

Introduction

This supplement is designed to be read in conjunction with the main text. The section headings and Box numbers correspond to those in the original chapters (and so may not be contiguous).

Building up a knowledge of the basic commands will enable you to write programs in the Minitab language, which may prove useful when analysing similar datasets, for bootstrapping, and other simulations.

This supplement assumes that you know the basics of using your computer, and also how to open and exit Minitab. It is based on Minitab 13.2. On opening Minitab, you will be presented with two windows: a session window in which commands can be typed and text output will be displayed, and a data window, into which you enter your data to be analysed.

Entering data

Data can be entered manually, by typing into the cell and pressing the Enter Key. Alternatively, you can copy and paste from another spreadsheet. Thirdly, data may have been stored from a previous session in a Minitab worksheet. Using the menus, the worksheet could be re-opened by the commands:

File > Open worksheet

And then selecting the file in the usual manner. You can open Excel worksheets directly by choosing 'Excel (*.xls)' in the drop-down 'File of type' menu.

Entering commands

We will use two different ways of entering commands. Minitab is very user friendly, in that analyses can be conducted by navigating your way through a set of menus. However, it is also useful to learn the equivalent set of commands, which are typed directly into the Session window. *You must turn this facility on by clicking on the Session Window to make sure it is uppermost, and then selecting 'Editor > Enable Commands'*. Minitab will then respond by giving you the prompt

MTB >

in the session window.

Introduction to Menu route instructions

Menus were designed to make life easier and more intuitive for the computer user. They do this superbly, except in one didactically crucial respect. Writing instructions for operating menus is fraught with problems. Some books show pictures of the dialog boxes and menus, but this takes up vast amounts of space, and can be tolerated only by real beginners to the whole world of modern computing. Another possibility is blow-by-blow accounts of the kind ‘Now go to the Analyze menu, and choose the General Linear Model submenu, from which choose “Univariate...”’. A dialog box will appear, and in it, you should...’ and so on. This is untidy to look at, easy to get lost in, and painful to read (not to mention to write!).

The solution adopted in this book is to provide a coded set of instructions for the menu route. Because menus are so user-friendly, and show the possibilities at every stage, only a few key-words need to be given as ‘hints’ to the user. The coded instructions are therefore virtually followable without any decoding, and you may wish to try this as an experiment! But for the sake of completeness, and to tidy up a few rough edges, here are the principles on which the code is based. It is remarkable how complicated it is to construct an apparently transparent coding system.

- (1) **The initial menu choice.** Instructions always begin with a selection from the pop-down menus found at the top of the screen (Macintosh) or window (Windows). This is coded by giving the names of the menu, submenu(s) and item to be selected, separated by ‘>’. This invariably produces a dialog box. Within a dialog box, there are six kinds of actions. The internal actions, those that leave you still looking at the same primary dialog box, are Check Box, Radio Button, Pop-up menus, Selection and Direction, and Multiple Selection and Direction. There are often also buttons, whose effect is to bring up a sub-dialog box. Let us look at these in turn.
- (2) **Check Box.** This will be indicated by a line stating simply ‘ *name of box*’. When you see this instruction, look for a Check Box (they’re square) and click in it. You should see a tick appear in the box to indicate that you have checked it.
- (3) **Radio Button.** This will be indicated by a line stating simply “ *name of button*”. You may have noticed that Radio Buttons come in sets, and that exactly one of the set is active at one time, so that clicking on one makes it active, and renders inactive the previously active button. Just look for the radio button (they’re round) with that name and click in it. The button should change to include a filled circle to indicate that it has become active.
- (4) **Pop-up menus.** This will be indicated by a line stating simply *name of menu*
item for selection
You should look for the pop-up menu with the name (some other item may be currently selected in the menu itself), click on , and drag up or down to the item to be selected, then let go (in some cases you just need to select rather than drag and select). Your selection should now appear on the menu button or in the appropriate box.
- (5) **Selection and Direction.** Lists of variables or other elements often appear in a *source pane* in a dialog box, and need to be moved to a *destination pane* for

the analysis. First, click on the *destination pane*, indicating your intention to use it. Then you can either type the variable name directly into the *destination pane*, or pick a variable in the *source pane* and double click on it. This will be indicated in various ways, depending on the situation. Often there is one source pane, and one destination pane. Then the action will be shown as *Variable* → *Destination pane*. If more than one variable needs to be moved, we will write *Variable1 Variable2* → *Destination pane*. You will see the variable name(s) in the destination pane as confirmation of your action.

- (6) **Multiple Selection and Direction.** Sometimes moving two variables together has a special meaning. The main examples in this book concern model formulae and interactions. The variable names may be moved as described under ‘Selection and Direction’, but any additional symbols (usually +, * or |) will need to be typed in the pane directly. So for example,

BED + WATER | SHADE → Model

means the model formula BED + WATER | SHADE needs to be placed in the ‘Model’ pane, but the + and | symbols need to be typed in, while the variables can be moved by double clicking from the list of variables in the *source pane*. These instructions are easy to write, and easy to follow. They are simply confusing to describe!

- (7) **Button to sub-dialog.** Typically, a statistics package tries to keep life simple for beginners by designing a main dialog box that has few choices; but to allow sophisticated users to do complex things by having buttons on the main dialog box that lead on to sub-dialog boxes. In statistics packages, there is often a whole bank of such buttons. We will indicate their use by illustrating the button on a line of its own, and then indicating the actions in the subdialog box by indenting them. For example, often there is an options button which may lead to further choices. This will be illustrated as follows:

Options...

Further subcommands

When the indentations finish, that means you need to click ‘OK’ or ‘Continue’ (but *not* ‘Cancel!’) to leave the subdialog box, and continue following instructions in the main dialog box. All of the internal actions described so far for the main dialog box can also appear in a subdialog box (though there are no cases of Buttons to sub-subdialog boxes in this book, unless you click for Help). The OK or Continue button will *not* be explicitly indicated in the instructions.

These principles have been applied to provide a simple and easily comprehensible guide to using menus. The equivalent commands in ‘command editor language’ will also be provided wherever possible.

Copy-and-pasting commands from the supplement into Minitab

It is easy to copy-and-paste whole sets of commands from the PDF version of the supplement directly into Minitab. You need to view the supplement with Adobe

Acrobat Reader® (either directly, or indirectly in a browser with the Acrobat Reader Plugin). Click on the ‘Text Selection’ button in the top bar—it has a T and a small dotted rectangle. Click at the beginning of the text and drag to the end. Then choose Edit > Copy. Now switch to Minitab, position the cursor after the MTB > prompt at the end of the Session window, and choose Edit > Paste. This method works for single lines, and for multiple lines. Sometimes a sophistication is required.

If you want to select a number of lines in one column of a table, then the previous method may include unwanted text from the other column(s). You can select a rectangular area of text by holding down the “Alt” key while dragging over the text.