Gerald's Column
by Gerald Fitton

I was tempted to be nostalgic and call this month's column PipeLine. I resisted the temptation because that might cause those without PipeDream to make the unwarranted assumption that there would be nothing of interest to them in my 'ramblings'.

My introduction to PipeDream concerns the "Copy" key. You can't find it! Oh dear!

Last Month's Challenge

It's early days yet but nobody (except Colin Singleton—who had advanced notice) has tackled my "Last Month's Challenge". Let me remind you:

You have five coins. Your assumption is that they are all unbiased. In fact I've pulled a 'fast one'. I slipped in a double headed coin. You flip all five coins and count the number of heads. This is a five flippin' coin event. You repeat this event 32 times. The average number of heads per event turns out to be exactly 3.0. If your assumption (all coins unbiased) were true then you would expect a mean close to 2.5 rather than 3.0.

Although I used other words, my question was: "With the assumption that all five coins are unbiased then what is the probability that a 32 event experiment yields a sample mean which is outside the range 2.0 to 3.0? My philosophical question was: "Is a sample mean of 3.0 sufficient evidence for rejecting your initial belief that the coins are unbiased?" The two questions are related. I'll tell you why—but not this month.

BBC BASIC

I remember with some fondness my first BBC computer. I am not sure whether to use the present or past tense when describing it; I've decided to be 'direct'. By default the BBC user interface is the language BASIC. I am certain that everyone who bought a BBC computer will have written at least one, and probably many, programs in BBC BASIC.

One totally essential facility needed when writing a program in any language, if only to correct mistakes, is editing. Nowadays people writing and editing programs use a variety of word processors but, back in those days, the only editor was the one built into BASIC.

The BASIC word processor does not have the sophistication of !Edit. It works in a manner somewhat similar to the current command line interface. By this I mean that you can't move the 'input focus' to any point in the previously written text and edit it. The 'Input Focus' is the point at which things happen (for example, characters get deleted). If you make a mistake then there is no alternative but to delete what you've typed, one character at a time, all the way back to the mistake.

The arrow keys appear to move what I shall call a 'pointer' around the BASIC program but it doesn't change the position of the input focus. If you tap <Delete> or type a character then the changes in the text appear, not at the point where the 'pointer' is placed but at the same position in the text as the previous change. Another way of looking at this is that you can't change the input focus!

So what, you may ask, was the point of allowing the arrow keys to do anything at all? Read on and all shall be revealed—but not yet.

The Command Line

Tap the <F12> key and, at the bottom left of your screen, you will find that you have an asterisk, *. This is the command line prompt. Tap a few keys and you will see characters appear to the right of the asterisk. For example type Free and then tap <Return>. If all goes according to plan then this command will return the free space on your hard drive.

Suppose that what you've typed is not "Free" but "Gree" by mistake. You have not yet tapped <Return>. With a wordprocessor making the correction is easy. Place the cursor just to the right of the "G", tap <Delete> or <Backspace> (the key to the right of the +/= key which is sometimes called "Rubout"), and the "G" disappears. Try this technique at the command line and be prepared for your disappointment! It is the final "e" which disappears instead the "G".

The interface native to BBC BASIC uses exactly the same mechanism as that of the Command Line. Once again, "You can not move the 'Input Focus' with the arrow keys".

Back to BASIC

Earlier I referred to what I called a 'pointer'. This form of 'pointer' is still used by the command line editor. It is the underline character. When using the BASIC interface the arrow keys move this 'pointer' around. The arrow keys do not move the 'Input Focus'.

So what, we asked earlier, was the point of allowing the arrow keys to do anything at all if they don't move this 'Input Focus'? The answer lies in the operation of the "Copy" key. This key still operates on the Command Line as it does in the BBC BASIC word processor.

The "Copy" Key

Finally we get to my tenuous 'link' to PipeDream. PipeDream uses the word "Copy" to identify one of the keyboard keys. These days you won't find a key labelled "Copy" but, if you still have your old BBC computer then have a look for it.. The key presently labelled "End" was labelled "Copy" on the BBC keyboard. This 'non standard' labelling was continued by Acorn on the early Archimedes machines.

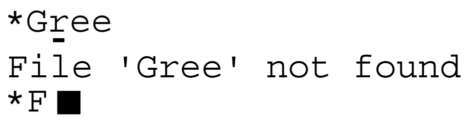
Here is a small experiment which those of you who are unfamiliar with the Command Line and BASIC interface might like to try.

Tap <F12> and type in the work "Gree" without the inverted commas.

Tap <Return> and the words "File 'Gree' not found" will appear. The input focus will move automatically to the * on the next line.

Type "F".

Use the arrow keys to place the pointer (the underline character) under the “r” of “Gree”. At this point your command line entries will look similar to that shown in the graphic.



```
*Gree
File 'Gree' not found
*F■
```

You can use the “Copy” key to copy the “ree” to the input focus (after the “F”).

Tap the “Copy” key are the “r” will be copied so that it appears after the “F”. The input focus (in the shape of the square black block) will move one place to the right. The pointer will move right so that it is under the first “e”. Repeat twice more and then tap <Return>.

You have copied the “ree” from “Gree” to the command line “F” to make “Free”. You could have copied the “ree” from anywhere in that command line area. For example you could have copied it from the “File ‘Gree’ not found”. I find this copying feature useful for correcting errors I often make when entering commands with many arguments.

If you still use the word processor which is built into BASIC then you too will be familiar with the use of the “Copy” key. These days BASIC programs are rarely written using the BASIC word processor but more usually with a package such as !Edit, StrongEd or Zap. With these newer word processors you can mark the block you want to copy, execute <Ctrl C> and the copied text appears, as if by magic, at the cursor.

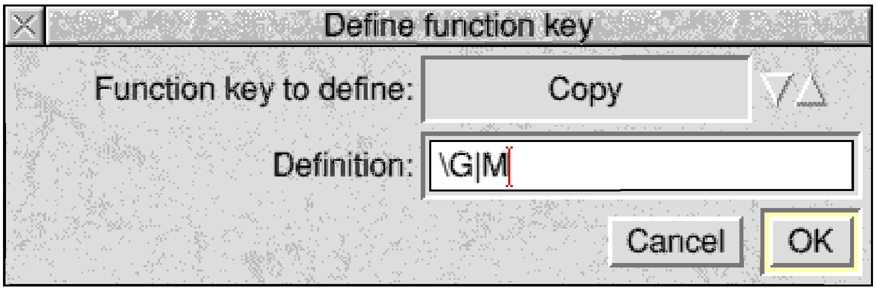
PipeDream

Back to PipeDream and its “Copy” key.

You can configure PipeDream so that any function key or <Ctrl> key combination will execute any PipeDream command you choose. You can do more much than this but let’s stick to something simple for now.

In order to define or redefine the action of a function key you need to know the PipeDream names for all the function keys. You won’t find “End” inside PipeDream but you will find “Copy”. PipeDream uses the historic name “Copy” for the function key labelled as “End”.

Execute the command <Ctrl CDF> by pressing and holding down the <Ctrl> key first and then tapping C followed by D followed by F. Do not try to hit both the <Ctrl> and the C key simultaneously—it won’t happen!



Define function key

Function key to define: Copy

Definition: \G|M

The small radio buttons to the right of the word “Copy” which look a bit like up and down arrows can be used to sequence through all the function keys in turn. Without counting and relying on my memory I think there are over 70 different combinations! “End” certainly isn’t there—but, as you can see from the screenshot, “Copy” is there. It might take you a fair amount of time and patience to find “Copy” as you cycle through these 70 or so different function keys and you may be surprised to find some unlikely customers.

I have redefined the “Copy” key as the command sequence “\G|M”. I wonder what that does? You will have to wait until next month to find out; or, if you have PipeDream (everyone should have a copy) you might consider defining it as the alternative command “\G|CBC” and see which you prefer.