

# MODEL BEHAVIOUR



PROMPTS MENU



COMMAND MENU

Our series of articles on spreadsheet modelling has so far concentrated on Psion's Vu-Calc, a simple cassette-based package for the Spectrum and BBC Micro. Here we turn our attention to Abacus — the spreadsheet package, also designed by Psion, and supplied with the Sinclair QL.

Much of the interest generated by the Sinclair QL has centred on the four software packages supplied with the machine: Quill (a word processor), Archive (a database), Easel (a graphics program) and Abacus (a spreadsheet). These packages contain some elements of integrated design (see page 502). Data may be transferred between them; spreadsheet models, for example, may be displayed as graphs or incorporated into a document prepared using Quill. The display screens are similar, and some commands are common to all the packages: for example, three of the QL's five function keys give identical results in all four applications (F1 is the Help key, F2 controls the 'prompts' area at the top of the screen and F3 calls up commands). However, the programs must be loaded and run separately.

There are two different ways of loading Abacus (or indeed any of the QL packages). The first involves putting the Abacus cartridge in Microdrive 1 and then pressing F1 to select the monitor option or F2 if a television is used as a display. The QL packages include 'boot' routines, and the program will thus load automatically. Alternatively, if the screen is already selected, enter `lrn mdv1.boot` (assuming Abacus is in drive 1), and the initial screen will appear.

The screen shows the top left-hand portion of the spreadsheet matrix — Psion refers to this as a 'grid' in its documentation. Initially, columns A to F and rows 1 to 15 are displayed, although Abacus has a maximum grid size of 64 columns and 255 rows. (Compare this to the maximum Vu-Calc grid size of 28 columns and 55 rows.) Above the grid display is a collection of prompts, and below it is a data entry line, together with information showing the status of the current model. The prompts can be removed (by pressing F2), but are very useful for beginners as they explain the choices available at any time. This is, in effect, a 'menu' area, indicating which function keys are used to control various operations, and showing how to move the cursor or go directly to a particular cell, how to enter data or text, and how to call up commands. It is not a true menu, however — options cannot be selected by

positioning the cursor over the relevant choice, but must be typed in by the user.

Using Abacus for basic tasks is very simple, although for more advanced modelling some commands and expressions will take some time to get used to. The following example, again based on a home budget, will illustrate Abacus at work.

First of all, we need a general heading. As with Vu-Calc, text entries must be preceded by a double quotation mark. We will call our model CASH FORECAST and, by pressing the appropriate cursor key, we move to cell D1 and simply type a double quote followed by the text. Abacus, like most spreadsheets, allows text to 'overflow' a cell if the adjacent cell is empty, so it is easy to enter even long titles anywhere on the grid.

## CASH FORECAST

We can also underline the heading, thus improving the appearance of our model. To do this, we must move the cursor to the cell below our title (D2) and enter `rept ("=",len(d1))`. Here, `rept` is the equivalent of Vu-Calc's REPLICATE command, and `=` tells the program which symbol to use (we are using the 'equals' sign as a double underline). The rest of the command — `len(d1)` — is a neat way of telling Abacus to repeat the symbol for the length of the text in cell D1.

Unlike Vu-Calc, which has a fixed column width of nine characters, Abacus allows us to select different widths for different applications. Here we need to make column A wider, to allow enough room to enter text of varying length, and we also require the other columns to be made narrower, so that the date for six months can be displayed. To do this, we use the function key F3, following this with G (to select the GRID command) and W (for the WIDTH command). The input line will indicate that the current width is 10. We want to change the width of column A to 15, so we enter 15 in response to the prompt. The program will now prompt for a range of cells to which the new width will apply. Entering A and A as the two parameters indicates that only column A is to be set to this width. We must then go through the same procedure again, this time selecting a width of 6 and a range of B to G. There is now sufficient room for six months' figures to be displayed.

We must now enter labels for the 'months' columns. These may be done by simply typing the relevant text in each cell, but Abacus has a special facility for calling up month names. Move the cursor to A3 and type `row=month(col()-1)`. The input line will now prompt for a range — enter B and G in reply to the prompts, and the columns will be labelled automatically. 'January' and