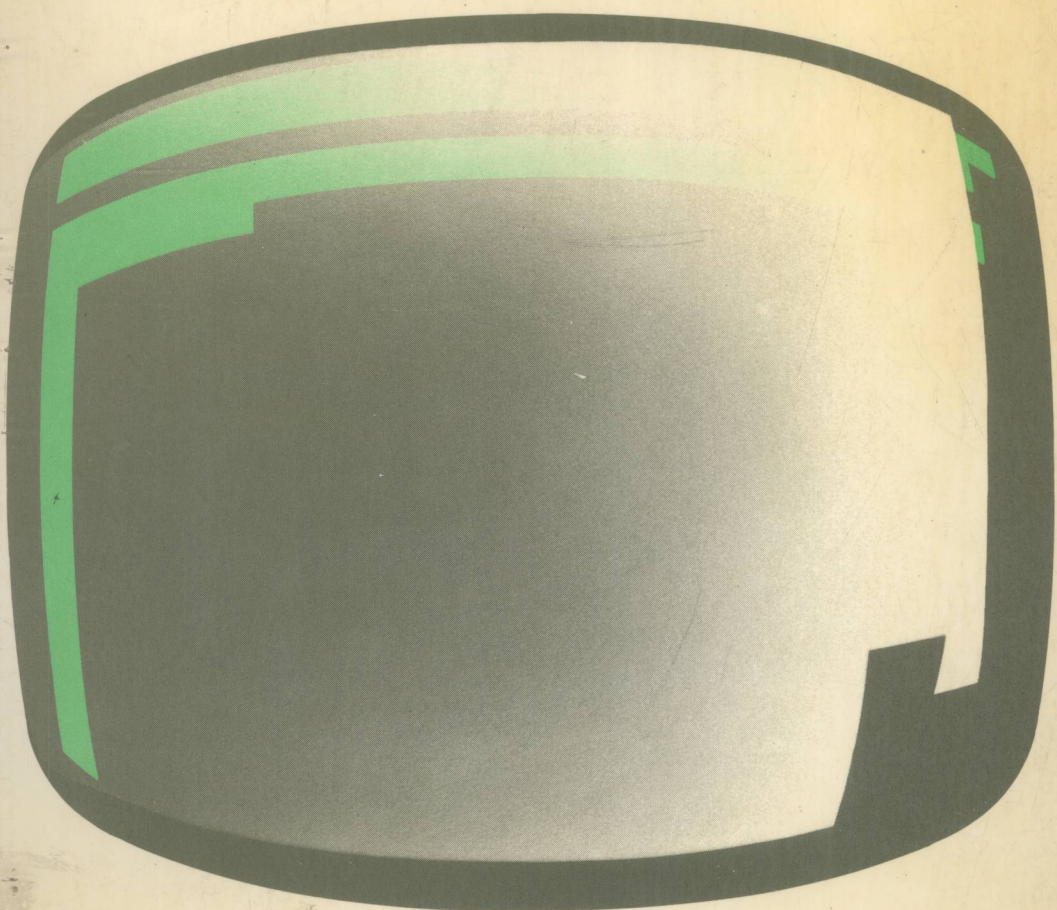
VISICALC®

made simple

Thomas M. O'Donovan



VisiCalc® Made Simple

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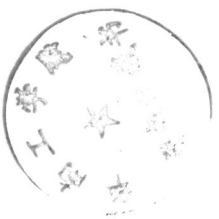

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Introduction

The VisiCalc program has become the best-selling business program of all time. It is the original electronic spreadsheet program for microcomputers which has become an industry standard and spawned a large number of 'lookalikes'. It is available on a number of microcomputers including Apple, ATARI, CBM, TRS-80, Hewlett-Packard, IBM, and Digital.

There is an ever-increasing literature about the VisiCalc program. Some of the books about VisiCalc give complete listings of VisiCalc commands for specific applications. Such listings are only of use to the reader who has an application very similar to that described and this is unlikely to happen very often. The present book is not of this type nor does it attempt to give a complete coverage of all the features of VisiCalc. Instead, those features of VisiCalc are described which are most widely used in financial applications. Many simple examples are given of the situations in which these features can be applied. Some of these examples involve quite sophisticated VisiCalc techniques not covered in other books on VisiCalc. Revision exercises are provided at the end of each chapter.

The plan of the book is as follows. VisiCalc provides an electronic worksheet on which you can write labels, numbers, or formulas. Chapter 1 provides an introduction to the fundamental VisiCalc commands. These relate to entering data on the worksheet, correcting mistakes, printing the worksheet on a printer and saving the worksheet on diskette. One of the most important features of VisiCalc is its ability to answer 'what if' questions. When you change a number that you had previously entered in a particular location on the worksheet, VisiCalc automatically recalculates the values of all the formulas that refer to this location. This is discussed in Chapter 2. Chapter 3 is devoted to another important feature of VisiCalc: the ability to copy labels, numbers, or formulas across rows or down columns. This feature saves a lot of time and prevents errors.

Chapter 4 describes the commands that are used to improve the appearance of that version of the worksheet that appears on the screen and is printed on the printer. VisiCalc has a large number of built-in functions which enable quite complicated calculations to be performed. These are described in Chapter 5 and extensive coverage is given of the built-in functions that perform conditional testing. Commands for editing the worksheet are covered in Chapter 6. This chapter also deals with such advanced topics as combining data from several worksheets and executing sequences of frequently used commands. Finally Chapter 7 outlines recent trends in spreadsheet and financial modelling packages.

The version of VisiCalc described in this book is the 16 sector VC-208BO-AP2 version for the Apple II. While versions for other systems are similar in outline, some of the features of these versions differ from the version that is described here. However, in most cases, these differences are minimal (see Appendix A.1).

Contents

CHAPTER 1

Fundamental VisiCalc Commands

1.1 The status area and the window

When you load VisiCalc on your microcomputer, the screen will look like the one in Figure 1.1. The *status area* consists of the top three lines of the screen. The rest of the screen is called the *window*. The letters A, B, C, and D appear along the top of the window and the numbers 1 to 20 appear along the left-hand edge of the window. VisiCalc provides a large worksheet for you to write on. This worksheet is called an electronic worksheet because it is stored in the memory of the microcomputer instead of being written on paper. The VisiCalc worksheet has 63 columns and 254 rows. The columns are labelled A, B, . . . , Z, AA, AB, . . . , AZ, BA, BB, . . . , BK. The rows are numbered 1, 2, . . . , 254. The part of the screen called the window enables us to view a small area of the worksheet. This area is currently 4 columns wide and 20 rows long. From the letters A, B, C, D and the numbers 1 to 20 appearing in the current window, we see that the part of the worksheet that we are currently viewing consists of columns A to D and rows 1 to 20. This area is in the top left-hand corner of the worksheet, as shown in Figure 1.2. By moving the window around the

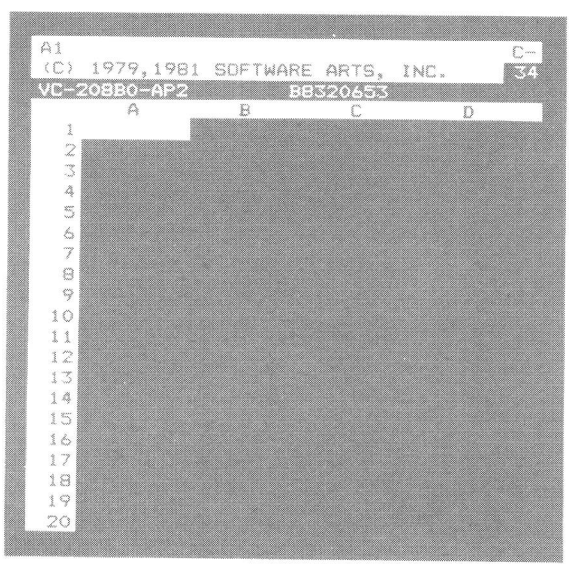

Figure 1.1

worksheet, we can view the entire worksheet. The current window is blank, except for the borders of row and column titles, indicating that no entries have been made in this portion of the worksheet. In fact, the entire worksheet is blank when the VisiCalc program is first loaded.

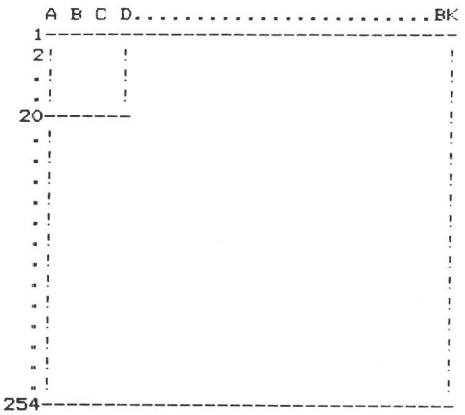

Figure 1.2

1.2 The cursor control keys

A position in a particular row and column of the worksheet is called an *entry position* or a *cell*. It is identified by its *coordinate* indicating which row and column it is in. Thus the entry position with coordinate B7 is in column B and row 7. Note that the column title must precede the row number in the coordinate; 7B is not a legitimate coordinate.

Figure 1.1 shows the screen that appears when VisiCalc is first loaded. If you look at the screen on your microcomputer, you will see that the entry position A1 is highlighted, i.e. white in a dark screen or dark in a white screen, depending on your particular system. This highlighted rectangle is called the *cursor*. It indicates the particular entry position in which entries can currently be made. Having the cursor in entry position A1 means that an entry can currently be made in this position on the worksheet. Note that the coordinate of the current entry position appears in the top left-hand corner of the screen in the first line of the status area. This line is called the *entry contents line* and the first position of this line will always give the coordinate of the current entry position. The rest of this line is blank, indicating that this entry position is currently blank, except for the symbols 'C–' in the top right-hand corner of the screen. These symbols and the number below them will be explained subsequently.

Press the arrow key → and see that the cursor has moved horizontally to position B1 and that this is reflected in the entry contents line. Press this arrow key twice more and see that the cursor moves one space at a time to positions C1 and D1. Press this arrow key again and notice that the window has moved one column to the right to keep the cursor in view in position E1. This is called *scrolling* the window. When we move the cursor, the window will automatically move to keep the cursor in view at all times. The column titles in

the current window are B, C, D, and E, as shown in Figure 1.3. Press the right arrow key → repeatedly and the window will continue to scroll across the worksheet, one column at a time. Now hold down the 'REPT' key while pressing this arrow key to speed up the scrolling until the cursor reaches the right-hand edge of the worksheet. When this happens, the microcomputer will emit a noise like a thud. The window will then appear as shown in Figure 1.4. Press the left arrow key ← to move the cursor one column to the left and then hold down this key and the REPT key to scroll rapidly to the left until the cursor reaches the left-hand edge on the worksheet and the microcomputer emits another thud. The window has returned to its original position as shown in Figure 1.1.

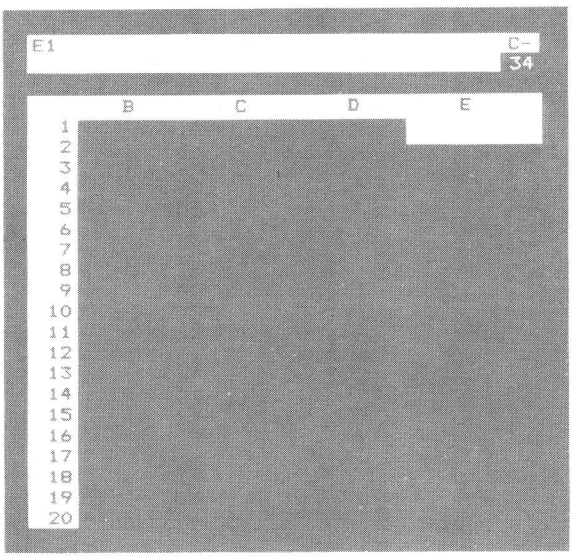

Figure 1.3

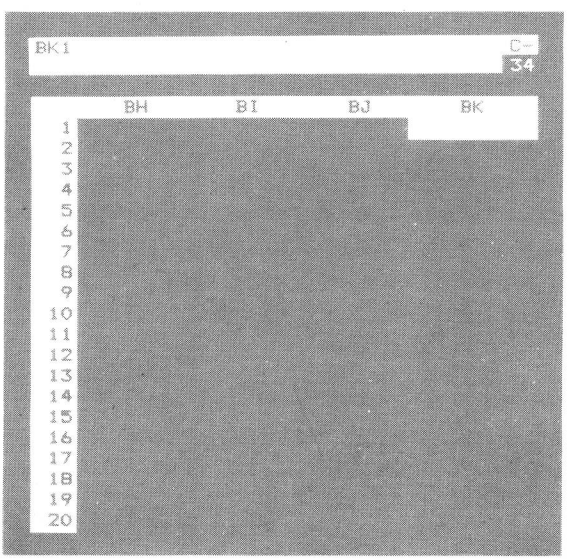

Figure 1.4

Now move the window vertically down the worksheet to reach the lower edge of the worksheet. The dash '–' in the top right-hand corner of the screen is the *direction indicator* and indicates that the cursor control keys ← and → currently move the cursor horizontally. Press the space bar once and notice that the direction indicator changes to '!', indicating vertical movement. Pressing the space bar again will change the direction indicator back to '–'. With the direction indicator set to '!', pressing the right arrow key → moves the cursor down one row and pressing the left arrow key ← moves it up one row. By holding down the REPT key and the right arrow key →, scroll rapidly down to the bottom edge of the worksheet as shown in Figure 1.5. Now press the space bar to change to horizontal movement and scroll to the lower right-hand corner of the worksheet, as shown in Figure 1.6. You have now explored all four corners of the worksheet and verified that it does consist of 63 columns and 254 rows.

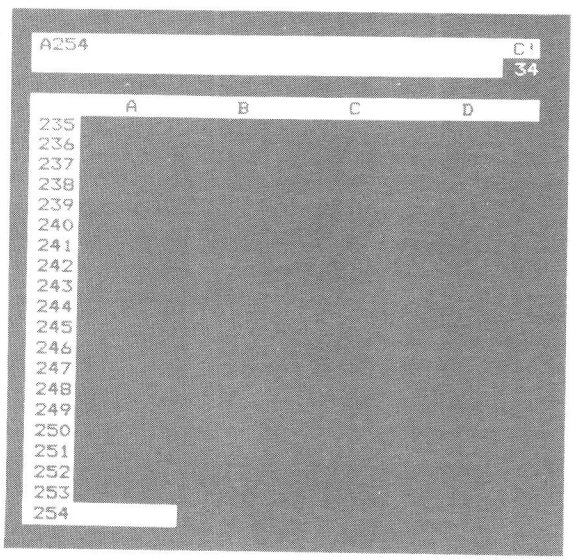

Figure 1.5

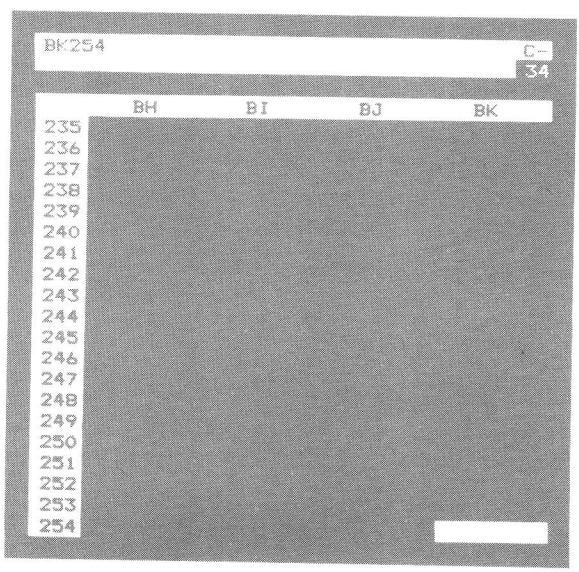

Figure 1.6

1.3 Moving directly to an entry position: the GO TO command >

By using the arrow keys as described in the last section, you can move the cursor to any entry position. There is a command in VisiCalc which enables you to move the cursor directly from one entry position to another without having to scroll through the intermediate positions. This is the GO TO command. Suppose the cursor is in position A1 as shown in Figure 1.7. Type the character > by using the SHIFT key. The words GO TO: COORDINATE will apear on the second line of the status area, as shown in Figure 1.8. This line is called the *prompt line* and its function is to prompt you about the next part of the command being entered. At present, it is prompting you to type in the coordinate of the position to which you wish to move the cursor. There is a white box at the beginning of the third line in the status area. This line is called the *edit line* and the white box is called the *edit cue*. Type in the coordinate F10. This will appear on the edit line followed by the edit cue, as shown in Figure 1.9. To indicate that the command is complete, press the RETURN key or type a colon (:). The screen will now appear as shown in Figure 1.10, with the cursor in position F10. Try typing in incorrect coordinates such as 10F or A255. In the first case, as soon as you type the 1, the microcomputer will emit a double beep to draw your attention to the error and will cancel the whole command. In the second case, there will be a single beep after you press RETURN but the cursor will not move.

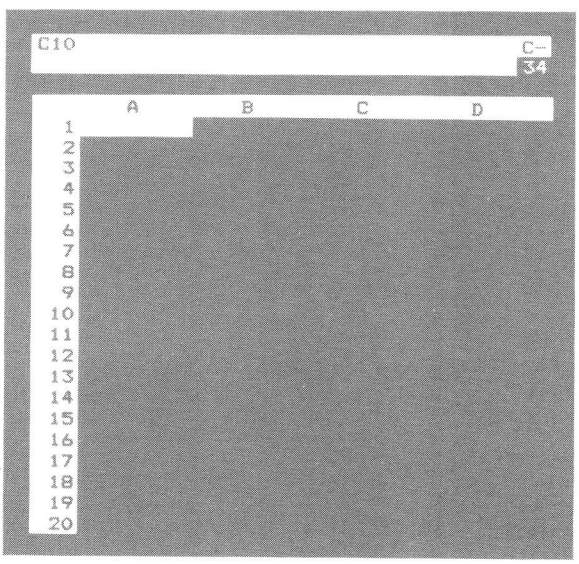

Figure 1.7

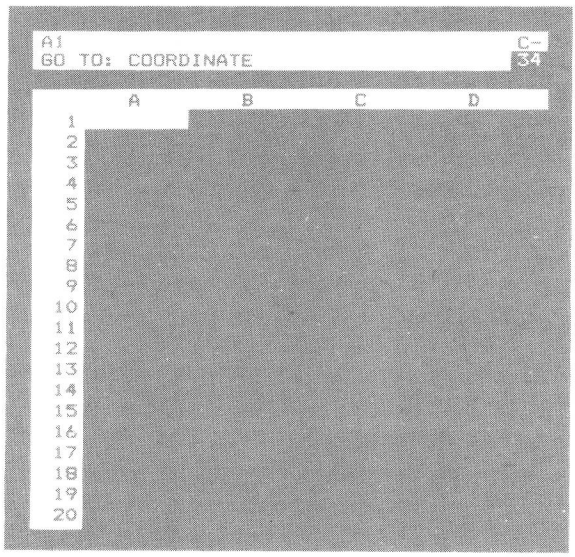

Figure 1.8

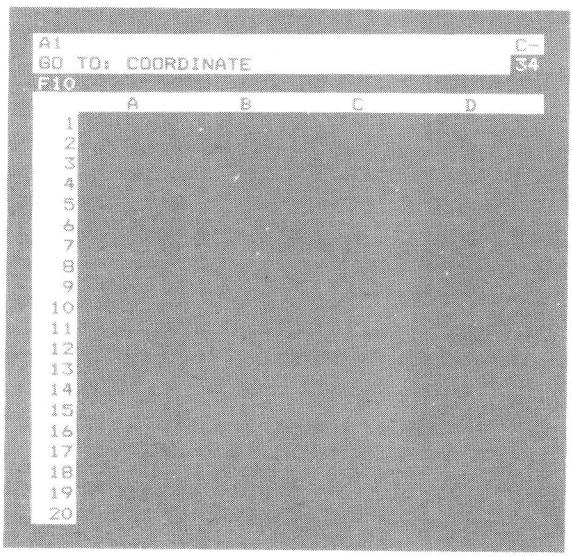

Figure 1.9

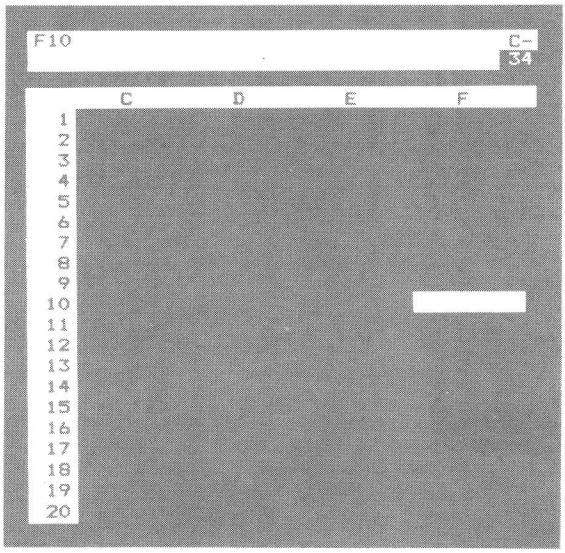

Figure 1.10

1.4 Correcting mistakes in the edit line: the ESC key and the CTRL-C command

You now know how to move the cursor to a particular position in the worksheet either by scrolling the window or by direct movement to that position. The next step is to make an entry in a particular entry position. Beginners are liable to make mistakes in the number or label that they enter in a particular position or to make the right entry but in the wrong entry position. These mistakes are easily corrected. In the present section, methods are described for correcting the mistakes in an entry that are detected *before* you have completed the command for making the entry. The next section deals with correcting mistakes that are detected *after* the command for making the entry has been completed.

There are two commands in VisiCalc for making entries in the worksheet: the LABEL ENTRY command and the VALUE ENTRY command. The LABEL ENTRY command is used for entering alphabetic labels and the VALUE ENTRY command is used for entering numbers and formulas. The distinction between values and labels will be made clear in sections 1.6 and 1.7. For the moment, assume that the cursor is in position A1 and that you want to enter the label ITEM in this location. Suppose that you type ITEN by mistake for ITEM, but realize your mistake before you press RETURN to complete the entry command. The screen will appear as shown in Figure 1.11, with the label ITEN in position A1 and also on the edit line followed by the edit cue. The fact that it is still on the edit line means that it has not yet been finally entered in location A1, and you can still correct any mistakes in the label as it appears on the edit line. Press the ESC key once. This will delete the character on the edit line to the left of the edit cue, so that the edit line now appears as ITE followed by the edit cue, as shown in Figure 1.12. Type in the correct letter M as shown in Figure 1.13. Pressing RETURN at this stage will complete the entry command and enter the correct label ITEM in position A1. An alternative and more drastic way of correcting this mistake is as follows: at any time before pressing RETURN, hold down the CTRL key and type C. This will cancel the whole entry command and the status area will appear as shown in Figure 1.14. This is what is meant by the CTRL-C command. You can

then make another attempt at entering the label correctly. Repeated use of the ESC key before pressing RETURN has the same effect as the CTRL-C command. You delete the characters on the edit line one by one until you finally 'back out' of the entry command altogether. The ESC key and the CTRL-C command can also be used to correct mistakes in the coordinate being entered in the GO TO command described in the previous section. In general, the ESC key is used to correct mistakes in the edit line and the CTRL-C command is used to cancel any command that has not been completed.

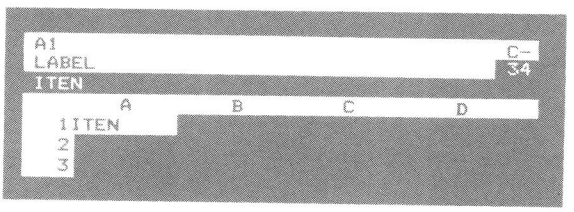

Figure 1.11

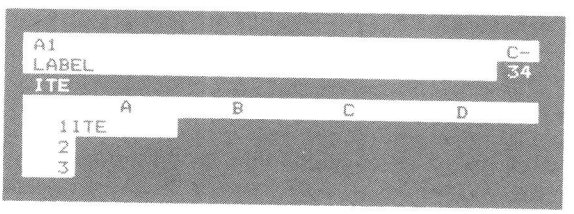

Figure 1.12

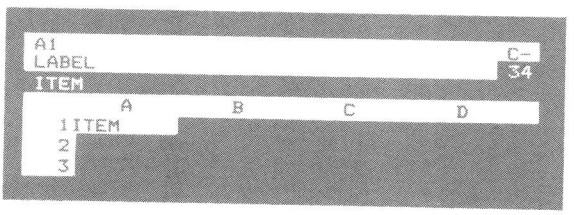

Figure 1.13

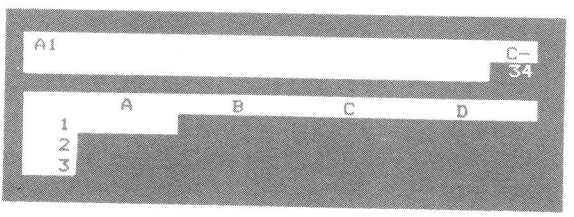

Figure 1.14

1.5 Correcting mistakes in the worksheet: the BLANK command /B and the CLEAR command /CY

Suppose that you have entered a number or label in the wrong entry position and wish to 'blank out' that entry position. The BLANK command will accomplish this. In Figure 1.15, the labels JUNK and MORE JUNK have been entered in positions A1 and A2