

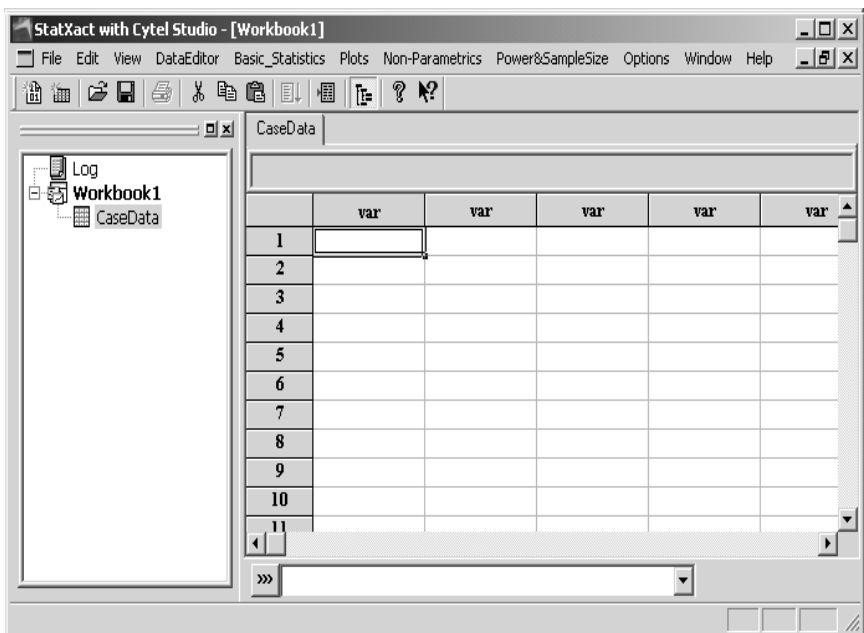
# 4

## A Tutorial on Cytel Studio

### 4.1 Getting Started

**StatXact with Cytel Studio** is designed to be easy to use. Almost all commands in StatXact are invoked by selecting items from the menu. Work your way through this chapter systematically at your computer and you will see many of the commands in operation, and gain a clear understanding of how they work together.

Start StatXact with Cytel Studio by double-clicking the StatXact icon on your desktop or from the Windows **Start** menu. Alternatively you can select the StatXact icon and press **Enter**. This brings up the StatXact with Cytel Studio application window as shown below.



When you open or create a data set, it appears in a data tab in a workbook window. It also appears as a sub-node in the Workspace Navigator. A Table is one of the two ways in which you can organize your data in StatXact. (The other way is through a Case data file, as described later.) The data may consist of either a single two-way Table with  $r$  rows and  $c$  columns, or a three-way Table consisting of  $s$  separate two-way Tables, each with  $r$  rows and  $c$  columns.

To demonstrate how easy it is to use StatXact, we shall start by entering a  $2 \times 4$  contingency

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table into the Data Editor.

For example, suppose that four different drugs are being compared in a small clinical trial. The number of patients who respond to therapy is recorded for each drug. The data for this trial are as follows:

RESPONSE	DRUG.1	DRUG.2	DRUG.3	DRUG.4
YES	1	0	1	4
NO	3	3	1	0

### 4.2 Entering Table Data using the Data Editor

4.2.1 Entering Titles

4.2.2 Entering Data

4.2.3 Saving Data

Let us create a new single  $2 \times 4$  table and enter the above data. To do this:

1. Choose from the main menu:

File  
New ...

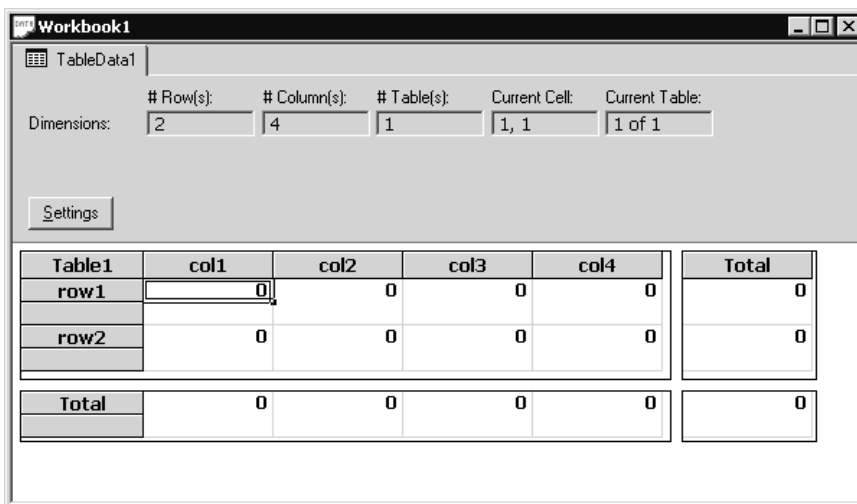
Select Table Data as the File Type and click **OK**. The Table Settings dialog box appears:

The screenshot shows the 'Table Settings' dialog box. It has a title bar with a question mark and a close button. The dialog is divided into several sections. The 'Dimensions' section has three input fields: 'Tables' with the value '1', 'Rows' with the value '5', and 'Columns' with the value '5'. The 'Scores' section has two checkboxes: 'Row' and 'Column', both of which are unchecked. The 'Poisson Data' section has a checkbox for 'Rate Multiplier', which is also unchecked. The 'Auxiliary Cell Information' section has five radio buttons: 'None' (selected), 'Row Percent', 'Column Percent', 'Total Percent', and 'Expected Value'. At the bottom of the dialog, there is a checkbox for 'Save Settings Permanently' which is unchecked. Below the checkbox are four buttons: 'OK', 'Cancel', 'Reset', and 'Help'.

Here you can enter the dimensions of your Table Data, and choose whether or not you wish to enter row and/or column scores (for ordered data). The default values are displayed. To change any value simply click on the input box or field containing that

value, delete the existing contents with the backspace key, and enter in the new value that you desire. The **Tab** key takes you to the next field, and the **Shift+Tab** combination takes you to the previous field. Let us change the Rows field to 2 and the Columns field to 4.

- Here we assume that the data are unordered. So click on the **OK** button to accept your choices.



An empty  $2 \times 4$  Table appears on the screen. You must fill in this Table with data and (optionally) with row and column titles.

#### 4.2.1 Entering Titles

StatXact uses default table, column, and row titles. You can optionally change any row or column title to any name that is not more than nine characters in length. Let us change the default title, col1, of the first column header to something more meaningful with respect to our data, say DRUG\_1. To do this:

- Double click on the title of the first column, i.e., on the existing title col1.

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- This brings up the following dialog box with only one field containing the existing title.



- Type in the new title, DRUG\_1. In any text input box field, you can edit the existing entry using the  $\leftarrow$   $\rightarrow$   $\uparrow$   $\downarrow$  keys to move from character to character, and the  $\backspace$  key and  $\text{Del}$  key to delete characters.
- Click on the  $\text{OK}$  button to accept the new title for the first column. Your screen should appear as shown below:

Table1	DRUG_1	col2	col3	col4	Total
row1	0	0	0	0	0
row2	0	0	0	0	0
Total	0	0	0	0	0

Now change the remaining row and column header titles in a similar fashion so that your screen looks like the example shown below:

Table1	DRUG_1	DRUG_2	DRUG_3	DRUG_4	Total
YES	0	0	0	0	0
NO	0	0	0	0	0
Total	0	0	0	0	0

### 4.2.2 Entering Data

Let us enter the  $2 \times 4$  table shown above. To enter data:

- Using  $\leftarrow$   $\rightarrow$   $\uparrow$   $\downarrow$  place the cursor in the appropriate column and row intersection.

Alternatively click on any cell to select it for entering data.

2. Type the number. If you make an error while entering the data, you can use the `backspace` key to delete the number and then retype it.
3. Continue to use `←` `→` `↑` `↓` to position the cursor and enter the data shown below. Note that the column, row and grand totals are calculated automatically.

When you have entered all the data, your table will look similar to the one shown below:

Table1	DRUG_1	DRUG_2	DRUG_3	DRUG_4	Total
YES	1	0	1	4	6
NO	3	3	1	0	7
<b>Total</b>	4	3	2	4	13

### 4.2.3 Saving Data

As with any data entered into StatXact, it is important to save this data. Once you have completed data entry, you can save it to disk as follows:

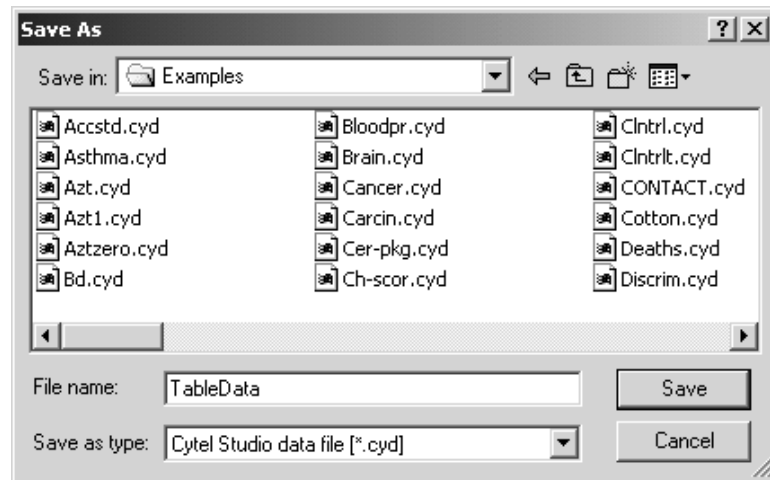
1. Choose from the main menu:

File  
Save ...

Alternatively you could have clicked on the Save icon in the tool bar which looks like a little disk and is the third icon from the left. If you are using the keyboard the shortcut keystroke combination for this task is `Ctrl+S`. Irrespective of the way in

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which you select the save option, you will see the following Save As dialog box:



2. A default name is automatically suggested. Let us overwrite it with something more meaningful, say `tutorial1`. You can specify any valid file name: all characters are permitted, except for backslash (\), slash (/), question-mark (?), asterisk (\*), period (.), colon (:), angle-brackets (< and >), single-quotes, and double-quotes. Type in `tutorial1` in the file name field in this dialog box. It is not necessary to type in the file extension; StatXact defaults to the `.CYD` extension for all StatXact 6 data files.
3. Click on the **OK** button or press **Enter** to save your data with this file name.
4. StatXact saves your file with the desired name. However, if someone has already done this run-through and used the same name, `tutorial1`, you will be given the option of either choosing to overwrite the existing file, or choosing a different file name.

Notice that the title of the Table has changed to the name of the file, `tutorial1.cyd`.

### 4.3 Entering Case Data using the Data Editor

#### 4.3.1 Entering Data and Titles

#### 4.3.2 Saving Data

#### 4.3.3 Altering Column Width and Row Height

The CaseData editor allows you to enter data on a case by case basis instead of first tabulating it into frequency groups. The CaseData editor uses a spreadsheet metaphor and easily allows you to change data values, and add or delete cases or variables. Entering and editing data using the CaseData editor is very similar to the process described above for the Table Data editor. The main difference, however, is that when you use CaseData to run an exact test, you must also select the variables that you wish to include in your analysis. Let us illustrate the process of using the CaseData editor to enter data and execute a test with the help of a simple example.

Suppose you have data on two groups of cancer patients; one receiving a test drug, the other receiving a control drug. You have recorded the survival time of each patient, in weeks, as

shown below:

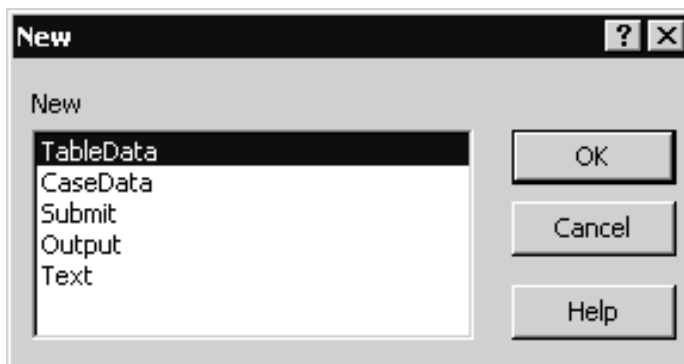
DRUG	WEEKS
Control	14
Control	14
Control	14
New	23
New	24
New	18
New	19
New	18

Let us create a new case-by-case data file. To do this:

1. Choose from the menu bar:

File  
New ...

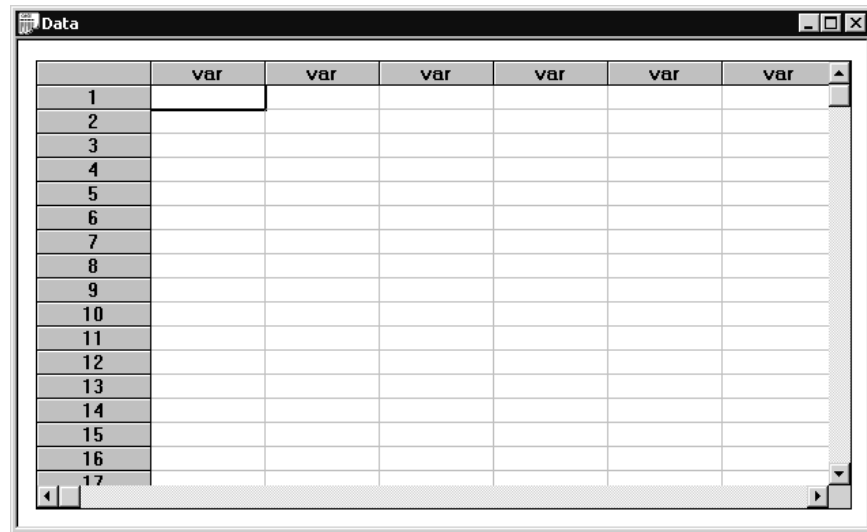
2. You are now presented with the following dialog box which prompts you for the type of file that you wish to create:



3. Select the Case Data item in this dialog box. Click on the OK button to bring up the

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CaseData editor. Your screen should now look like the one shown below:



### 4.3.1 Entering Data and Titles

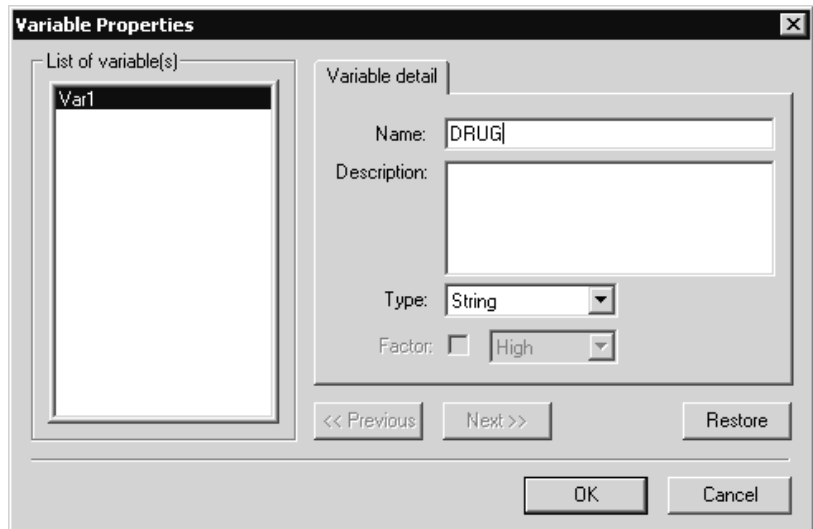
The CaseData editor initially contains no data. As you enter data in any column, StatXact automatically assigns a default variable name as the column header. The default variable names are of the format `Var $n$` , where  $n$  is the ordinal number of the variable created. You can change these just as you did with the table titles in a previous section. This example assumes that you keep the defaults. The two new variables that we will be creating for this example will automatically be named as `Var1` and `Var2`. We will rename `Var1` to `DRUG` since it will contain the drug information, and we will rename `Var2` to `WEEKS` since it will contain the survival information. We can enter string values “Control” and “New” to represent the two treatment groups.

In order to enter the data into StatXact:

1. The cursor appears in the first cell of the blank worksheet. Type `Control`, and press `Enter`. Notice that column title, which refers to the name of the variable, automatically changes to `Var1`. To change the column title to `DRUG`, choose from the menu:

```
Data Editor
  Modify Variable...
```

Type in “DRUG” as the Name in the ensuing dialog box.

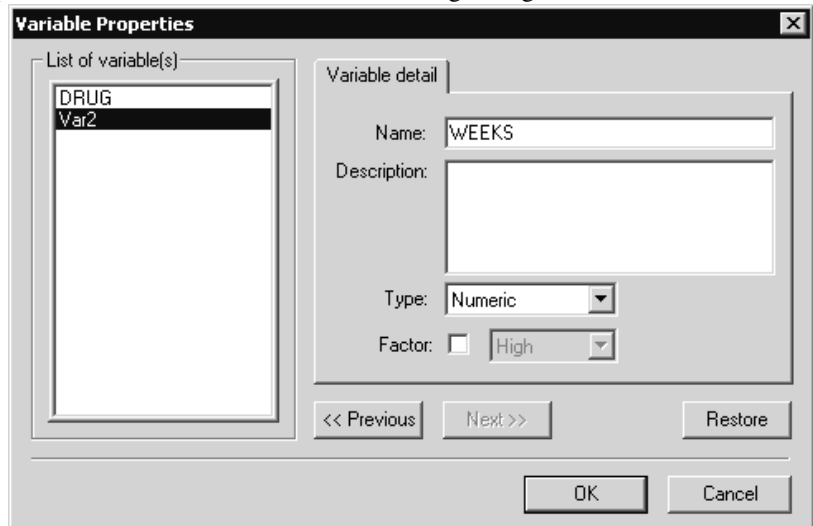


Click on OK.

2. Press  $\rightarrow$  to move into the next column, and type 14, the number of survival weeks for the first case. Notice that column title, which refers to the name of the variable, automatically changes to Var2. To change the column title to WEEKS, choose from the menu:





Data Editor  
Modify Variable...

Type in "WEEKS" as the Name in the ensuing dialog box.

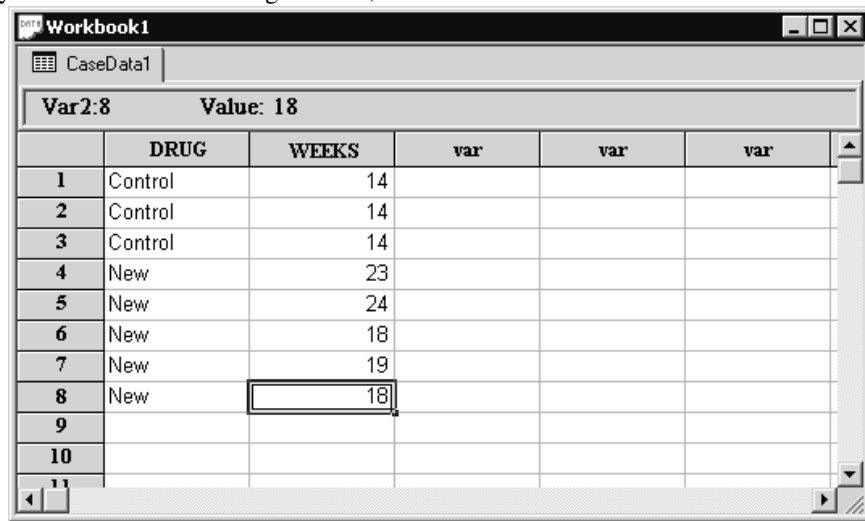


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Click on OK.

- Using the     keys to move around in the editor, fill in the remainder of the data. You can also use the mouse to select any cell, simply by clicking on it. Errors in data entry can be easily corrected by moving the cursor back to the location of the error and retyping.

When you have finished entering the data, the CaseData editor will be as shown below:



Var2:8		Value: 18			
	DRUG	WEEKS	var	var	var
1	Control	14			
2	Control	14			
3	Control	14			
4	New	23			
5	New	24			
6	New	18			
7	New	19			
8	New	18			
9					
10					

### 4.3.2 Saving Data

You can save your data in exactly the same way as described in Section 4.2.3 for Table Data.

### 4.3.3 Altering Column Width and Row Height

You can increase the width of a column by bringing the mouse into the Column Header region, between two adjacent columns. Notice that the mouse's shape changes to a horizontal double-headed arrow in this region. Now drag the mouse to the left or right to alter the width of the column. The ability to alter the width of a column is useful, for instance, if the name of a variable is not fully visible in the column header.

You can increase the height of a row by moving the mouse into the left-most (Row-Identifier) column, between two adjacent rows. Notice that the mouse's shape changes to a vertical double-headed arrow in this region. Now drag the mouse up or down to alter the height of the row.

#### **4.4 Leaving StatXact**

To quit StatXact:

- Choose from the menu bar:

File

Exit

This ends your StatXact session.