The program listed here simulates the behaviour of a completely non-directive therapist, in other words a therapist who does not *direct* the conversation, but keeps it going with responses such as 'TELL ME MORE . .' and 'WHY IS THAT IMPORTANT . . ?'. It keeps a record of the conversation, and replays it after a given number of exchanges, or as soon as you type 'GOODBYE'.

The program can be developed in the direction of pseudo-intelligence by making it analyse the user's input and choosing an appropriate reply. It already does this in line 3100 by testing for the word "GOODBYE". We might extend this analysis by testing for the words "YES" and "NO", and making more specific prompts in answer — something as simple as "WHY?" or "WHY NOT?" would do very well. Next, we could check whether the user is repeating a response, and, if so, reply accordingly or end the session. We might test whether a response ends in a query or an exclamation mark, and reply "WHY DO YOU ASK THAT . . ?" or "WHY ARE YOU GETTING EXCITED . . ?". These are all quite effective strategies, and do not require a lot of processing time, or any attempt at understanding the sense of the user's response.

We might now set up a table of keywords, and search the response for these words, making a specific response from another table if we find them. The choice of keywords and answers depends on the kind of conversation you expect to have; the way that your choice affects the user's responses can give some fascinating insights into your own and your friends' subconscious minds. The drawback of this method –and all methods that must search the text — is the time it takes to analyse even a short sentence. The speed of BASIC is the limiting factor here, and any serious analysis requires a machine code program. We can, however, tolerate delays for the sake of investigation. Even these simple methods can give surprising results, and illuminate the problems that the fifth generation machines have to solve.

If we intend to analyse the user's words, then there are many approaches to take: the most interesting is probably *syntactic analysis*, the reduction of a sentence to its component parts of speech, such as pronoun, verb or noun. This requires a body of syntactical and grammatical rules, and tables of pronouns, prepositions, conjunctions, word transformations and so on, and is not a simple matter. It would be easy, however, to choose the longest word in the response, and ask the user to explain his feelings about it — the longest word is likely to be the most important in a simple sentence. We could improve that, perhaps, by choosing at random among those words longer than, say, five letters, or, use the word following "I", or "MY" or "YOU" or "YOUR".

Choosing among, and refining, such methods is a fascinating programming exercise. You get a very clear view of the immense complexity of language and its analysis, and may become dissatisfied with BASIC as an analytic tool. This could lead you to other programming languages such as LISP and PROLOG, which are structured far more subtly, precisely because of the need to cope with the complexity of language and thought. In addition to this, of course, you also get the chance to talk as long as you like to the perfect conversationalist — someone who listens to you!

```
3420 IF LEFT$(I$,3)="YES" THEN O$="WHAT
MAKES YOU SO SURE..":RETURN
3450 IF LEFT$(I$,2)= "NO" THEN  O$="WHY
NOT..":RETURN
3500 Z$=RIGHT$(I$,1)
3520 IF Z$="?" THEN O$="WHY ASK ME.."
3550 IF Z$= "!" THEN  O$="WHY DOES THAT
UPSET YOU.."
3600 IF R9<AN/4 THEN GOSUB 4000
3950 RETURN
3999 REM************************
4000 REM**  LONGEST WORD S/R  **
4001 REM************************
4050 W=1:H=1:WL=1:S=1
4100 I$=I$+" ":L9=LEN(I$)
4120 FOR C=1 TO L9:FOR P=C TO L9
4150 Z$=MID$(I$,P,1)
4170 IF Z$=" "THEN W=P-C:H=C:C=P:P=L9
4200 NEXT P
4220 IF W>WL THEN WL=W:S=H
4250 NEXT C
4270 O$ = "WHAT DOES " + MID$(I$,S,WL) +
 " MEAN TO YOU.."
4450 RETURN
```

Add these lines to the first program for YES/NO and longest word detection

```
**REPORT**
   HELLO - WHAT'S THE TROUBLE..
THE FALCON CANNOT HEAR THE FALCONER
   TELL ME MORE..
THINGS FALL APART - THE CENTRE
CANNOT HOLD
   GO ON..
MERE ANARCHY IS LOOSED UPON THE
WORLD
   PLEASE EXPLAIN THAT..
THE BEST LACK ALL CONVICTION
   IS THAT IMPORTANT..
THE WORST ARE FULL OF PASSIONATE
INTENSITY
   YES..
SURELY SOME REVELATION IS AT HAND
   PLEASE EXPLAIN THAT..
SURELY THE SECOND COMING IS AT HAND
   WHY IS THAT IMPORTANT..
AND WHAT ROUGH BEAST - ITS HOUR
COME ROUND AT LAST
   GO ON..
SLOUCHES TOWARDS BETHLEHEM TO BE
BORN
```

Stimulating Thoughts
We used some lines from W.B. Yeats's poem 'The Second Coming', to illustrate the program's ability to stimulate thought in the user

Basic Flavours
This program is written in Microsoft BASIC. Spectrum users must insert LET in all assignment statements, and adjust the TAB values.

Spectrum
Replace DIM RS(AN):DIM HS(2*LT) by DIM RS(AN,30):DIM HS(2*LT,100)
Replace LEFTS(IS,3) and LEFTS(IS,2) by IS(TO 3) and IS (TO 2)
Replace RIGHTS'(IS,1) by IS(LEN(IS))
Replace MIDS(IS,P,1) by IS(P)
Replace MIDS(IS,S,WL) by IS(S TO S+WL-1)

Commodore Vic-20 and 64
Replace CLS by PRINT CHRS(147)
Replace INT(AN*RND+1) by INT(RND(1)*AN+1)
Replace AS=INKEYS by GET AS

BBC Micro
Replace AS=INKEYS by AS=INKEYS(0)
Replace INT (AN*RND+1) by RND (AN)