

Section 7: Debugging

Even the most experienced programmers write programs which do not work correctly. When a program does not work in the intended way, it is said to have a bug. Getting rid of bugs is called debugging, and can be one of the most difficult tasks confronting the programmer. XYBASIC has a number of features which simplify debugging and enable you to get your program running correctly sooner than would be possible with other BASICs. Rather than trying to find bugs by passively examining listings, you can interact with XYBASIC and let it help you find your mistakes with its debugging features.

TRACE and UNTRACE

TRACE lets you watch the execution of your program on a command by command basis. In TRACE mode XYBASIC prints the bracketed line number and contents of each command executed and the name and value of any modified variable. The following program printing prime numbers shows what TRACE execution looks like.

```

NEW
OK
10 TRACE
20 PRINT 2; "IS PRIME"
30 N = 1
40 N = N + 2
50 FOR I = 3 TO N/2 STEP 2
60 IF N MOD I = 0 THEN 40
70 NEXT I
80 PRINT N; "IS PRIME"
90 GOTO 40
RUN
[20 PRINT 2; "IS PRIME"]      2 IS PRIME

[30 N = 1]      N= 1
[40 N = N + 2]      N= 3
[50 FOR I = 3 TO N/2 STEP 2]      I= 3
[80 PRINT N; "IS PRIME"]      3 IS PRIME

[90 GOTO 40]
[40 N = N + 2]      N= 5
[50 FOR I = 3 TO N/2 STEP 2]      I= 3
[80 PRINT N; "IS PRIME"]      5 IS PRIME

[90 GOTO 40]
[40 N = N + 2]      N= 7
[50 FOR I = 3 TO N/2 STEP 2]      I= 3
[60 IF N MOD I = 0 THEN 40]
[70 NEXT I]      I= 5
[80 PRINT N; "IS PRIME"]      7 IS PRIME

[90 GOTO 40]
[40 N = N + 2]      N= 9
[50 FOR I = 3 TO N/2 STEP 2]      I= 3
[60 IF N MOD I = 0 THEN 40]

```