS-X statistical and data management software. This appendix describes the contents and use of these files.

chapter

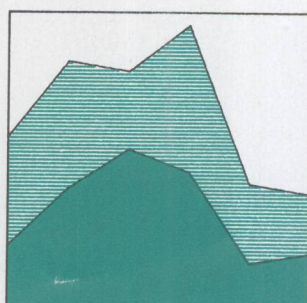
1

Overview

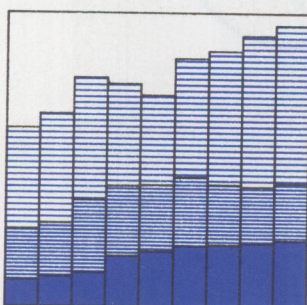
From Data to Graphs	1.1
Some Things You'll Need To Know	1.2
System Structure	1.3
Using Menus and Forms	1.4
Function Keys and Command Keywords	1.5
Alpha Devices	1.6
Ending a Graphics Session	1.7
An Illustration	1.8
Entering the Data	1.9
Creating the Chart	1.10
Editing the Chart	1.11
Changing the Chart Type	1.12
Additional Features	1.13
Getting Help	1.14
Saving Your Work and Using Libraries	1.15



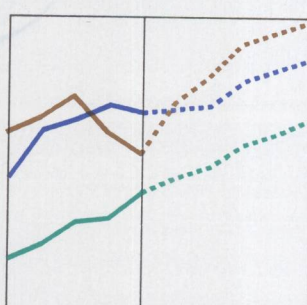
Scatterplot



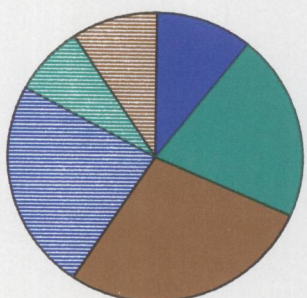
Area line chart



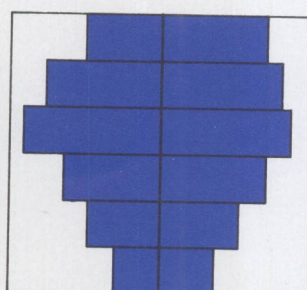
Stacked bar chart



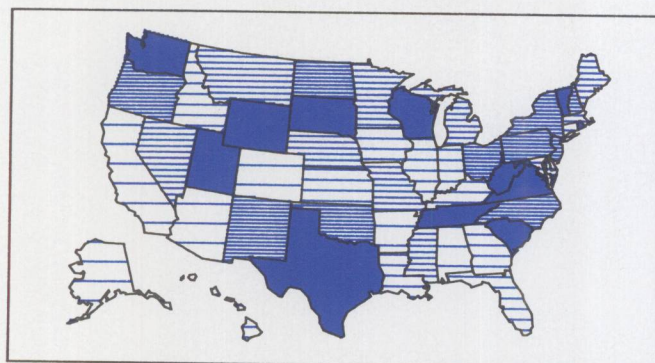
Projection line chart



Pie chart



Population pyramid



Choropleth map

SPSS Graphics is an information display system designed to adapt itself to the needs of many different types of users. On the one hand, it can process huge amounts of data and allow you to experiment with a wide variety of charts to represent your data. On the other hand, it allows you to enter a few numbers at your terminal and quickly turn those numbers into a bar, line, pie, or other type of chart. Similarly, it allows you to be your own graphics designer and specify how you want nearly every part of your graph to look, while on the other hand, it lets you start with specifications set up by graphics designers to provide a clean, well-balanced chart.

The chart types available in SPSS Graphics include

- **Pie charts:** radial pie charts and conventional pie charts with or without exploded sectors.
- **Bar charts:** simple, grouped, or stacked bars; compositional bar charts; range charts; population pyramids.
- **Line charts:** Simple and multiple lines, with single or multiple scales and a wide variety of interpolation styles; area line charts; projection line charts; difference line charts.
- **Statistical plots:** Histograms; scatterplots with or without regression lines, confidence intervals, and statistics.
- **Maps:** Choropleth maps and prism maps, both with options for selecting projections, angles, resolution, and other cartographic features.
- **Text pages:** Pages of text only, exploiting the text drawing capabilities of the system, including SPSS Helios, a modern font with unusual flexibility.
- **Combined images** made up of any charts, text pages, or other combined images, either side-by-side or overlaid for special effects.

The types of charts available are described, with examples, in R10 in the Reference Guide. This chapter tells you some of the basics you'll need to operate SPSS Graphics and describes some of its special facilities, such as the library system that allows you to save your work. This chapter also takes you step-by-step through a sample Graphics session.

1.1 From Data to Graphs

Creating a graph from a collection of data involves two main processes: organizing the data into meaningful relationships and developing a graphic representation

that makes those relationships clear. For example, creating a line chart showing income and expense over the last twelve months requires two activities: first collect all records of income and expense and summarize the data into totals for each month; then design a chart such as Figure 1.1a that represents the data as two lines with appropriate axes, labels, titles, and so on.

In SPSS Graphics, going from data to a finished chart involves the following steps:

- 1 Develop a **graphics data set** that contains the relationships you want to convey. You can do this by summarizing data from an SPSS^x system file or by

entering the data yourself, either from the keyboard or from a file previously saved on your computer system (see Chapter 2).

- 2 Specify how you want to show your data. To do this, simply

- Identify the **graphics device** on which you intend to draw the chart (see Chapter 8). You also can specify the size of your chart here.
- Select a **chart type**. SPSS Graphics will offer a list of chart types that fit the configuration of your data set.
- Assign the **variables** in your data according to their function in the chart. For example, you might assign

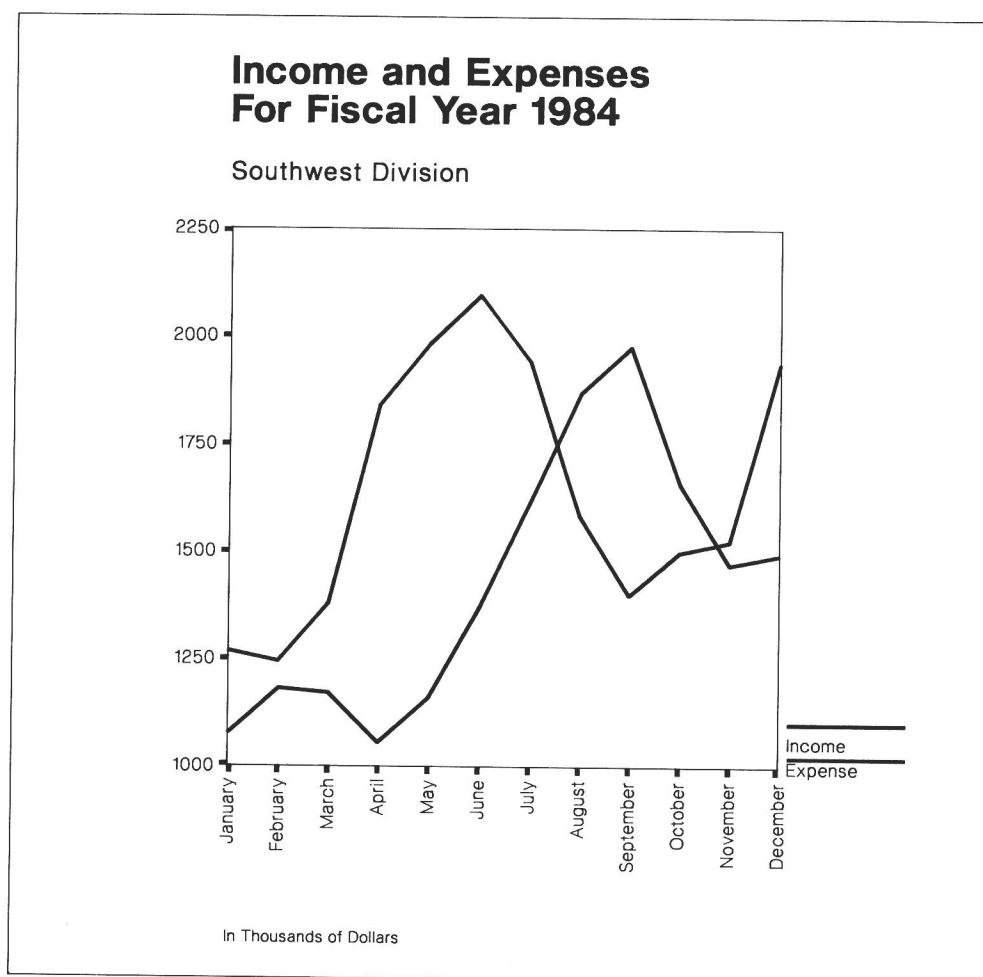


Figure 1.1a
Line chart of income and
expense by month

month to the X axis, and income and expense to the Y axis, as in Figure 1.1a.

- 3 Draw the chart by pressing the **Draw** or **Quick Draw** function key. After each draw, press the Carriage Return key to return to the menu or form from which you pressed the Draw key.

The chart type and variables you specify become part of a chart **template**. The template also includes specifications for chart **elements**, such as titles and labels, and **attributes** of chart elements, such as the weight and typeface of labels. SPSS Graphics automatically loads a set of **default** elements and

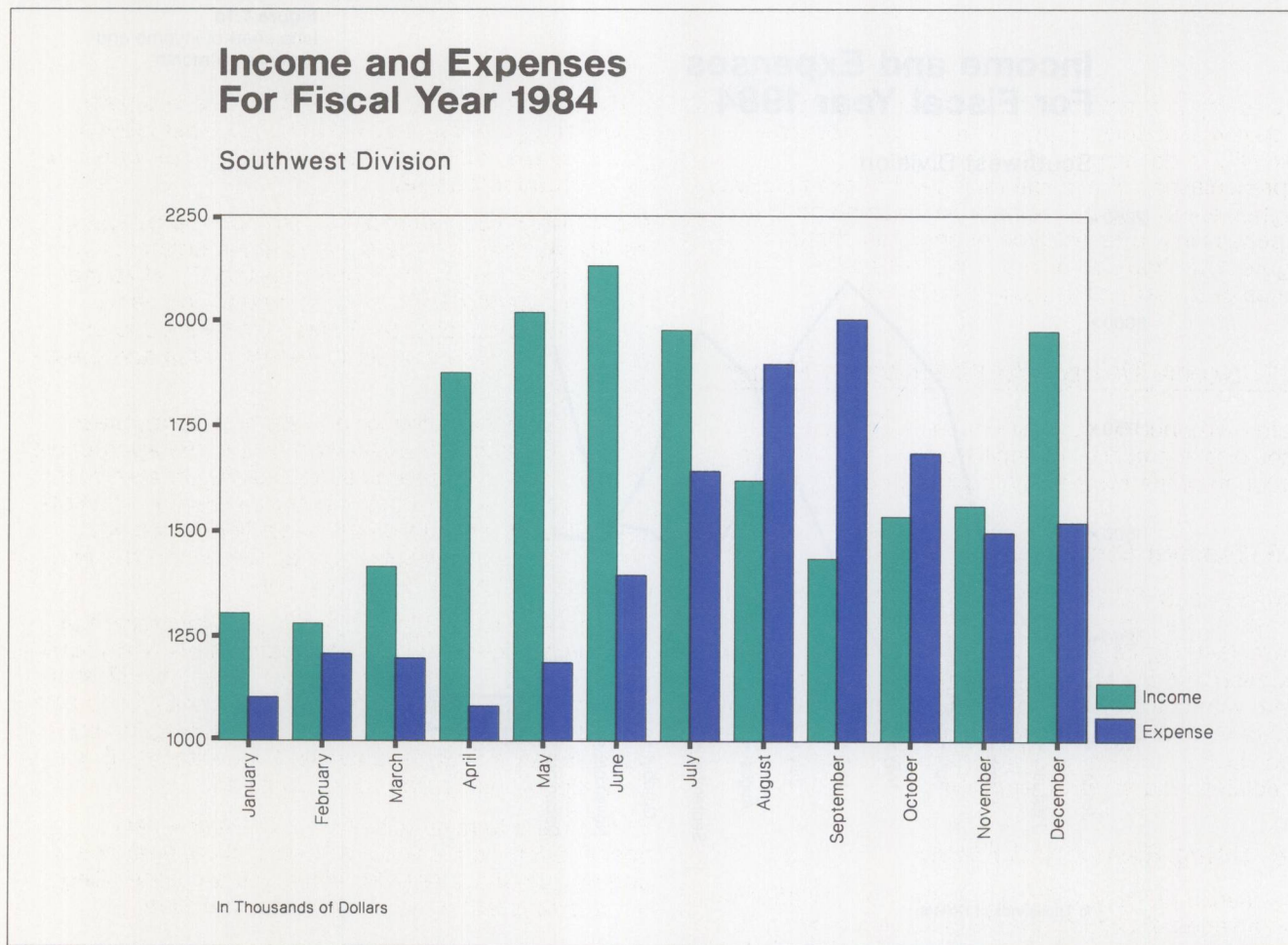
attributes into the template, based on the type of chart you are drawing and the capabilities of your graphics device. You can either accept these defaults or change them (see Step 4).

The following steps are optional:

- 4 Edit the default elements or attributes in the template, either before or after you draw the chart. Both the data and the template remain active, so you can modify them whenever and as often as you wish.
- 5 Save your data set, your template, or both into a graphics **library** for later use (see Section 1.15).

Figure 1.1b

Grouped bar chart of income and expense by month



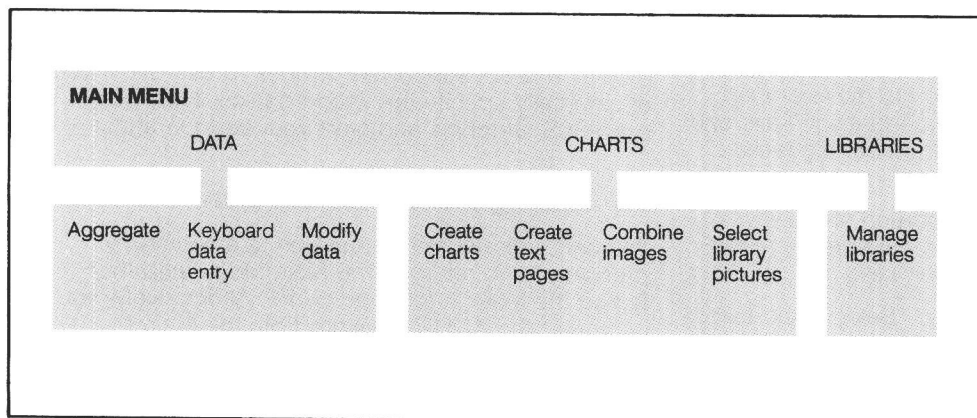


Figure 1.3
Structure of SPSS Graphics

The ability to create and save data sets, templates, and device specifications gives you considerable flexibility in developing alternative graphic representations of a single data set. For example, you might want to display the data on income and expenses in a different type of chart, as shown in Figure 1.1b. You can also develop templates for a series of similar charts using different data.

1.2 Some Things You'll Need To Know

Before you begin your first Graphics session, you should take a minute to familiarize yourself with the structure of the system and how you control it.

1.3 System Structure

You control SPSS Graphics through a set of menus and forms. At the top of the menu structure is the Main Menu (see Figure 1.3). From the Main Menu, you can proceed to any of the three main areas of Graphics: data, where you define your graphics data set; charts, where you enter your chart specifications in a template; and libraries, where your graphics data sets, templates, and so forth, are stored.

1.4 Using Menus and Forms

The menus guide you through the system by offering you a series of choices that lead to fill-out forms. To make a choice on a **menu**, press the Carriage Return

(CR) until the cursor (*) moves to the line you want. (The Carriage Return key may have another label on your terminal, such as Enter or Return.) Then press the F1 (Select) function key.

Alternatively, you can make a menu choice by typing the line number in the entry area at the bottom of your screen (indicated by ***) and pressing F1. Note that the cursor cannot be positioned next to line items designated by a letter (A, B, etc.). To select one of these items, type the letter in the entry area and press the F1 function key.

To enter a specification for an item on a **form**, press CR until the cursor is positioned next to the appropriate line and type your specification in the entry area at the bottom of the screen. Use slashes to separate multiple specifications entered on the same line. When you press CR, the specification will appear in the line and the cursor will move to the next line.

You can also enter a form specification by typing the line number followed by a right parenthesis and your specification. For example, to enter a Yes specification for item 6, type **6)Yes** and press CR. Similarly, you can reposition the cursor to a new item by typing the line number and a right parenthesis. Thus entering **6)** and pressing CR moves the cursor to item 6.

To change a form specification, just enter a new specification. To blank out a specification, type one underscore and press CR. When you are done filling out a form, press F1 to move to the next form.

1.5 Function Keys and Command Keywords

SPSS Graphics includes a number of function keys and command keywords that enable you to move around the system quickly. In addition, some function keys and keywords are programmed to perform certain tasks, such as drawing a chart.

The function keys for a particular screen are always listed and defined at the bottom of that screen. A few of the more commonly used function keys are

- **F1 Select.** On menus, F1 is labeled "Select" and takes you to the screen for the activity you have selected.
- **F1 Next.** On forms, F1 is labeled "Next" and takes you to the next screen in the series.
- **F2 Main.** F2 always returns you to the Main Menu, the highest-level menu in the system.
- **F7 Qdraw.** F7 allows you to draw a quick sketch of your chart, temporarily simplifying some specifications.
- **F8 Draw.** F8 instructs SPSS Graphics to draw a final version of your chart.

Command keywords fall into two broad categories: global and local.

- **Global keywords** can be specified at any time during your Graphics session. For example, you can specify the &HELP keyword at any time to obtain an online help message for the current screen. To obtain a list of available global keywords, enter &? or &??.
- **Local keywords** are specific to a particular screen, such as the keywords that sort library members when you are viewing a library directory. Local keywords are displayed on screens to which they apply.

For a complete list of the function keys and keywords available in SPSS Graphics, refer to R3 in the Reference Guide.

1.6 Alpha Devices

In addition to the graphics device for drawing, a graphics workstation includes an **alpha device** for displaying menus and forms. In some cases, such as when you preview your charts on a screen, the alpha device and the graphics device are the same.

When you first start a Graphics session, you will be prompted for the alpha device you are using. To display a list of supported devices, press CR. If you accidentally specify the wrong device, type &QUIT to exit SPSS Graphics and start your session again.

1.7 Ending a Graphics Session

You can end a Graphics session at any time by pressing F2 to return to the Main Menu, and then typing the letter A followed by F1. Alternatively, you can enter the &QUIT keyword from the Main Menu.

1.8 An Illustration

For this sample session, assume that you have gathered financial records for 1984 and obtained total income and expense for each month. You intend to enter the data directly from your keyboard and want to present it in a line chart.

As you first enter SPSS Graphics you are prompted for your alpha device (see Section 1.6). Press CR to see a list of possible devices and enter the number that applies to the one you are using.

After you have specified your alpha device, you will see the Main Menu:

```
P0001:  MAIN MENU                                     SPSS Graphics
-----
1  Create data set from SPSS-X system file      (&XDE)
* 2  Create data set via keyboard or file entry  (&KDE)
3  Modify data set                             (&MOD)

4  Create charts                               (&CHART)
5  Create text pages                           (&TEXT)
6  Create combination pages                    (&COMBO)

7  Select library pictures                     (&PICT)

8  Assign / Edit libraries                     (&LIB)
9  Save                                       (&SAVE)

A  Quit

Select an activity or type &HELP to get started:
***
F1-Select
```


1.9 Entering the Data

To enter data from the keyboard, select the second item on the Main Menu. To do this, press CR until the cursor moves to the second item and then hit F1 (Select). Or type a 2 in the entry area and press F1.

Next you will see the Keyboard Data Entry Set-Up form. Here you supply a name and an optional label to the data set you intend to create, and specify whether it is a table or case file. In this example, the data set is a table file and will be named FINANCE:

```
P2000:  KEYBOARD DATA ENTRY SET-UP                                SPSS Graphics
```

```
1) Data set name ..... FINANCE
2) Data set label ..... 1984 Income and Expense
* 3) Data set type ..... TABLE      (Table/Case file)
```

NOTE: Item 3 can not be modified when editing an existing data set.


```
Define data set:
***
```

```
F1-Next   F2-Main
```

Press F1 to move to the next form, the Summary Variable Definition form. Here you define your two summary variables, INCOME and EXPENSE, which contain monthly totals.

Each specification line on this form contains four fields: function, variable, label, and format. The function is important only if you plan to modify your data within Graphics. In this example, we will omit the function. Variable is the name of the variable, and label is an optional extended label. The format is the width of the variable. We will use a width of 5 to accommodate numbers up to 99999.

You enter each field followed by a slash. Thus, for the first line, enter

/income/Income in thousands of dollars/5

and press CR. Then enter the specifications for expense, and press CR. (Note: The first slash causes a

skip to the second field, leaving function blank.) You should see the following:

```

P2100:  SUMMARY VARIABLE DEFINITION                                     SPSS Graphics
-----
Function      Variable      Label                                     Format
              /INCOME      /Income in thousands of dollars        /      5
              /EXPENSE      /Expense in thousands of dollars        /      5
* 3) _____ / _____ / _____ / _____
  4) _____ / _____ / _____ / _____
  5) _____ / _____ / _____ / _____
  6) _____ / _____ / _____ / _____
  7) _____ / _____ / _____ / _____
  8) _____ / _____ / _____ / _____
  9) _____ / _____ / _____ / _____
 10) _____ / _____ / _____ / _____
 11) _____ / _____ / _____ / _____
 12) _____ / _____ / _____ / _____
 13) _____ / _____ / _____ / _____

6033. Do you wish to define Associated Variables for any of the summary
variables? (YES/NO)
Define summary variables for a table:
***
-----
F1-Next  F2-Main  F3-Prior

```

Next press F1. The system will ask you whether you want to define associated variables (the screen above includes this prompt). You don't need associated variables to create a chart, so you can reply NO.

The system then takes you to the Category Variable Definition form. You have summarized INCOME and EXPENSE within twelve categories (months), so type the following in the entry area and press CR:

MONTH//12

You will see the following:

```

P2110:  CATEGORY VARIABLE DEFINITIONS
SPSS Graphics
-----
      Name      Label      Number of
1)  MONTH      /      12
* 2)  _____ / _____
3)  _____ / _____

Define category variables:
***
F1-Next  F2-Main  F3-Prior
-----

```

Press F1 to move to the Category Variable Labels form, where you supply labels for the values of your category variable. These labels will be used to identify points along the base of your line chart. The default labels, which you see when the form first appears, are the values themselves. You can use the defaults or specify your own labels, such as month names, as shown:

P2120: CATEGORY VARIABLE 1 - LABELS SPSS Graphics

Label

* 1) January
2) February
3) March
4) April
5) May
6) June
7) July
8) August
9) September
10) October
11) November
12) December

Specify category labels for variable MONTH:

F1-Next F2-Main F3-Prior

Press F1 to proceed to the Keyboard Data Entry form, where you actually enter the data. By default, the system expects you to enter the data horizontally, giving income and expense for January before moving down to February. To change the direction, so that income is entered for all months followed by expense for all months, type &VER. In addition, you can enter each value individually, or you can type a string of values separated by slashes and enter them all at once. To replace wrong entries, simply move the cursor to the line with the error and enter the correct value.

The following screen shows the data partially filled in:

P2130: KEYBOARD DATA ENTRY - TABLE SPSS Graphics

Direction: VERTICAL (&hor, &ver) N of Data Items: 24

	INCOM	EXPEN
1) January	1304	1103
2) February	1280	1207
3) March	1415	1197
4) April	1876	1082
5) May	2019	1186
6) June	2130	1395
7) July	1977	1642
8) August	1620	1896
9) September	1435	2003
10) October	1535*	
11) November	1560	

Enter data or enter &GETDATA for file retrieval: N of Cells: 12

F1-Next F2-Main F3-Prior F6-Down

Pressing F1 brings up the Table Edit menu, which offers you an opportunity to modify your work or to save or discard it.

P2400: TABLE EDIT MENU SPSS Graphics

* 1 Edit summary variable definitions
2 Edit summary variable associated functions
3 Edit category variable definitions
4 Edit category labels
5 Edit GEO - codes
6 Edit data

A Save table

Select an activity:

F1-Select F2-Main

To save the data set, enter the letter A and press F1. Press F2 to return to the Main Menu to create your chart.

1.10 Creating the Chart

From the Main Menu, select item 4, "Create charts."
This takes you to the Create Charts menu. First you will need to specify a graphics device on which you will draw your chart.

P3000: CREATE CHARTS MENU (Updating Screen)SPSS Graphics

* 1 Specify graphics device

Current selections:
> NONE

Select an activity:

F1-Select F2-Main

Press F1 to go to the Select Graphics Device form. Here, SPSS Graphics displays a list of the graphics devices saved into your library or, if there are no devices in your library, a list of supported devices. (In this example we will assume that no devices have been saved into the library.)

All you need to specify is the name and model of the graphics device on which you plan to draw. In this example, we will specify a TEK 4105 by typing a 20 in the entry area and pressing CR:

P0200: SELECT GRAPHICS DEVICESPSS Graphics

* 1) Active graphics device

2) Listing source MASTER (Libraries, Master)

Name	Label	(47 devices)
14. HP7475	HEWLETT-PACKARD 7475 PLOTTER	
15. HP7550	HEWLETT-PACKARD 7550 PLOTTER	
16. HP7580	HEWLETT-PACKARD 7580 PLOTTER	
17. HP9872C	HEWLETT-PACKARD 9872 C PLOTTER	
18. IBM3279	IBM 3279 COLOR CRT	
19. IBM3287	IBM 3287 COLOR PRINTER	
20. TEK4105	TEKTRONIX 4105 COLOR CRT	

Choose a graphics device (or select your library listings in field 2):

F1-Next F2-Main F3-Prior F5-Up F6-Down

Next you will see the Edit Device Specifications form. On this form you enter specifications relating to your graphics device. For example, the size you can specify for your chart depends on the size of your device. (The default size, which is automatically displayed on your screen, is the maximum size allowed by your device.) Some specifications on this form apply only to certain devices. For example, the plotter pen speed applies only to pen plotters and not to CRTs such as the TEK 4105.

P0201: EDIT DEVICE SPECIFICATIONS SPSS Graphics

Active graphics device: TEK4105

* 1) Plot area

Min X 0.00 /Max X 9.40 (in inches)
2) Min Y 0.00 /Max Y 7.10 (in inches)

3) Plotter pen speed DEFAULT (Slow, Default, Fast)

4) Remove hidden lines ... YES

5) Output specification ...

6) Save Name /Label

Edit and/or save plotting specifications:

F1-Next F2-Main F3-Prior

In this example, we will simply use the default size of 9.4 by 7.1 for the TEK 4105 and move on by pressing F1.

You are now back at the Create Charts menu, where your data set is displayed. The next step is to specify a chart type. The cursor is already positioned at item 4, "Select chart type:"

P3000: CREATE CHARTS MENU (Updating Screen)SPSS Graphics

1 Specify graphics device

Current selections:
> TEK4105

2 Select template

3 Select data set > FINANCE

* 4 Select chart type

> NONE

Select an activity:

F1-Select F2-Main

Simply press F1 to bring in the Select Chart Type menu. This menu presents all chart types that can be drawn with a single category variable. Select item 8, "Simple/multiple line:"

```

P3203:  SELECT CHART TYPE MENU                                SPSS Graphics
-----
1  Simple/grouped bar          *  8  Simple/multiple line
2  Stacked bar                 9  Area line
3  Compositional bar          10  Multiple scale line
4  Simple/grouped range       11  Difference line
5  Population pyramid         12  Conversion scale line
                               13  Projection line
6  Pie                        14  Choropleth map
7  Radial pie                 15  Prism map

Select one of these chart types to display current data set:
***

F1-Select F2-Main
  
```

Press F1 to return to the Create Charts menu, where your choice is now displayed:

```

P3000:  CREATE CHARTS MENU (Updating Screen)                  SPSS Graphics
-----
Current selections:
1  Specify graphics device -----> TEK4105
2  Select template
3  Select data set -----> FINANCE
4  Select chart type -----> SIMPLE/MULTIPLE LINE
* 5  Assign variables

Select an activity:
***

F1-Select F2-Main
  
```

Press F1 again to move from the Create Charts menu to the Assign Variables form. SPSS Graphics will already have assigned your one category variable, MONTH, to the base axis on this form. It is up to you to specify the variable or variables you want plotted vertically along the scale axis. To produce a chart with INCOME and EXPENSE, enter both variables. You can save a few typing strokes by entering just the number of the variable you want. The completed form looks like the following:

```

P8913:  ASSIGN VARIABLES                                      SPSS Graphics
-----
Base axis variable ..... MONTH          (CV)
Scale axis variable ..... *  1) INCOME   (SV)
                               2) EXPENSE  (SV)

The following variables are in table: FINANCE
Category 1. MONTH      Summary 1. INCOME      2. EXPENSE
Variables (1)          Variables (2)

Specify variables to be plotted for simple/multiple line:
***

F1-Next F2-Main
  
```

Pressing F1 returns you to the Create Charts menu, where two new items and two additional function keys, F7 and F8, are listed:

```

P3000:  CREATE CHARTS MENU (Updating Screen)                  SPSS Graphics
-----
Current selections:
1  Specify graphics device -----> TEK4105
2  Select template
3  Select data set -----> FINANCE
4  Select chart type -----> SIMPLE/MULTIPLE LINE
5  Assign variables
* 6  Edit template
  7  Edit QDRAW parameters

Select an activity:
***

F1-Select F2-Main                                F7-Qdraw F8-Draw
  
```