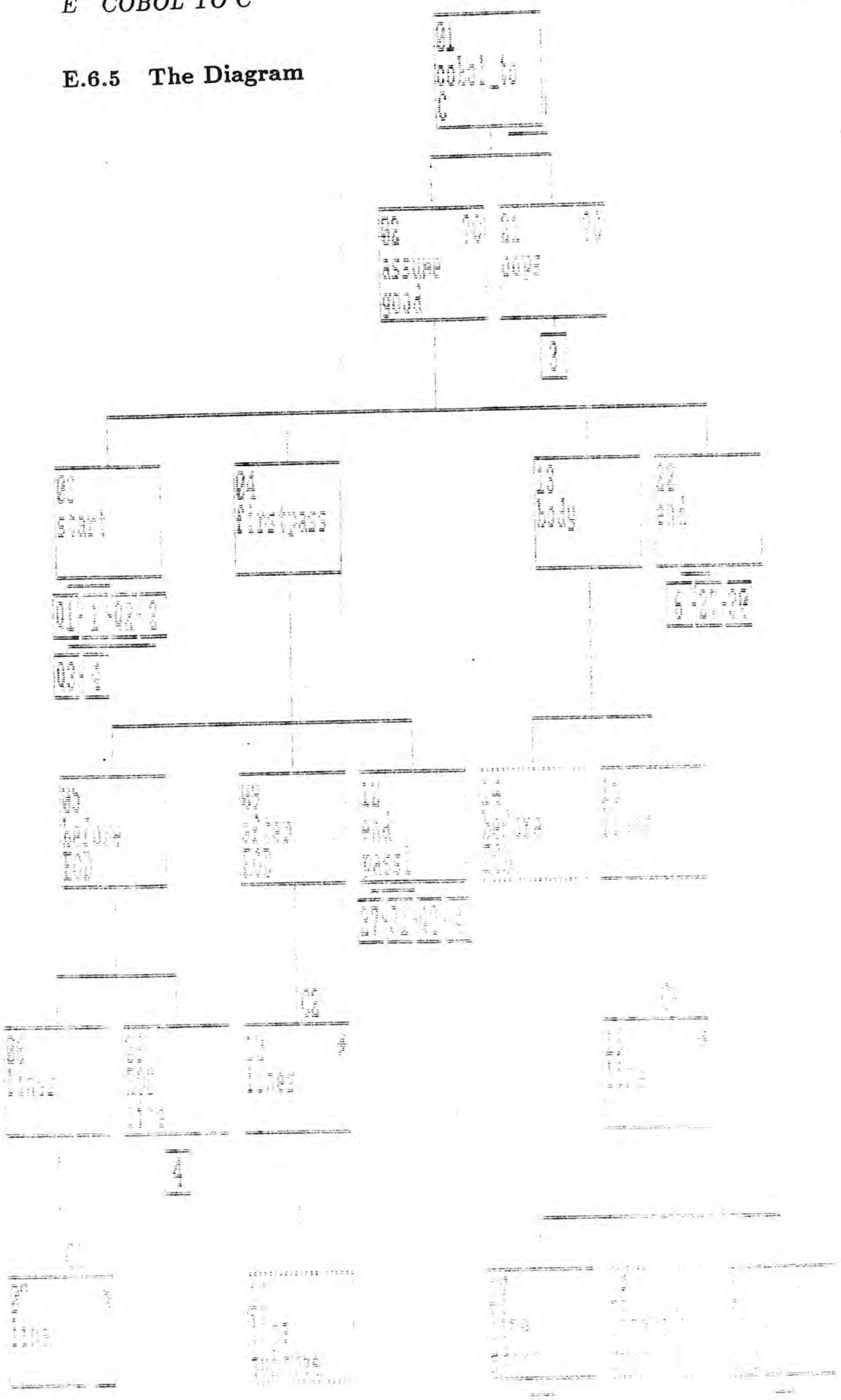
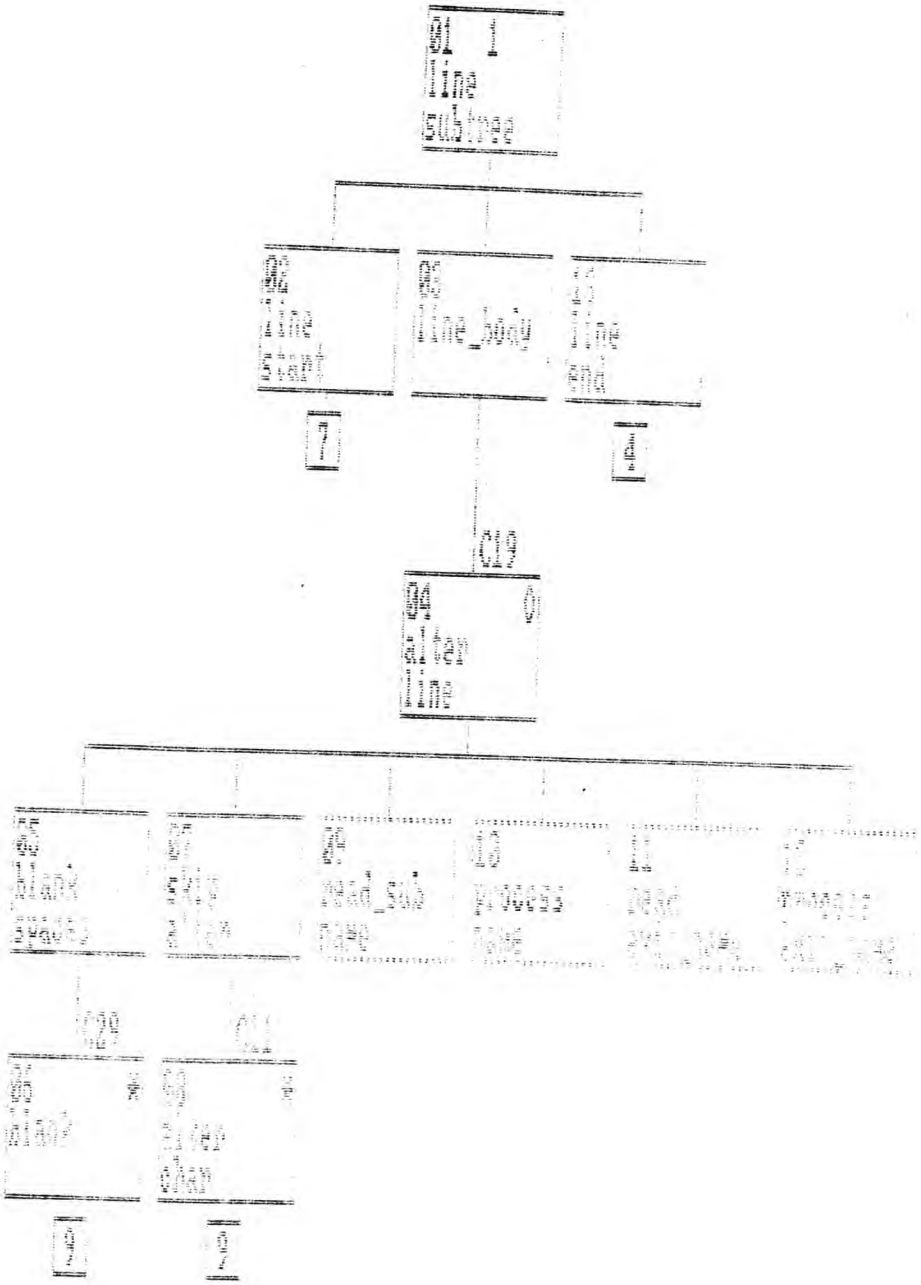
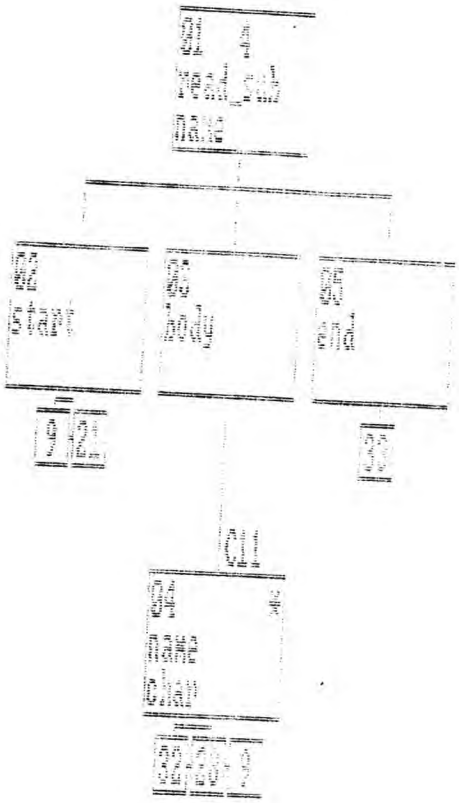
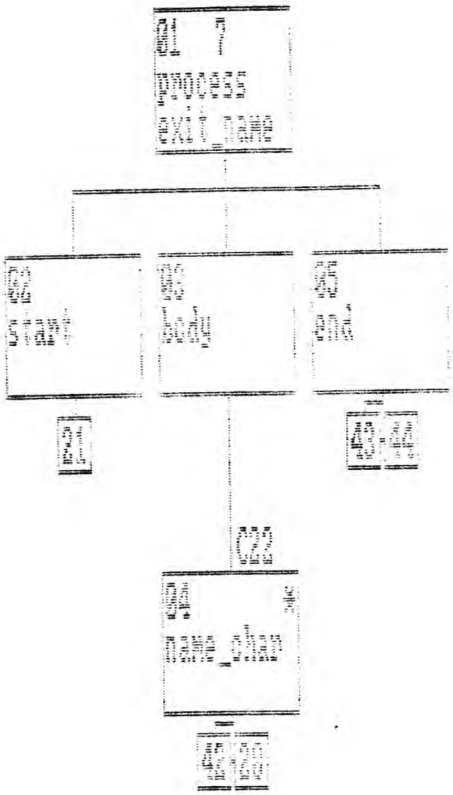
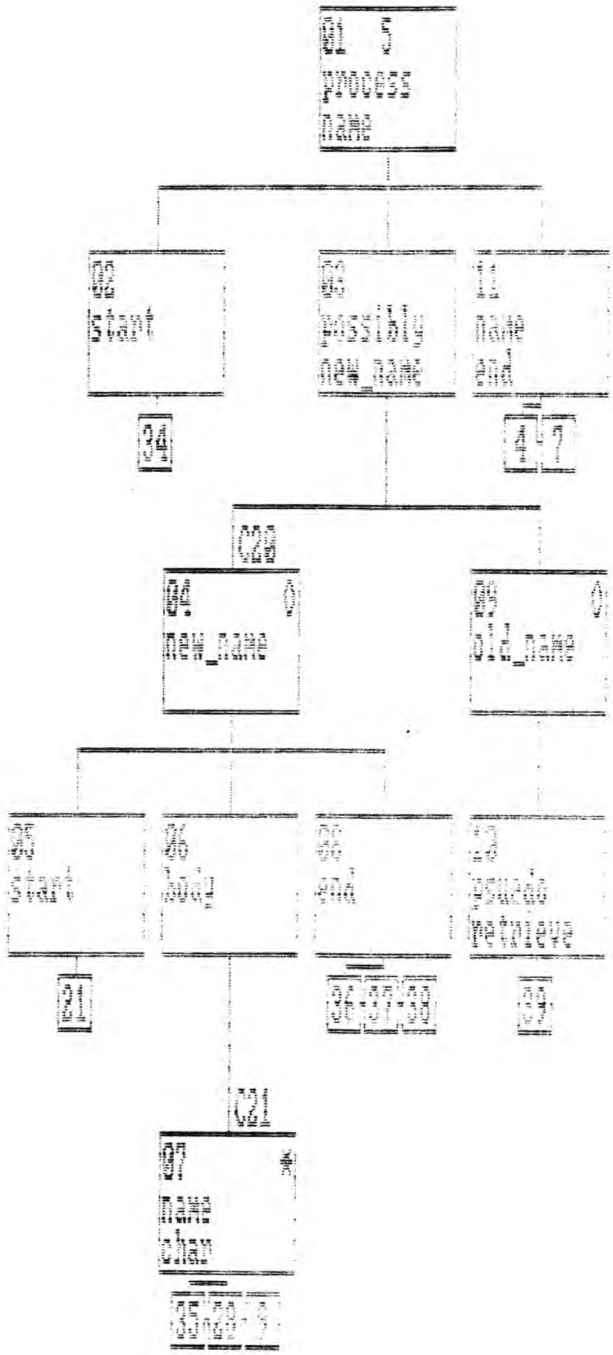
E.6.5 The Diagram

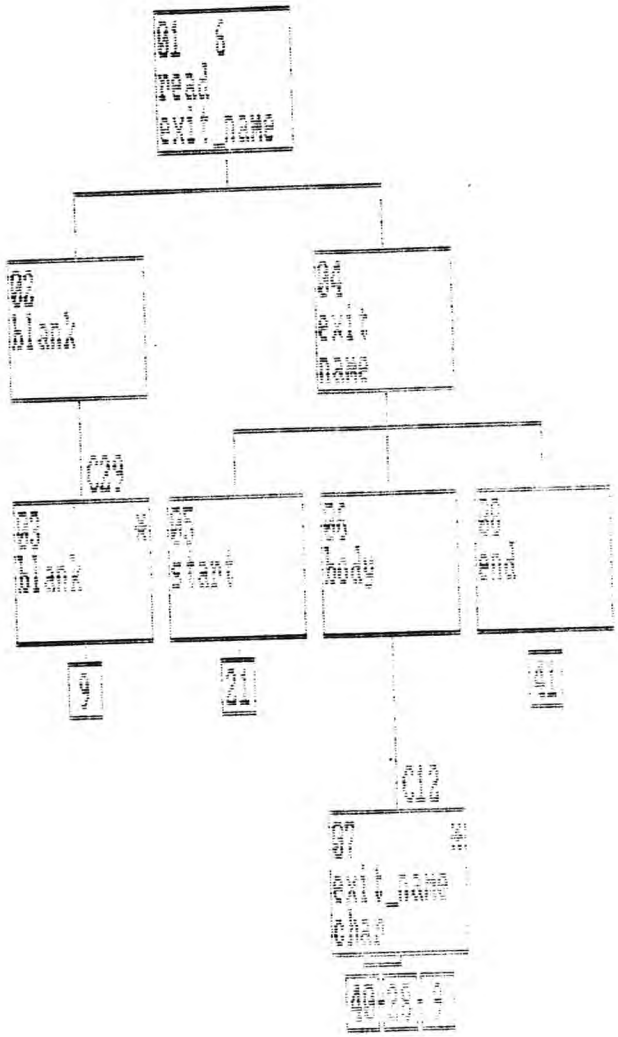


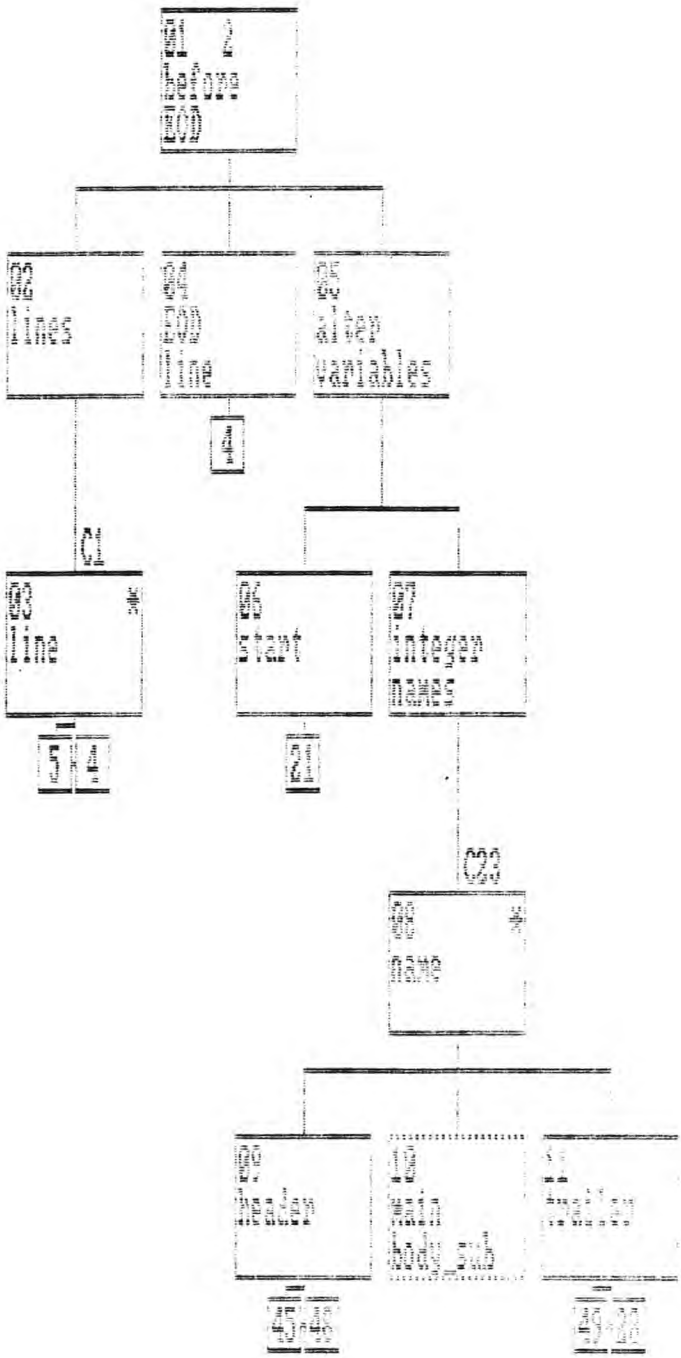


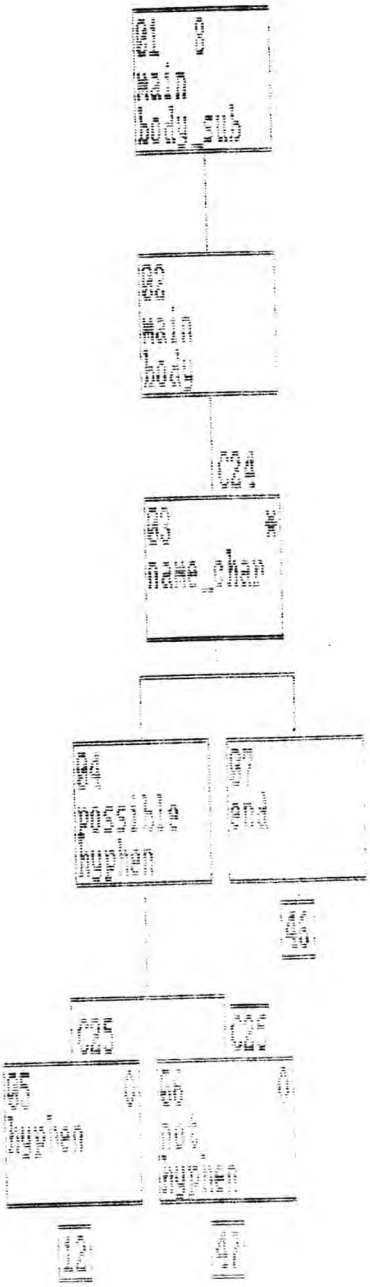

01 4
read_sub
name
02
start
03
body
05
end
9
21
33
C11
04
name
char
32
28
9

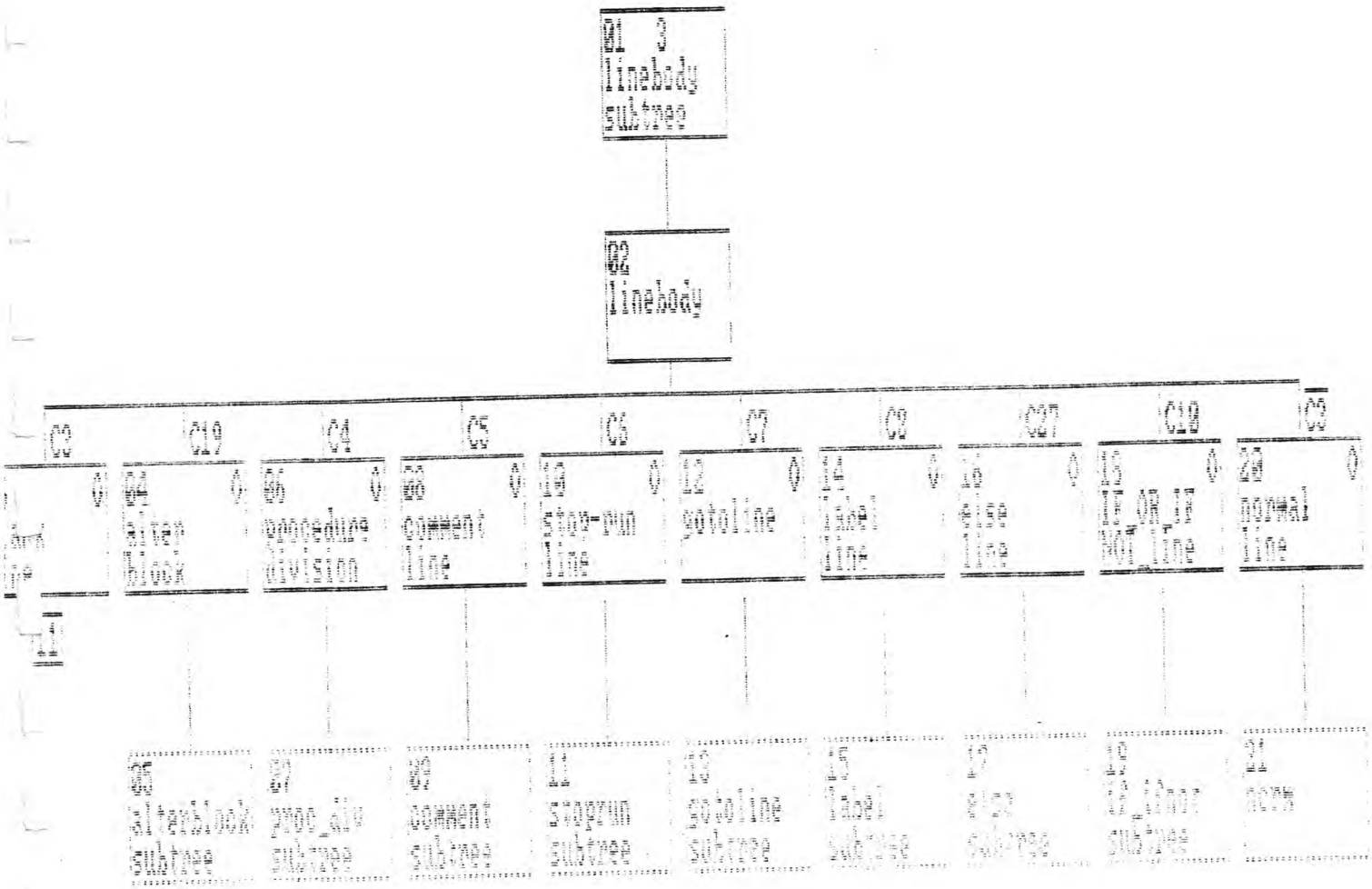

01 ?
process
exit_name
02
start
03
body
05
end
21
43-44
022
04 *
name_char
45-20

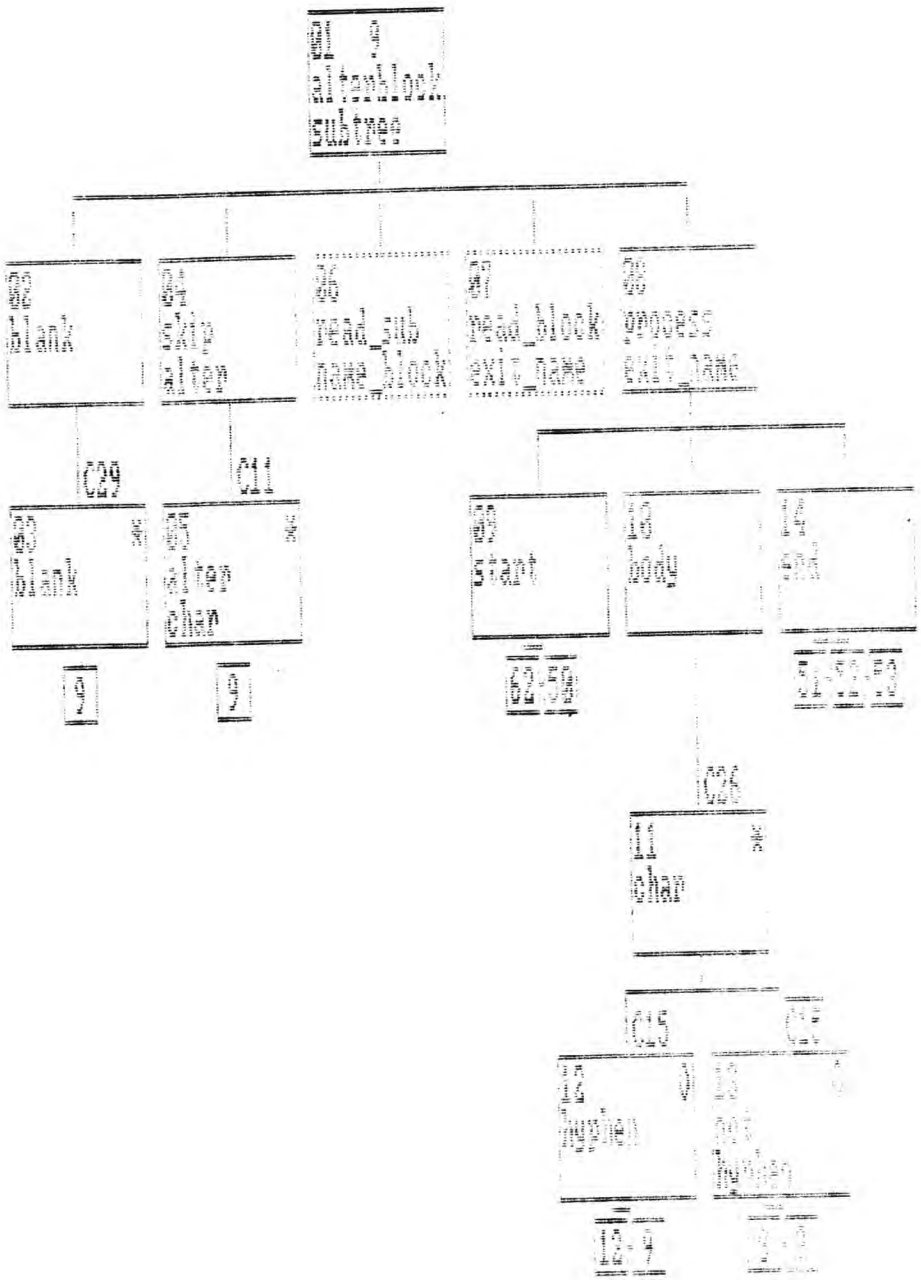

01 5
process
name
02
start
03
possibly
new_name
11
name
end
34
4 7
C20
04 0
new_name
09 0
old_name
05
start
06
body
08
end
10
pseudo
retrieve
21
36 37 38
39
C21
07 *
name
char
35 28 9

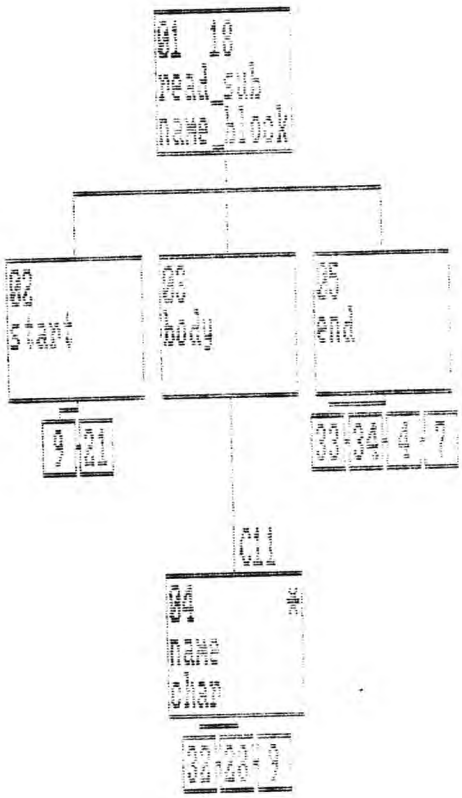

01 6
read
exit_name
02
blank
04
exit
name
C29
03 *
blank
05
start
06
body
08
end
9
21
41
C12
07 *
exit_name
char
40-29:9

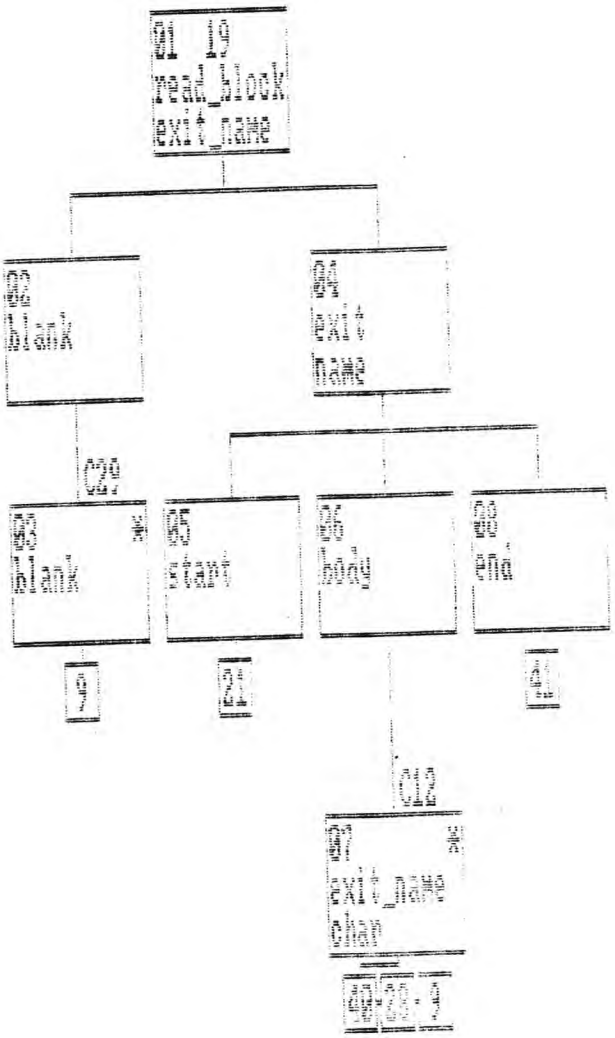

01 2
before
EOD
02
lines
04
EOD
line
05
alter
variables
4
Q1
03 *
line
5 14
06
start
21
07
integer
names
Q3
08 *
name
09
header
45 46
10
main
body_sub
11
trailer
35 38

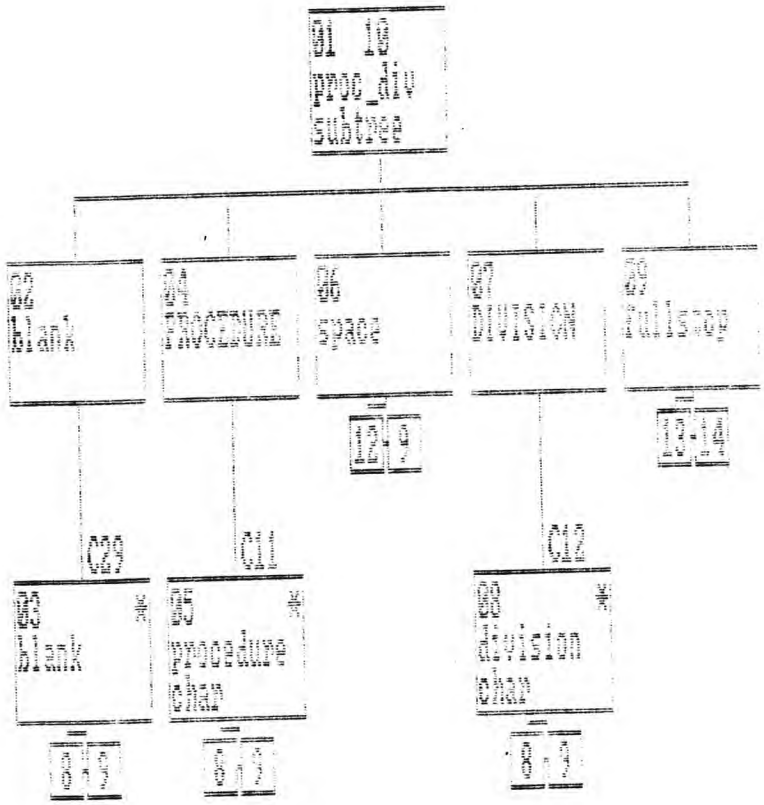

01 8
main
body_sub
02
main
body
C24
03 *
name_char
04
possible
hyphen
07
end
46
C25
C25
05 0
hyphen
06 0
not
hyphen
12
47

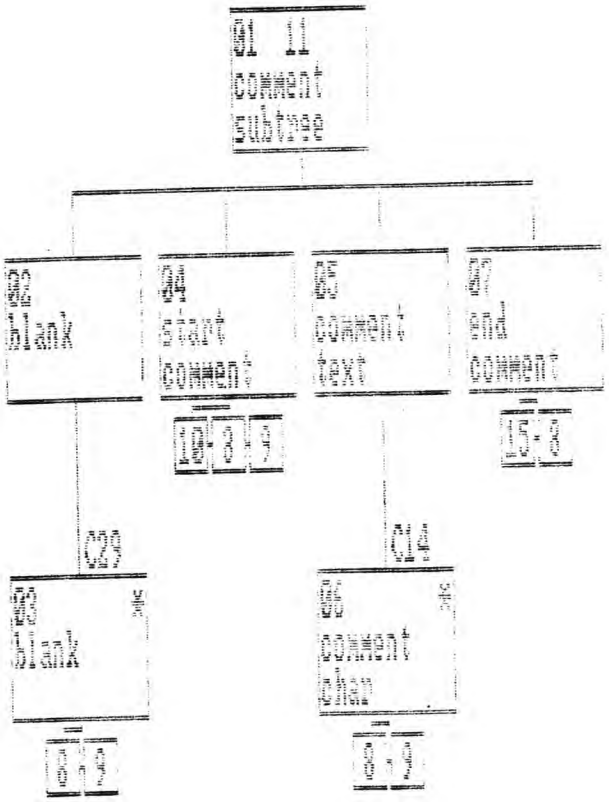

01 3
linebody
subtree
02
linebody
03
alter
block
04
procedure
division
05
comment
line
06
stop-run
line
07
gotoline
08
label
line
09
else
line
10
IF_OR_IF
NOT_line
11
normal
line
12
alterblock
subtree
13
proc_div
subtree
14
comment
subtree
15
stoprun
subtree
16
gotoline
subtree
17
label
subtree
18
else
subtree
19
if_other
subtree
20
norm

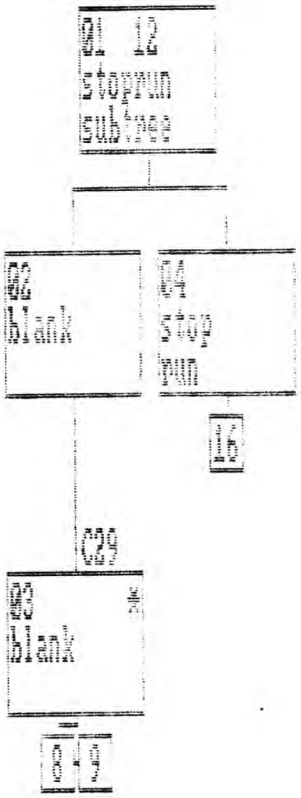

01 9
alterblock
subtree
02
blank
04
skip
alter
06
read_sub
name_block
07
read_block
exit_name
08
process
exit_name
C29
C11
03 *
blank
05 *
alter
char
09
start
10
body
14
end
9
9
62-50
51-52-53
C26
11 *
char
C15
12 0
hyphen
13
not
hyphen
12-9

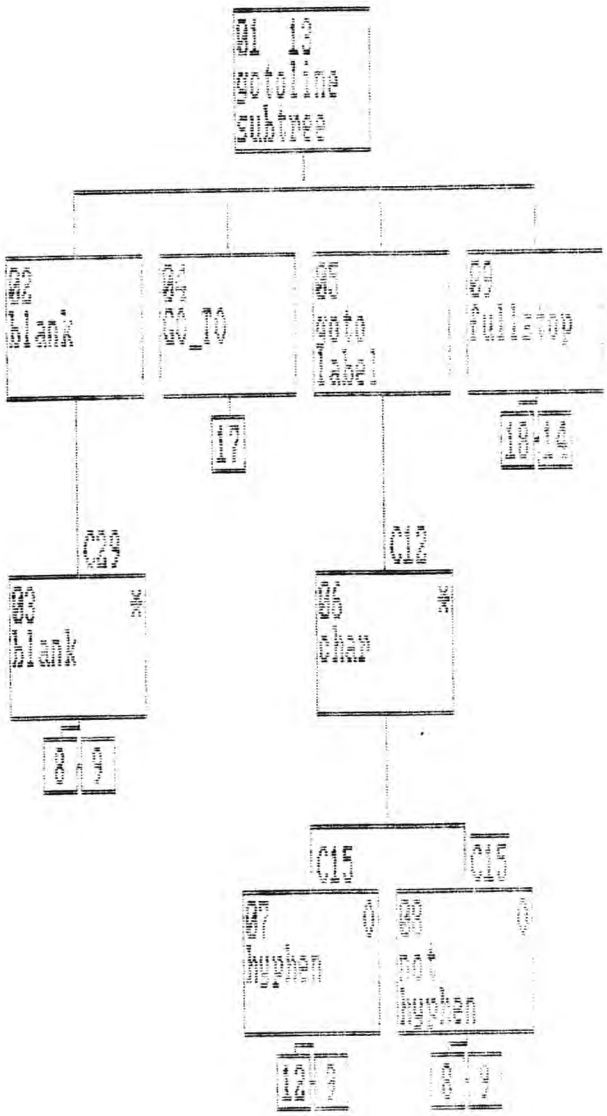

01 10
read_sub
name_block
02
start
9 21
03
body
25
end
33 34 4 7
C11
04
name
char
32 28 9

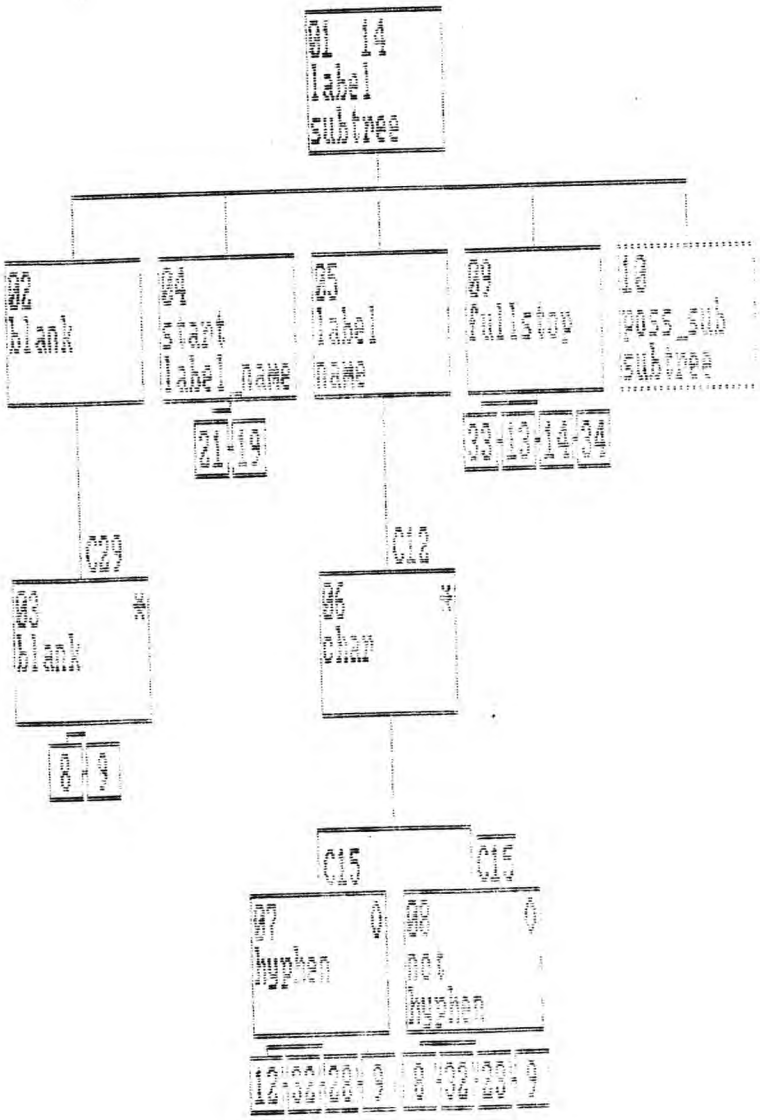

01 19
read_block
exit_name
02
blank
04
exit
name
029
03 *
blank
05
start
06
body
09
end
9
21
41
012
07 *
exit_name
clear

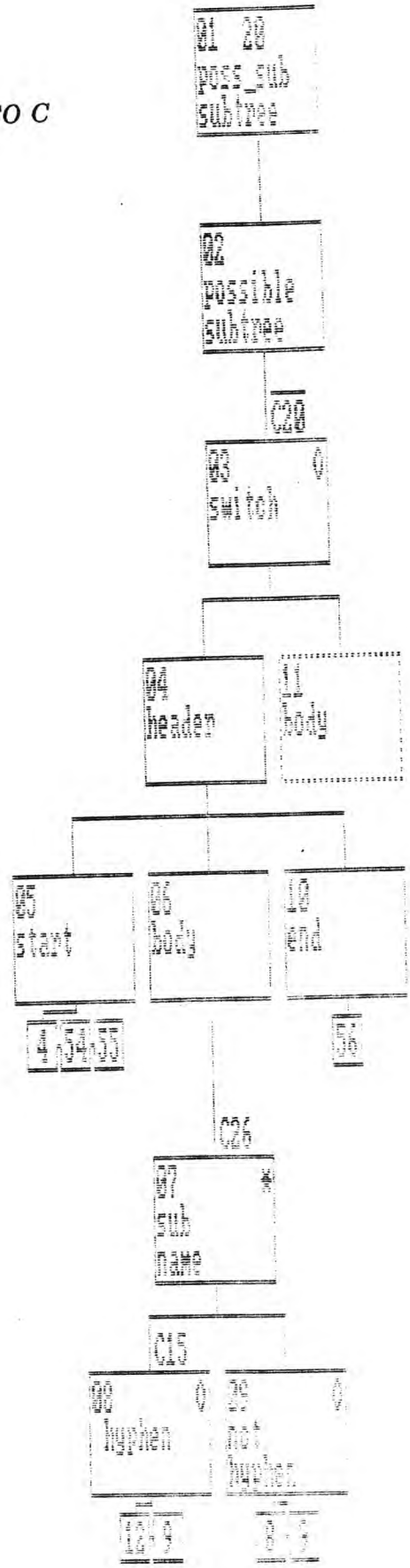

01 10
proc_div
subtree
02
blank
04
PROCEDURE
06
space
07
DIVISION
09
fullstop
12-9
13-14
C09
C11
C12
03 *
blank
05 *
procedure
chan
08 *
division
chan
8-3
6-3
8-3

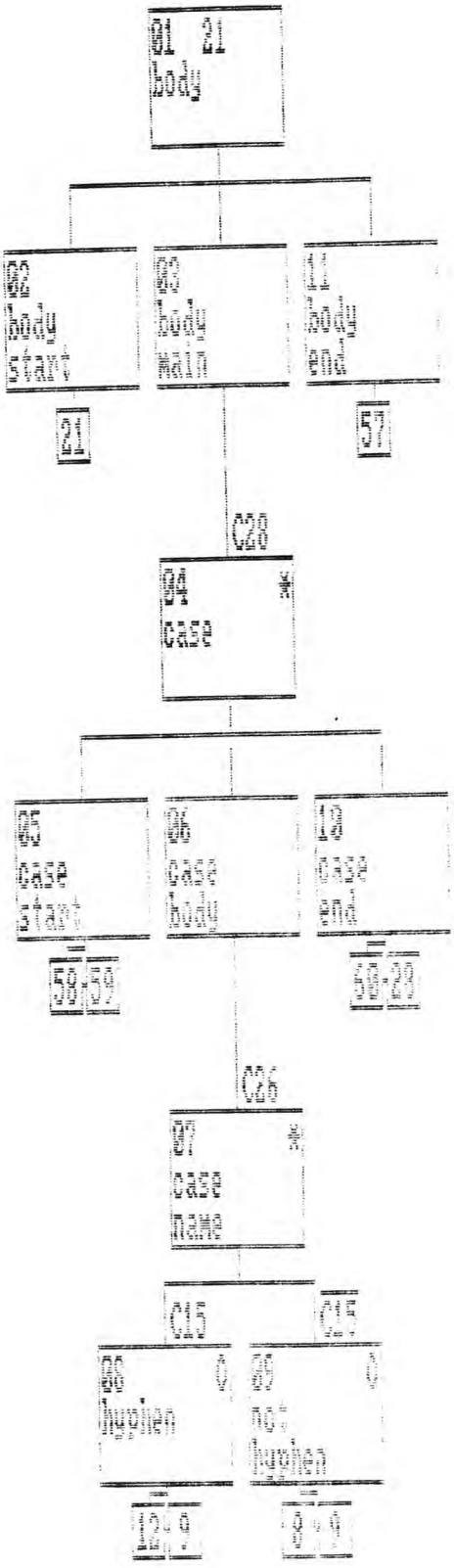

01 11
comment
subtree
02
blank
04
start
comment
05
comment
text
07
end
comment
10 8 9
15 8
C29
C14
03
blank
06
comment
char
8 9
8 9

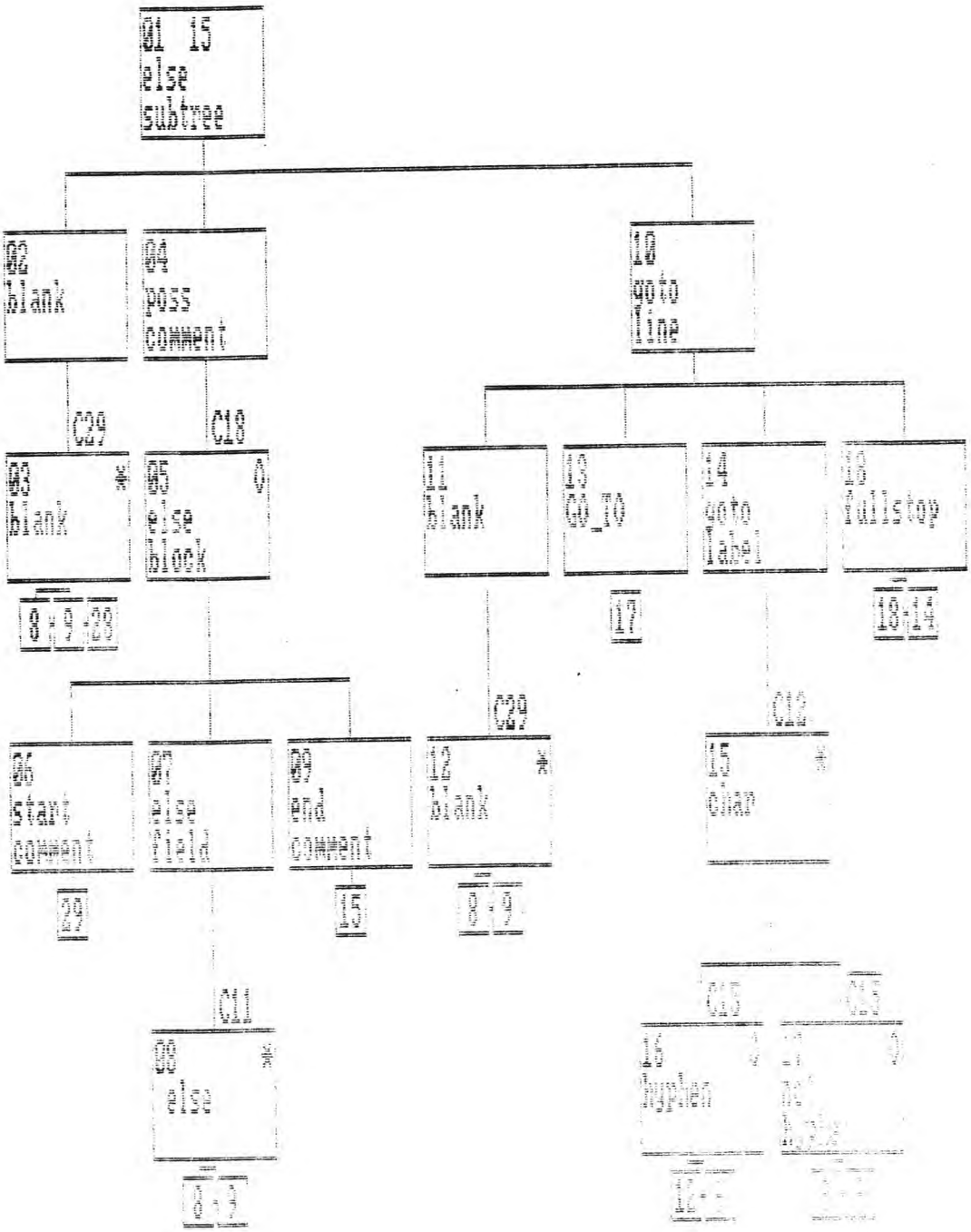

01 12
stoprun
subtree
02
blank
04
stop
run
16
C29
03
blank
8
9

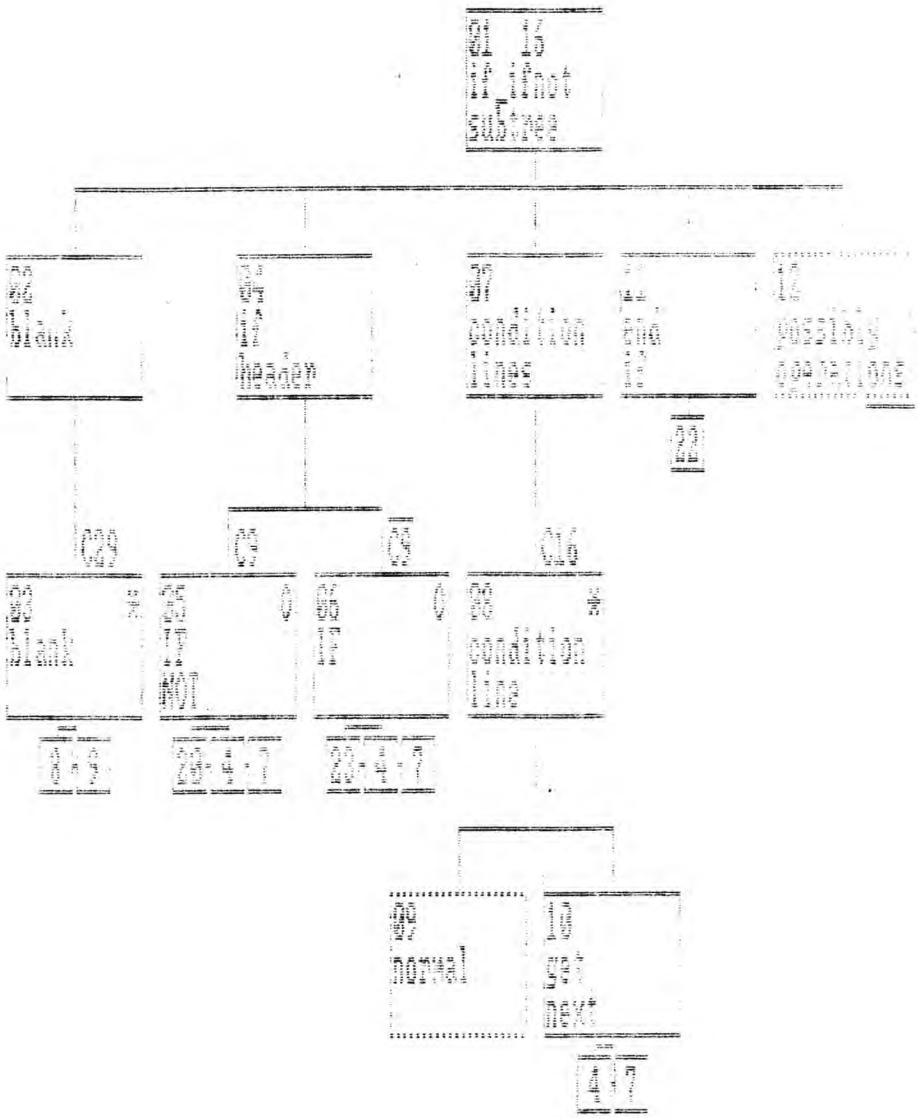

01 13
gotoline
subtree
02
blank
04
GO_TO
05
goto
label
09
fullstop
17
18-14
C29
C12
03 *
blank
06 *
char
8-9
C15
C15
07 0
hyphen
08 0
not
hyphen
12-9
8-9

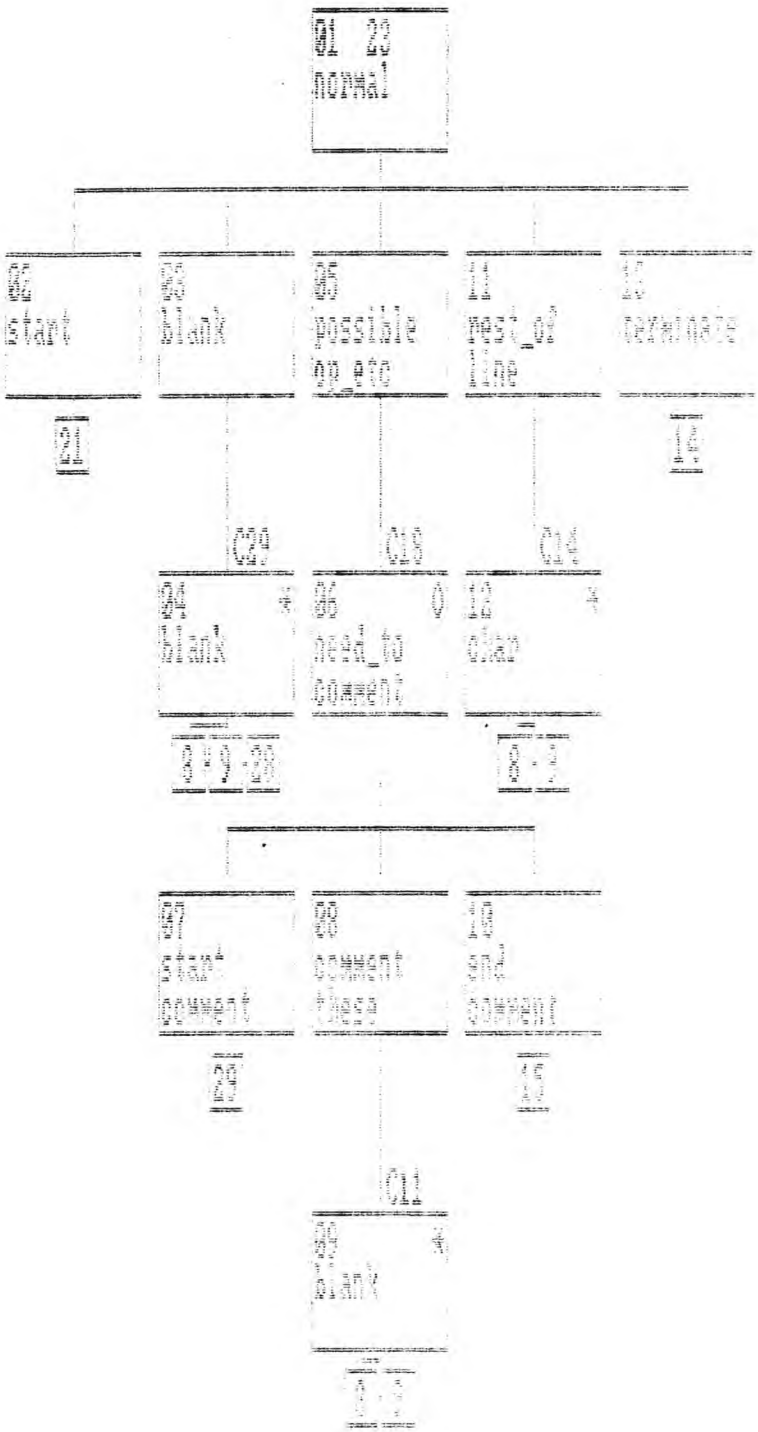

01 14
label
subtree
02
blank
04
start
label_name
21 19
05
label
name
09
fullstop
33 13 14 34
10
poss_sub
subtree
C29
03
blank
8 9
C12
06
char
C15
07
hyphen
12 32 28 9
C15
08
not
hyphen
8 32 28 9

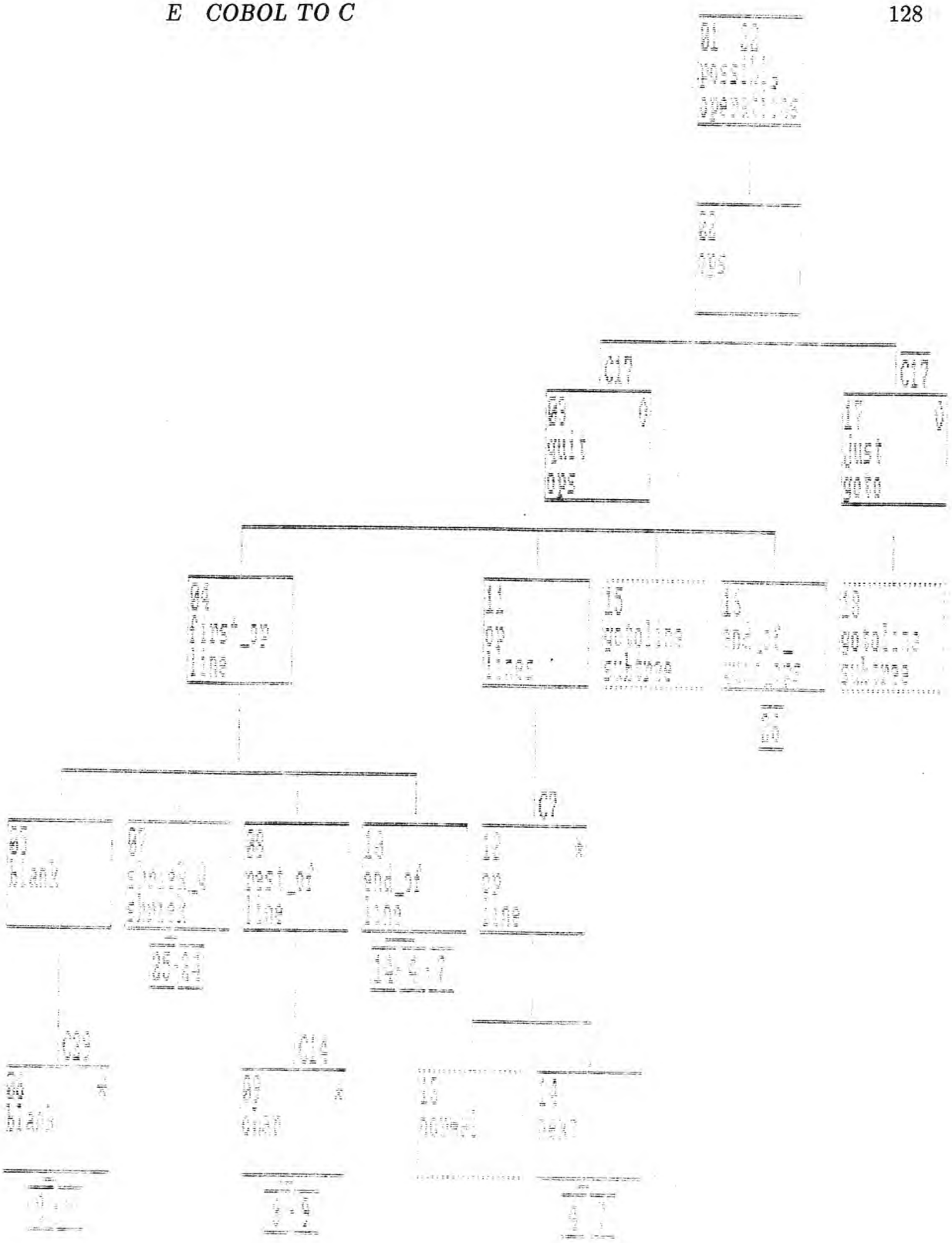

01 28
pass_sub
subtree
02
possible
subtree
c20
03
switch
04
header
11
body
05
start
06
body
10
end
4,534,55
56
c26
07
sub
name
c15
08
hyphen
09
not
hyphen
12,13
8,7

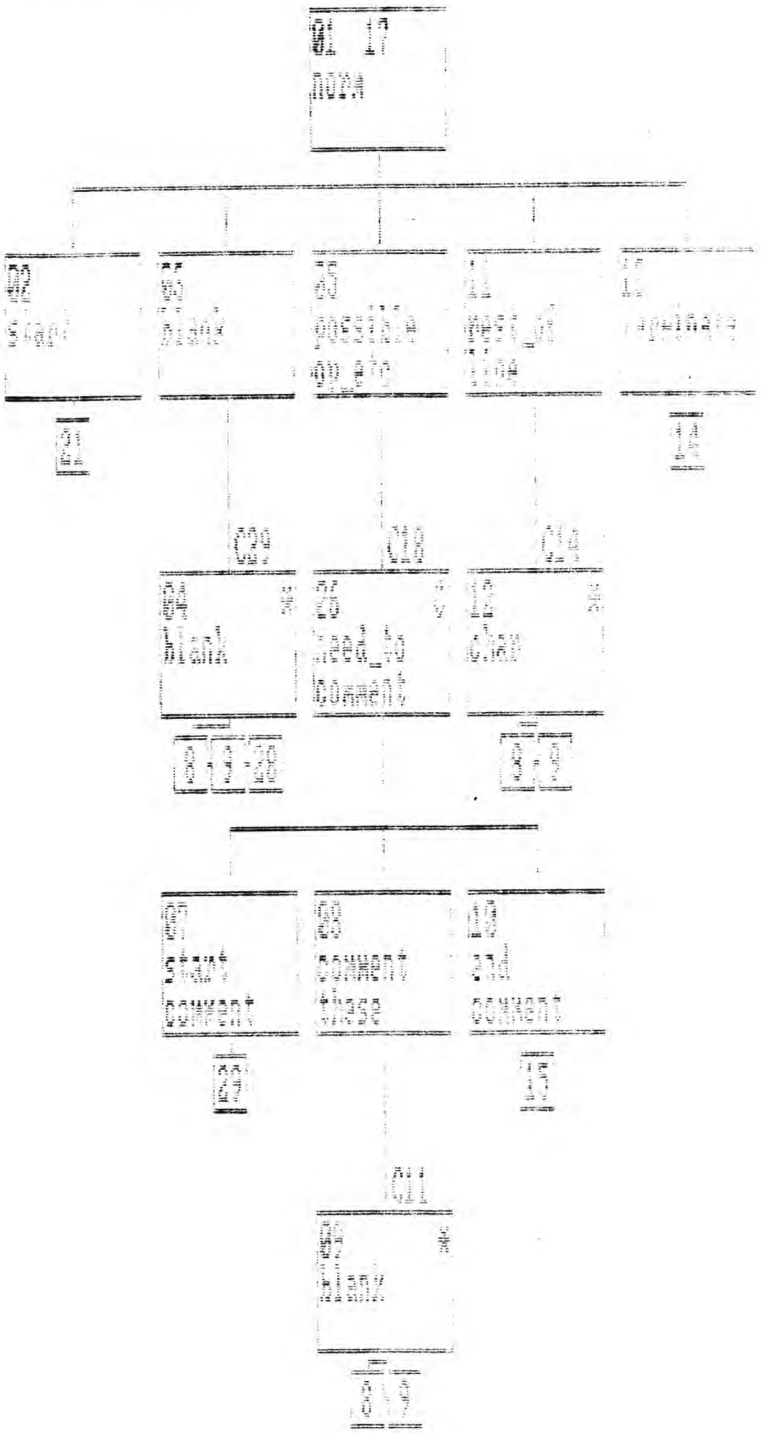

01 21
body
02
body
start
03
body
main
11
body
end
21
57
C28
04 *
case
05
case
start
06
case
body
10
case
end
58-59
60-29
C26
07 *
case
name
C15
C15
08 0
hyphen
09 0
not
hyphen
12 9
8 9


01 15
else
subtree
02
blank
04
poss
comment
10
goto
line
C29
C18
03 *
blank
8 9 28
05 0
else
block
11
blank
13
GO_TO
17
14
goto
label
18
fullstop
18 14
06
start
comment
29
07
else
field
09
end
comment
15
C29
12 *
blank
8 9
C12
15 *
char
C11
08 *
else
8 9
C15
16 0
hyphen
C15
0




01 23
normal
02
start
21
03
blank
05
possible
op_etc
11
rest_of
line
14
C29
04
blank
C18
06
need_to
comment
C14
12
char
07
start
comment
29
08
comment
these
10
end
comment
15
C11
09
blank





E.6.6 Code

```
#include<stdio.h>
#define NO_SUB_TREES 20
#define SUBTREE_OCCURANCES 30
#define NAME_LENGTH 50
#define EXIT_LENGTH 30

typedef struct {
                  char exit[EXIT_LENGTH];
                 }EXIT_LIST;

typedef struct {
                  char sub_name[NAME_LENGTH];
                  EXIT_LIST exits[SUBTREE_OCCURANCES];
                  int main_number;
                 }MAIN_ALTER_LIST;
int total_subs=0;

FILE *infile,*outfile;
MAIN_ALTER_LIST root[NO_SUB_TREES];


static int is_it(char *inrec,char *check){

     char *chk;
     chk=check;

     while(*inrec==' ')
          inrec++;

     while(*chk!='\0' && *chk==*inrec){
          chk++;inrec++;
          }

     if(*chk=='\0')
          return(1);
     else
          return(0);
```

```
     }

static int is_it_blank(char *inrec){

     while(*inrec==' ')
          inrec++;

     if(*inrec=='\n')
          return(1);
     else
          return(0);
     }


static int is_it_if(char *inrec){

     char check[]="IF ";
     char *chk;
     chk=check;

     while(*inrec==' ')
          inrec++;

     while(*chk!='\0' && *chk==*inrec){
          chk++;inrec++;
          }

     if(*chk=='\0' || (*inrec=='\n' && *chk==' '))
          return(1);
     else
          return(0);
     }

static int find_exit(char *name,int sub){
     int loop=0,found=0;

     for(loop=0;loop<root[sub].main_number;loop++)
          {
          if(!strcmp(name,root[sub].exits[loop].exit)){
```

```
                found=loop+1;
                loop=root[sub].main_number;
                }
          }
     return found;
     }

static int find_sub(char *name){
     int loop=0,found=0;

     for(loop=0;loop<total_subs;loop++)
          {
          if(!strcmp(name,root[loop].sub_name)){
                found=loop+1;
                loop=total_subs;
                }
          }
     return found;
     }


void main(int argc, char *argv[]){

     int loop,loop2,sub_num,exit_num;
     char inrec[100],*char_pointer;
     char check_name[NAME_LENGTH],check_exit_name[EXIT_LENGTH];


      /*****************************************************************
      /*****************************************************************
      /******************** DRIVING PROCEDURE    B:\COBTOC ***************
      /*****************************************************************
       PROCEDURE_DIVISION:
      /**/
      /** takes as input a probench generated*/
      /** program. This is written with all*/
      /** operations and conditions, quits etc*/
      /** in C syntax.*/
      /** The .dat is the definition of the C */
```

```
      /** program and should be ended with an*/
      /** EOD!*/
      /**/
       C1_001_COBOL_TO_C:
           goto C1_002_ASSUME_GOOD;
       C1_002_ASSUME_GOOD_EX:
       C1_259_OOPS_EX:
           goto veryend;
      /**/
       C1_002_ASSUME_GOOD:
           goto C1_003_START;
       C1_003_START_EX:
           goto C1_004_FIRSTPASS;
       C1_004_FIRSTPASS_EX:
           goto C1_049_BODY;
       C1_049_BODY_EX:
           goto C1_258_END;
       C1_258_END_EX:
           goto C1_002_ASSUME_GOOD_EX;
      /**/
       C1_003_START:
           if((
  /*Q01*/          (argc!=3)
                /*!Q!printf("USAGE- COBOLTOC Inputfilename Outputfilename\n");*
))
                    goto C1_259_OOPS;
  /*001*/       infile=fopen(*++argv,"r");
           if((
  /*Q02*/          (infile==NULL)
                /*!Q!printf("cannot open %s as input\n",*argv);*/
))
                    goto C1_259_OOPS;
  /*002*/       outfile=fopen(*++argv,"w");
           if((
  /*Q03*/          (outfile==NULL)
                /*!Q!printf("cannot open %s as output\n",*argv);*/
))
                    goto C1_259_OOPS;
  /*004*/       fgets(inrec,100,infile);
```

```
            goto C1_003_START_EX;
        /**/
         C1_004_FIRSTPASS:
            goto C1_005_BEFORE_EOD;
         C1_005_BEFORE_EOD_EX:
            goto C1_009_AFTER_EOD;
         C1_009_AFTER_EOD_EX:
            goto C1_048_END_PASS1;
         C1_048_END_PASS1_EX:
            goto C1_004_FIRSTPASS_EX;
        /**/
         C1_005_BEFORE_EOD:
            goto C1_006_LINES;
         C1_006_LINES_EX:
            goto C1_008_EOD_LINE;
         C1_008_EOD_LINE_EX:
            goto C1_005_BEFORE_EOD_EX;
        /**/
         C1_006_LINES:
         C1_007_LINE_EX:
            if(!(
  /*C01*/          (is_it(inrec,"EOD!"))
))
                    goto C1_007_LINE;
            goto C1_006_LINES_EX;
       /**/
         C1_007_LINE:
  /*004*/       fgets(inrec,100,infile);
            goto C1_007_LINE_EX;
       /**/
         C1_008_EOD_LINE:
  /*004*/       fgets(inrec,100,infile);
            goto C1_008_EOD_LINE_EX;
       /**/
         C1_009_AFTER_EOD:
         C1_010_LINES_EX:
            if(!(
  /*C02*/          (feof(infile))
))
```

```
                goto C1_010_LINES;
            goto C1_009_AFTER_EOD_EX;
        /**/
         C1_010_LINES:
            goto C1_011_LINE_START;
         C1_011_LINE_START_EX:
            goto C1_012_LINE_BODY;
         C1_012_LINE_BODY_EX:
            goto C1_047_LINE_END;
         C1_047_LINE_END_EX:
            goto C1_010_LINES_EX;
        /**/
         C1_011_LINE_START:
  /*007*/      char_pointer=inrec;
            goto C1_011_LINE_START_EX;
        /**/
         C1_012_LINE_BODY:
            if((
  /*C19*/         (is_it(inrec,"ALTER "))
))
                goto C1_013_ALTER_LINE;
         C1_013_ALTER_LINE_EX:
            goto C1_012_LINE_BODY_EX;
        /**/
         C1_013_ALTER_LINE:
            goto C1_014_BLANK_SPACES;
         C1_014_BLANK_SPACES_EX:
            goto C1_016_SKIP_ALTER;
         C1_016_SKIP_ALTER_EX:
            goto C1_018_READ_SUB_NAME;
         C1_018_READ_SUB_NAME_EX:
            goto C1_023_PROCESS_NAME;
         C1_023_PROCESS_NAME_EX:
            goto C1_034_READ_EXIT_NAME;
         C1_034_READ_EXIT_NAME_EX:
            goto C1_042_PROCESS_EXIT_NAME;
         C1_042_PROCESS_EXIT_NAME_EX:
            goto C1_013_ALTER_LINE_EX;
        /**/
```

```
       C1_014_BLANK_SPACES:
       C1_015_BLANK_EX:
           if(!(
  /*C29*/          (*char_pointer!=' ')
))
                   goto C1_015_BLANK;
           goto C1_014_BLANK_SPACES_EX;
      /**/
       C1_015_BLANK:
  /*009*/       char_pointer++;
           goto C1_015_BLANK_EX;
      /**/
       C1_016_SKIP_ALTER:
       C1_017_ALTER_CHAR_EX:
           if(!(
  /*C11*/          (*char_pointer==' ')
))
                   goto C1_017_ALTER_CHAR;
           goto C1_016_SKIP_ALTER_EX;
      /**/
       C1_017_ALTER_CHAR:
  /*009*/       char_pointer++;
           goto C1_017_ALTER_CHAR_EX;
      /**/
       C1_018_READ_SUB_NAME:
           goto C1_019_START;
       C1_019_START_EX:
           goto C1_020_BODY;
       C1_020_BODY_EX:
           goto C1_022_END;
       C1_022_END_EX:
           goto C1_018_READ_SUB_NAME_EX;
      /**/
       C1_019_START:
  /*009*/       char_pointer++;
  /*021*/       loop=0;
           goto C1_019_START_EX;
      /**/
       C1_020_BODY:
```

```
       C1_021_NAME_CHAR_EX:
           if(!(
  /*C11*/          (*char_pointer==' ')
))
                   goto C1_021_NAME_CHAR;
           goto C1_020_BODY_EX;
      /**/
       C1_021_NAME_CHAR:
  /*032*/       check_name[loop]=*char_pointer;
  /*028*/       loop++;
  /*009*/       char_pointer++;
           goto C1_021_NAME_CHAR_EX;
      /**/
       C1_022_END:
  /*033*/       check_name[loop]='\0';
           goto C1_022_END_EX;
      /**/
       C1_023_PROCESS_NAME:
           goto C1_024_START;
       C1_024_START_EX:
           goto C1_025_POSSIBLY_NEW_NAME;
       C1_025_POSSIBLY_NEW_NAME_EX:
           goto C1_033_NAME_END;
       C1_033_NAME_END_EX:
           goto C1_023_PROCESS_NAME_EX;
      /**/
       C1_024_START:
  /*034*/       sub_num=find_sub(check_name);
           goto C1_024_START_EX;
      /**/
       C1_025_POSSIBLY_NEW_NAME:
           if((
  /*C20*/          (sub_num==0)
))
                   goto C1_026_NEW_NAME;
 /*ELSE*/       goto C1_031_OLD_NAME;
       C1_026_NEW_NAME_EX:
       C1_031_OLD_NAME_EX:
           goto C1_025_POSSIBLY_NEW_NAME_EX;
```

```
      /**/
       C1_026_NEW_NAME:
           goto C1_027_START;
       C1_027_START_EX:
           goto C1_028_BODY;
       C1_028_BODY_EX:
           goto C1_030_END;
       C1_030_END_EX:
           goto C1_026_NEW_NAME_EX;
      /**/
       C1_027_START:
 /*021*/      loop=0;
           goto C1_027_START_EX;
      /**/
       C1_028_BODY:
       C1_029_NAME_CHAR_EX:
           if(!(
 /*C21*/         (check_name[loop]=='\0')
))
                goto C1_029_NAME_CHAR;
           goto C1_028_BODY_EX;
      /**/
       C1_029_NAME_CHAR:
 /*035*/      root[total_subs].sub_name[loop]=check_name[loop];
 /*028*/      loop++;
 /*009*/      char_pointer++;
          goto C1_029_NAME_CHAR_EX;
      /**/
       C1_030_END:
 /*036*/      root[total_subs].sub_name[loop]='\0';
 /*037*/      sub_num=total_subs;
 /*038*/      total_subs++;
          goto C1_030_END_EX;
      /**/
       C1_031_OLD_NAME:
           goto C1_032_PSUEDO_RETRIEVE;
       C1_032_PSUEDO_RETRIEVE_EX:
           goto C1_031_OLD_NAME_EX;
      /**/
```

```
      C1_032_PSUEDO_RETRIEVE:
 /*039*/      sub_num--;
          goto C1_032_PSUEDO_RETRIEVE_EX;
     /**/
      C1_033_NAME_END:
 /*004*/      fgets(inrec,100,infile);
 /*007*/      char_pointer=inrec;
          goto C1_033_NAME_END_EX;
     /**/
      C1_034_READ_EXIT_NAME:
          goto C1_035_BLANK;
      C1_035_BLANK_EX:
          goto C1_037_EXIT_NAME;
      C1_037_EXIT_NAME_EX:
          goto C1_034_READ_EXIT_NAME_EX;
     /**/
      C1_035_BLANK:
      C1_036_BLANK_EX:
          if(!(
 /*C29*/         (*char_pointer!=' ')
))
                goto C1_036_BLANK;
          goto C1_035_BLANK_EX;
     /**/
      C1_036_BLANK:
 /*009*/      char_pointer++;
          goto C1_036_BLANK_EX;
     /**/
      C1_037_EXIT_NAME:
          goto C1_038_START;
      C1_038_START_EX:
          goto C1_039_BODY;
      C1_039_BODY_EX:
          goto C1_041_END;
      C1_041_END_EX:
          goto C1_037_EXIT_NAME_EX;
     /**/
      C1_038_START:
 /*021*/      loop=0;
```

```
            goto C1_038_START_EX;
        /**/
         C1_039_BODY:
         C1_040_EXIT_NAME_CHAR_EX:
            if(!(
  /*C12*/          (*char_pointer=='.')
))
                    goto C1_040_EXIT_NAME_CHAR;
            goto C1_039_BODY_EX;
        /**/
         C1_040_EXIT_NAME_CHAR:
  /*040*/        check_exit_name[loop]=*char_pointer;
  /*028*/        loop++;
  /*009*/        char_pointer++;
            goto C1_040_EXIT_NAME_CHAR_EX;
        /**/
         C1_041_END:
  /*041*/        check_exit_name[loop]='\0';
            goto C1_041_END_EX;
        /**/
         C1_042_PROCESS_EXIT_NAME:
            goto C1_043_START;
         C1_043_START_EX:
            goto C1_044_BODY;
         C1_044_BODY_EX:
            goto C1_046_END;
         C1_046_END_EX:
            goto C1_042_PROCESS_EXIT_NAME_EX;
        /**/
         C1_043_START:
  /*021*/        loop=0;
            goto C1_043_START_EX;
        /**/
         C1_044_BODY:
         C1_045_NAME_CHAR_EX:
            if(!(
  /*C22*/          (check_exit_name[loop]=='\0')
))
                    goto C1_045_NAME_CHAR;
```

```
            goto C1_044_BODY_EX;
        /**/
         C1_045_NAME_CHAR:
  /*042*/      root[sub_num].exits[root[sub_num].main_number].exit[loop]=
                                                    check_exit_name[loop];
  /*028*/      loop++;
            goto C1_045_NAME_CHAR_EX;
        /**/
         C1_046_END:
  /*043*/      root[sub_num].exits[root[sub_num].main_number].exit[loop]='\0';
  /*044*/      root[sub_num].main_number++;
            goto C1_046_END_EX;
        /**/
         C1_047_LINE_END:
  /*004*/      fgets(inrec,100,infile);
            goto C1_047_LINE_END_EX;
        /**/
         C1_048_END_PASS1:
  /*027*/      fclose(infile);
  /*031*/      infile=fopen(*--argv,"r");
            if((
  /*Q02*/         (infile==NULL)
               /*!Q!printf("cannot open %s as input\n",*argv);*/
))
                  goto C1_259_OOPS;
  /*004*/      fgets(inrec,100,infile);
            goto C1_048_END_PASS1_EX;
        /**/
         C1_049_BODY:
            goto C1_050_BEFORE_EOD;
         C1_050_BEFORE_EOD_EX:
            goto C1_066_LINES;
         C1_066_LINES_EX:
            goto C1_049_BODY_EX;
        /**/
         C1_050_BEFORE_EOD:
            goto C1_051_LINES;
         C1_051_LINES_EX:
            goto C1_053_EOD_LINE;
```

```
        C1_053_EOD_LINE_EX:
            goto C1_054_ALTER_VARIABLES;
        C1_054_ALTER_VARIABLES_EX:
            goto C1_050_BEFORE_EOD_EX;
       /**/
        C1_051_LINES:
        C1_052_LINE_EX:
            if(!(
  /*C01*/          (is_it(inrec,"EOD!"))
))
                    goto C1_052_LINE;
            goto C1_051_LINES_EX;
       /**/
        C1_052_LINE:
  /*005*/       fputs(inrec,outfile);
  /*004*/       fgets(inrec,100,infile);
            goto C1_052_LINE_EX;
       /**/
        C1_053_EOD_LINE:
  /*004*/       fgets(inrec,100,infile);
            goto C1_053_EOD_LINE_EX;
       /**/
        C1_054_ALTER_VARIABLES:
            goto C1_055_START;
        C1_055_START_EX:
            goto C1_056_INTEGER_NAMES;
        C1_056_INTEGER_NAMES_EX:
            goto C1_054_ALTER_VARIABLES_EX;
       /**/
        C1_055_START:
  /*021*/       loop=0;
            goto C1_055_START_EX;
       /**/
        C1_056_INTEGER_NAMES:
        C1_057_NAME_EX:
            if(!(
  /*C23*/          (loop == total_subs)
))
                    goto C1_057_NAME;
```

```
            goto C1_056_INTEGER_NAMES_EX;
        /**/
         C1_057_NAME:
            goto C1_058_HEADER;
         C1_058_HEADER_EX:
            goto C1_059_MAIN_BODY;
         C1_059_MAIN_BODY_EX:
            goto C1_065_TRAILER;
         C1_065_TRAILER_EX:
            goto C1_057_NAME_EX;
        /**/
         C1_058_HEADER:
  /*045*/      loop2=0;
  /*048*/      fprintf(outfile,"                int g");
            goto C1_058_HEADER_EX;
        /**/
         C1_059_MAIN_BODY:
         C1_060_NAME_CHAR_EX:
            if(!(
  /*C24*/         (root[loop].sub_name[loop2]=='\0')
))
                  goto C1_060_NAME_CHAR;
            goto C1_059_MAIN_BODY_EX;
        /**/
         C1_060_NAME_CHAR:
            goto C1_061_POSSIBLE_HYPHEN;
         C1_061_POSSIBLE_HYPHEN_EX:
            goto C1_064_END;
         C1_064_END_EX:
            goto C1_060_NAME_CHAR_EX;
        /**/
         C1_061_POSSIBLE_HYPHEN:
            if((
  /*C25*/         (root[loop].sub_name[loop2]=='-')
))
                  goto C1_062_HYPHEN;
 /*ELSE*/      goto C1_063_NOT_HYPHEN;
         C1_062_HYPHEN_EX:
         C1_063_NOT_HYPHEN_EX:
```

```
            goto C1_061_POSSIBLE_HYPHEN_EX;
        /**/
         C1_062_HYPHEN:
  /*012*/      putc('_',outfile);
            goto C1_062_HYPHEN_EX;
        /**/
         C1_063_NOT_HYPHEN:
  /*047*/      putc(root[loop].sub_name[loop2],outfile);
            goto C1_063_NOT_HYPHEN_EX;
        /**/
         C1_064_END:
  /*046*/      loop2++;
            goto C1_064_END_EX;
        /**/
         C1_065_TRAILER:
  /*049*/      fprintf(outfile,";\n");
  /*028*/      loop++;
            goto C1_065_TRAILER_EX;
        /**/
         C1_066_LINES:
         C1_067_LINE_EX:
            if(!(
  /*C02*/         (feof(infile))
))
                  goto C1_067_LINE;
            goto C1_066_LINES_EX;
        /**/
         C1_067_LINE:
            goto C1_068_LINE_START;
         C1_068_LINE_START_EX:
            goto C1_069_LINEBODY;
         C1_069_LINEBODY_EX:
            goto C1_257_LINE_END;
         C1_257_LINE_END_EX:
            goto C1_067_LINE_EX;
        /**/
         C1_068_LINE_START:
 /*007*/      char_pointer=inrec;
           goto C1_068_LINE_START_EX;
```

```
      /**/
       C1_069_LINEBODY:
           if((
  /*C03*/          (is_it_blank(inrec))
))
                    goto C1_070_BLANK_LINE;
           if((
  /*C19*/          (is_it(inrec,"ALTER "))
))
                    goto C1_071_ALTER_BLOCK;
           if((
  /*C04*/          (is_it(inrec,"PROCEDURE "))
))
                    goto C1_096_PROCEDURE_DIVISION;
           if((
  /*C05*/          (inrec[6]=='*')
))
                    goto C1_105_COMMENT_LINE;
           if((
  /*C06*/          (is_it(inrec,"STOP RUN"))
))
                    goto C1_112_STOP_RUN_LINE;
           if((
  /*C07*/          (is_it(inrec,"GO TO"))
))
                    goto C1_116_GOTOLINE;
           if((
  /*C08*/          (inrec[7]!=' ')
))
                    goto C1_125_LABEL_LINE;
           if((
  /*C27*/          (is_it(inrec,"ELSE "))
))
                    goto C1_155_ELSE_LINE;
           if((
  /*C10*/          (is_it_if(inrec))
))
                    goto C1_174_IF_OR_IF_NOT_LINE;
           if(!(
```

```
  /*C03*/          (is_it_blank(inrec))
))
                    goto C1_243_NORMAL_LINE;
       C1_070_BLANK_LINE_EX:
       C1_071_ALTER_BLOCK_EX:
       C1_096_PROCEDURE_DIVISION_EX:
       C1_105_COMMENT_LINE_EX:
       C1_112_STOP_RUN_LINE_EX:
       C1_116_GOTOLINE_EX:
       C1_125_LABEL_LINE_EX:
       C1_155_ELSE_LINE_EX:
       C1_174_IF_OR_IF_NOT_LINE_EX:
       C1_243_NORMAL_LINE_EX:
           goto C1_069_LINEBODY_EX;
      /**/
       C1_070_BLANK_LINE:
  /*011*/      /* skip it */;
           goto C1_070_BLANK_LINE_EX;
      /**/
       C1_071_ALTER_BLOCK:
           goto C1_072_BLANK;
       C1_072_BLANK_EX:
           goto C1_074_SKIP_ALTER;
       C1_074_SKIP_ALTER_EX:
           goto C1_076_READ_SUB_NAME;
       C1_076_READ_SUB_NAME_EX:
           goto C1_081_READ_EXIT_NAME;
       C1_081_READ_EXIT_NAME_EX:
           goto C1_089_PROCESS_EXIT_NAME;
       C1_089_PROCESS_EXIT_NAME_EX:
           goto C1_071_ALTER_BLOCK_EX;
      /**/
       C1_072_BLANK:
       C1_073_BLANK_EX:
           if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_073_BLANK;
           goto C1_072_BLANK_EX;
```

```
      /**/
       C1_073_BLANK:
  /*009*/      char_pointer++;
           goto C1_073_BLANK_EX;
      /**/
       C1_074_SKIP_ALTER:
       C1_075_ALTER_CHAR_EX:
           if(!(
  /*C11*/         (*char_pointer==' ')
))
                   goto C1_075_ALTER_CHAR;
           goto C1_074_SKIP_ALTER_EX;
      /**/
       C1_075_ALTER_CHAR:
  /*009*/      char_pointer++;
           goto C1_075_ALTER_CHAR_EX;
      /**/
       C1_076_READ_SUB_NAME:
           goto C1_077_START;
       C1_077_START_EX:
           goto C1_078_BODY;
       C1_078_BODY_EX:
           goto C1_080_END;
       C1_080_END_EX:
           goto C1_076_READ_SUB_NAME_EX;
      /**/
       C1_077_START:
  /*009*/      char_pointer++;
  /*021*/      loop=0;
           goto C1_077_START_EX;
      /**/
       C1_078_BODY:
       C1_079_NAME_CHAR_EX:
           if(!(
  /*C11*/         (*char_pointer==' ')
))
                   goto C1_079_NAME_CHAR;
           goto C1_078_BODY_EX;
      /**/
```

```
      C1_079_NAME_CHAR:
 /*032*/       check_name[loop]=*char_pointer;
 /*028*/       loop++;
 /*009*/       char_pointer++;
           goto C1_079_NAME_CHAR_EX;
     /**/
      C1_080_END:
 /*033*/       check_name[loop]='\0';
 /*034*/       sub_num=find_sub(check_name);
 /*004*/       fgets(inrec,100,infile);
 /*007*/       char_pointer=inrec;
           goto C1_080_END_EX;
     /**/
      C1_081_READ_EXIT_NAME:
          goto C1_082_BLANK;
      C1_082_BLANK_EX:
          goto C1_084_EXIT_NAME;
      C1_084_EXIT_NAME_EX:
          goto C1_081_READ_EXIT_NAME_EX;
     /**/
      C1_082_BLANK:
      C1_083_BLANK_EX:
          if(!(
 /*C29*/          (*char_pointer!=' ')
))
                   goto C1_083_BLANK;
          goto C1_082_BLANK_EX;
     /**/
      C1_083_BLANK:
 /*009*/       char_pointer++;
          goto C1_083_BLANK_EX;
     /**/
      C1_084_EXIT_NAME:
          goto C1_085_START;
      C1_085_START_EX:
          goto C1_086_BODY;
      C1_086_BODY_EX:
          goto C1_088_END;
      C1_088_END_EX:
```

```
            goto C1_084_EXIT_NAME_EX;
        /**/
         C1_085_START:
 /*021*/      loop=0;
            goto C1_085_START_EX;
        /**/
         C1_086_BODY:
         C1_087_EXIT_NAME_CHAR_EX:
            if(!(
 /*C12*/          (*char_pointer=='.')
))
                    goto C1_087_EXIT_NAME_CHAR;
            goto C1_086_BODY_EX;
        /**/
         C1_087_EXIT_NAME_CHAR:
 /*040*/      check_exit_name[loop]=*char_pointer;
 /*028*/      loop++;
 /*009*/      char_pointer++;
            goto C1_087_EXIT_NAME_CHAR_EX;
        /**/
         C1_088_END:
 /*041*/      check_exit_name[loop]='\0';
            goto C1_088_END_EX;
        /**/
         C1_089_PROCESS_EXIT_NAME:
            goto C1_090_START;
         C1_090_START_EX:
            goto C1_091_BODY;
         C1_091_BODY_EX:
            goto C1_095_END;
         C1_095_END_EX:
            goto C1_089_PROCESS_EXIT_NAME_EX;
        /**/
         C1_090_START:
 /*062*/      fprintf(outfile,"                g");
 /*050*/      char_pointer=check_name;
            goto C1_090_START_EX;
        /**/
         C1_091_BODY:
```

```
      C1_092_CHAR_EX:
          if(!(
 /*C26*/          (*char_pointer=='\0')
))
                   goto C1_092_CHAR;
          goto C1_091_BODY_EX;
     /**/
      C1_092_CHAR:
          if((
 /*C15*/          (*char_pointer=='-')
))
                   goto C1_093_HYPHEN;
          if(!(
 /*C15*/          (*char_pointer=='-')
))
                   goto C1_094_NOT_HYPHEN;
      C1_093_HYPHEN_EX:
      C1_094_NOT_HYPHEN_EX:
          goto C1_092_CHAR_EX;
     /**/
      C1_093_HYPHEN:
 /*012*/       putc('_',outfile);
 /*009*/       char_pointer++;
          goto C1_093_HYPHEN_EX;
     /**/
      C1_094_NOT_HYPHEN:
 /*008*/       putc(*char_pointer,outfile);
 /*009*/       char_pointer++;
          goto C1_094_NOT_HYPHEN_EX;
     /**/
      C1_095_END:
 /*051*/       putc('=',outfile);
 /*052*/       exit_num=find_exit(check_exit_name,sub_num-1);
 /*053*/       fprintf(outfile,"%d;\n",exit_num-1);
          goto C1_095_END_EX;
     /**/
      C1_096_PROCEDURE_DIVISION:
          goto C1_097_BLANK;
      C1_097_BLANK_EX:
```

```
            goto C1_099_PROCEDURE;
        C1_099_PROCEDURE_EX:
            goto C1_101_SPACE;
        C1_101_SPACE_EX:
            goto C1_102_DIVISION;
        C1_102_DIVISION_EX:
            goto C1_104_FULLSTOP;
        C1_104_FULLSTOP_EX:
            goto C1_096_PROCEDURE_DIVISION_EX;
       /**/
        C1_097_BLANK:
        C1_098_BLANK_EX:
            if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_098_BLANK;
            goto C1_097_BLANK_EX;
       /**/
        C1_098_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_098_BLANK_EX;
       /**/
        C1_099_PROCEDURE:
        C1_100_PROCEDURE_CHAR_EX:
            if(!(
  /*C11*/          (*char_pointer==' ')
))
                    goto C1_100_PROCEDURE_CHAR;
            goto C1_099_PROCEDURE_EX;
       /**/
        C1_100_PROCEDURE_CHAR:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_100_PROCEDURE_CHAR_EX;
       /**/
        C1_101_SPACE:
  /*012*/       putc('_',outfile);
  /*009*/       char_pointer++;
```

```
            goto C1_101_SPACE_EX;
        /**/
         C1_102_DIVISION:
         C1_103_DIVISION_CHAR_EX:
            if(!(
  /*C12*/          (*char_pointer=='.')
))
                    goto C1_103_DIVISION_CHAR;
            goto C1_102_DIVISION_EX;
        /**/
         C1_103_DIVISION_CHAR:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_103_DIVISION_CHAR_EX;
        /**/
         C1_104_FULLSTOP:
  /*013*/       putc(':',outfile);
  /*014*/       putc('\n',outfile);
            goto C1_104_FULLSTOP_EX;
        /**/
         C1_105_COMMENT_LINE:
            goto C1_106_BLANK;
         C1_106_BLANK_EX:
            goto C1_108_START_COMMENT;
         C1_108_START_COMMENT_EX:
            goto C1_109_COMMENT_TEXT;
         C1_109_COMMENT_TEXT_EX:
            goto C1_111_END_COMMENT;
         C1_111_END_COMMENT_EX:
            goto C1_105_COMMENT_LINE_EX;
        /**/
         C1_106_BLANK:
         C1_107_BLANK_EX:
            if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_107_BLANK;
            goto C1_106_BLANK_EX;
        /**/
```

```
      C1_107_BLANK:
 /*008*/      putc(*char_pointer,outfile);
 /*009*/      char_pointer++;
          goto C1_107_BLANK_EX;
     /**/
      C1_108_START_COMMENT:
 /*010*/      putc('/',outfile);
 /*008*/      putc(*char_pointer,outfile);
 /*009*/      char_pointer++;
          goto C1_108_START_COMMENT_EX;
     /**/
      C1_109_COMMENT_TEXT:
      C1_110_COMMENT_CHAR_EX:
          if(!(
 /*C14*/          (*char_pointer=='\n')
))
                goto C1_110_COMMENT_CHAR;
          goto C1_109_COMMENT_TEXT_EX;
     /**/
      C1_110_COMMENT_CHAR:
 /*008*/      putc(*char_pointer,outfile);
 /*009*/      char_pointer++;
          goto C1_110_COMMENT_CHAR_EX;
     /**/
      C1_111_END_COMMENT:
 /*015*/      putc('*',outfile); putc('/',outfile);
 /*008*/      putc(*char_pointer,outfile);
          goto C1_111_END_COMMENT_EX;
     /**/
      C1_112_STOP_RUN_LINE:
          goto C1_113_BLANK;
      C1_113_BLANK_EX:
          goto C1_115_STOP_RUN;
      C1_115_STOP_RUN_EX:
          goto C1_112_STOP_RUN_LINE_EX;
     /**/
      C1_113_BLANK:
      C1_114_BLANK_EX:
          if(!(
```

```
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_114_BLANK;
              goto C1_113_BLANK_EX;
       /**/
        C1_114_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
              goto C1_114_BLANK_EX;
       /**/
        C1_115_STOP_RUN:
  /*016*/       fprintf(outfile,"goto veryend;\n");
              goto C1_115_STOP_RUN_EX;
       /**/
        C1_116_GOTOLINE:
            goto C1_117_BLANK;
        C1_117_BLANK_EX:
            goto C1_119_GO_TO;
        C1_119_GO_TO_EX:
            goto C1_120_GOTO_LABEL;
        C1_120_GOTO_LABEL_EX:
            goto C1_124_FULLSTOP;
        C1_124_FULLSTOP_EX:
            goto C1_116_GOTOLINE_EX;
       /**/
        C1_117_BLANK:
        C1_118_BLANK_EX:
            if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_118_BLANK;
              goto C1_117_BLANK_EX;
       /**/
        C1_118_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
              goto C1_118_BLANK_EX;
       /**/
        C1_119_GO_TO:
```

```
  /*017*/      fprintf(outfile,"goto C");
           char_pointer+=6;
           goto C1_119_GO_TO_EX;
       /**/
        C1_120_GOTO_LABEL:
        C1_121_CHAR_EX:
           if(!(
  /*C12*/          (*char_pointer=='.')
))
                   goto C1_121_CHAR;
           goto C1_120_GOTO_LABEL_EX;
       /**/
        C1_121_CHAR:
           if((
  /*C15*/          (*char_pointer=='-')
))
                   goto C1_122_HYPHEN;
 /*ELSE*/       goto C1_123_NOT_HYPHEN;
        C1_122_HYPHEN_EX:
        C1_123_NOT_HYPHEN_EX:
           goto C1_121_CHAR_EX;
       /**/
        C1_122_HYPHEN:
  /*012*/       putc('_',outfile);
  /*009*/       char_pointer++;
           goto C1_122_HYPHEN_EX;
       /**/
        C1_123_NOT_HYPHEN:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
           goto C1_123_NOT_HYPHEN_EX;
       /**/
        C1_124_FULLSTOP:
  /*018*/       putc(';',outfile);
  /*014*/       putc('\n',outfile);
           goto C1_124_FULLSTOP_EX;
       /**/
        C1_125_LABEL_LINE:
           goto C1_126_LABEL_SUBTREE;
```

```
        C1_126_LABEL_SUBTREE_EX:
            goto C1_125_LABEL_LINE_EX;
       /**/
        C1_126_LABEL_SUBTREE:
            goto C1_127_BLANK;
        C1_127_BLANK_EX:
            goto C1_129_START_LABEL_NAME;
        C1_129_START_LABEL_NAME_EX:
            goto C1_130_LABEL_NAME;
        C1_130_LABEL_NAME_EX:
            goto C1_134_FULLSTOP;
        C1_134_FULLSTOP_EX:
            goto C1_135_POSSIBLE_SUBTREE;
        C1_135_POSSIBLE_SUBTREE_EX:
            goto C1_126_LABEL_SUBTREE_EX;
       /**/
        C1_127_BLANK:
        C1_128_BLANK_EX:
            if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_128_BLANK;
            goto C1_127_BLANK_EX;
       /**/
        C1_128_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_128_BLANK_EX;
       /**/
        C1_129_START_LABEL_NAME:
  /*021*/       loop=0;
  /*019*/       putc('C',outfile);
            goto C1_129_START_LABEL_NAME_EX;
       /**/
        C1_130_LABEL_NAME:
        C1_131_CHAR_EX:
            if(!(
  /*C12*/          (*char_pointer=='.')
))
```

```
                goto C1_131_CHAR;
            goto C1_130_LABEL_NAME_EX;
        /**/
         C1_131_CHAR:
            if((
  /*C15*/          (*char_pointer=='-')
))
                goto C1_132_HYPHEN;
            if(!(
  /*C15*/          (*char_pointer=='-')
))
                goto C1_133_NOT_HYPHEN;
         C1_132_HYPHEN_EX:
         C1_133_NOT_HYPHEN_EX:
            goto C1_131_CHAR_EX;
        /**/
         C1_132_HYPHEN:
  /*012*/       putc('_',outfile);
  /*032*/       check_name[loop]=*char_pointer;
  /*028*/       loop++;
  /*009*/       char_pointer++;
            goto C1_132_HYPHEN_EX;
       /**/
         C1_133_NOT_HYPHEN:
  /*008*/       putc(*char_pointer,outfile);
  /*032*/       check_name[loop]=*char_pointer;
  /*028*/       loop++;
  /*009*/       char_pointer++;
            goto C1_133_NOT_HYPHEN_EX;
       /**/
         C1_134_FULLSTOP:
  /*033*/       check_name[loop]='\0';
  /*013*/       putc(':',outfile);
  /*014*/       putc('\n',outfile);
  /*034*/       sub_num=find_sub(check_name);
            goto C1_134_FULLSTOP_EX;
       /**/
         C1_135_POSSIBLE_SUBTREE:
            if(!(
```

```
  /*C20*/          (sub_num==0)
))
                    goto C1_136_SWITCH;
        C1_136_SWITCH_EX:
            goto C1_135_POSSIBLE_SUBTREE_EX;
       /**/
        C1_136_SWITCH:
            goto C1_137_HEADER;
        C1_137_HEADER_EX:
            goto C1_144_BODY;
        C1_144_BODY_EX:
            goto C1_136_SWITCH_EX;
       /**/
        C1_137_HEADER:
            goto C1_138_START;
        C1_138_START_EX:
            goto C1_139_BODY;
        C1_139_BODY_EX:
            goto C1_143_END;
        C1_143_END_EX:
            goto C1_137_HEADER_EX;
       /**/
        C1_138_START:
  /*004*/       fgets(inrec,100,infile);
  /*054*/       fprintf(outfile,"                    switch(g");
  /*055*/       char_pointer=root[sub_num-1].sub_name;
            goto C1_138_START_EX;
       /**/
        C1_139_BODY:
        C1_140_SUB_NAME_EX:
            if(!(
  /*C26*/          (*char_pointer=='\0')
))
                    goto C1_140_SUB_NAME;
            goto C1_139_BODY_EX;
       /**/
        C1_140_SUB_NAME:
            if((
  /*C15*/          (*char_pointer=='-')
```

```
))
                    goto C1_141_;
 /*ELSE*/       goto C1_142_NOT_HYPHEN;
       C1_141__EX:
       C1_142_NOT_HYPHEN_EX:
           goto C1_140_SUB_NAME_EX;
      /**/
       C1_141_:
  /*012*/       putc('_',outfile);
  /*009*/       char_pointer++;
            goto C1_141__EX;
      /**/
       C1_142_NOT_HYPHEN:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_142_NOT_HYPHEN_EX;
      /**/
       C1_143_END:
  /*056*/       fprintf(outfile,"){\n");
            goto C1_143_END_EX;
      /**/
       C1_144_BODY:
           goto C1_145_BODY_START;
       C1_145_BODY_START_EX:
           goto C1_146_BODY_MAIN;
       C1_146_BODY_MAIN_EX:
           goto C1_154_BODY_END;
       C1_154_BODY_END_EX:
           goto C1_144_BODY_EX;
      /**/
       C1_145_BODY_START:
  /*021*/       loop=0;
            goto C1_145_BODY_START_EX;
      /**/
       C1_146_BODY_MAIN:
       C1_147_CASE_EX:
           if(!(
  /*C28*/          (loop==root[sub_num-1].main_number)
))
```

```
                goto C1_147_CASE;
            goto C1_146_BODY_MAIN_EX;
        /**/
         C1_147_CASE:
            goto C1_148_CASE_START;
         C1_148_CASE_START_EX:
            goto C1_149_CASE_BODY;
         C1_149_CASE_BODY_EX:
            goto C1_153_CASE_END;
         C1_153_CASE_END_EX:
            goto C1_147_CASE_EX;
        /**/
         C1_148_CASE_START:
  /*058*/      fprintf(outfile,"                case %d : goto C",loop);
  /*059*/      char_pointer=root[sub_num-1].exits[loop].exit;
            goto C1_148_CASE_START_EX;
        /**/
         C1_149_CASE_BODY:
         C1_150_CASE_NAME_EX:
            if(!(
  /*C26*/         (*char_pointer=='\0')
))
                goto C1_150_CASE_NAME;
            goto C1_149_CASE_BODY_EX;
        /**/
         C1_150_CASE_NAME:
            if((
  /*C15*/         (*char_pointer=='-')
))
                goto C1_151_HYPHEN;
 /*ELSE*/      goto C1_152_NOT_HYPHEN;
         C1_151_HYPHEN_EX:
         C1_152_NOT_HYPHEN_EX:
            goto C1_150_CASE_NAME_EX;
        /**/
         C1_151_HYPHEN:
  /*012*/      putc('_',outfile);
  /*009*/      char_pointer++;
           goto C1_151_HYPHEN_EX;
```

```
      /**/
       C1_152_NOT_HYPHEN:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
           goto C1_152_NOT_HYPHEN_EX;
      /**/
       C1_153_CASE_END:
  /*060*/      fprintf(outfile,";break;\n");
  /*028*/      loop++;
           goto C1_153_CASE_END_EX;
      /**/
       C1_154_BODY_END:
  /*057*/      fprintf(outfile,"                    }\n");
           goto C1_154_BODY_END_EX;
      /**/
       C1_155_ELSE_LINE:
           goto C1_156_ELSE_SUBTREE;
       C1_156_ELSE_SUBTREE_EX:
           goto C1_155_ELSE_LINE_EX;
      /**/
       C1_156_ELSE_SUBTREE:
           goto C1_157_BLANK;
       C1_157_BLANK_EX:
           goto C1_159_POSS_COMMENT;
       C1_159_POSS_COMMENT_EX:
           goto C1_165_GOTO_LINE;
       C1_165_GOTO_LINE_EX:
           goto C1_156_ELSE_SUBTREE_EX;
      /**/
       C1_157_BLANK:
       C1_158_BLANK_EX:
           if(!(
  /*C29*/         (*char_pointer!=' ')
))
                  goto C1_158_BLANK;
           goto C1_157_BLANK_EX;
      /**/
       C1_158_BLANK:
  /*008*/      putc(*char_pointer,outfile);
```

```
  /*009*/      char_pointer++;
  /*028*/      loop++;
           goto C1_158_BLANK_EX;
      /**/
       C1_159_POSS_COMMENT:
           if((
  /*C18*/          (loop<5)
))
                   goto C1_160_ELSE_BLOCK;
       C1_160_ELSE_BLOCK_EX:
           goto C1_159_POSS_COMMENT_EX;
      /**/
       C1_160_ELSE_BLOCK:
           goto C1_161_START_COMMENT;
       C1_161_START_COMMENT_EX:
           goto C1_162_ELSE_FIELD;
       C1_162_ELSE_FIELD_EX:
           goto C1_164_END_COMMENT;
       C1_164_END_COMMENT_EX:
           goto C1_160_ELSE_BLOCK_EX;
      /**/
       C1_161_START_COMMENT:
  /*029*/      putc('/',outfile); putc('*',outfile);
           goto C1_161_START_COMMENT_EX;
      /**/
       C1_162_ELSE_FIELD:
       C1_163__EX:
           if(!(
  /*C11*/          (*char_pointer==' ')
))
                   goto C1_163_;
           goto C1_162_ELSE_FIELD_EX;
      /**/
       C1_163_:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
           goto C1_163__EX;
      /**/
       C1_164_END_COMMENT:
```

```
  /*015*/      putc('*',outfile); putc('/',outfile);
             goto C1_164_END_COMMENT_EX;
        /**/
         C1_165_GOTO_LINE:
             goto C1_166_BLANK;
         C1_166_BLANK_EX:
             goto C1_168_GO_TO;
         C1_168_GO_TO_EX:
             goto C1_169_GOTO_LABEL;
         C1_169_GOTO_LABEL_EX:
             goto C1_173_FULLSTOP;
         C1_173_FULLSTOP_EX:
             goto C1_165_GOTO_LINE_EX;
        /**/
         C1_166_BLANK:
         C1_167_BLANK_EX:
             if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_167_BLANK;
             goto C1_166_BLANK_EX;
        /**/
         C1_167_BLANK:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
             goto C1_167_BLANK_EX;
        /**/
         C1_168_GO_TO:
  /*017*/      fprintf(outfile,"goto C");
             char_pointer+=6;
             goto C1_168_GO_TO_EX;
        /**/
         C1_169_GOTO_LABEL:
         C1_170_CHAR_EX:
             if(!(
  /*C12*/          (*char_pointer=='.')
))
                    goto C1_170_CHAR;
             goto C1_169_GOTO_LABEL_EX;
```

```
      /**/
       C1_170_CHAR:
           if((
  /*C15*/          (*char_pointer=='-')
))
                    goto C1_171_HYPHEN;
 /*ELSE*/       goto C1_172_NOT_HYPHEN;
       C1_171_HYPHEN_EX:
       C1_172_NOT_HYPHEN_EX:
           goto C1_170_CHAR_EX;
      /**/
       C1_171_HYPHEN:
  /*012*/       putc('_',outfile);
  /*009*/       char_pointer++;
           goto C1_171_HYPHEN_EX;
      /**/
       C1_172_NOT_HYPHEN:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
           goto C1_172_NOT_HYPHEN_EX;
      /**/
       C1_173_FULLSTOP:
  /*018*/       putc(';',outfile);
  /*014*/       putc('\n',outfile);
           goto C1_173_FULLSTOP_EX;
      /**/
       C1_174_IF_OR_IF_NOT_LINE:
           goto C1_175_IF_IFNOT_SUBTREE;
       C1_175_IF_IFNOT_SUBTREE_EX:
           goto C1_174_IF_OR_IF_NOT_LINE_EX;
      /**/
       C1_175_IF_IFNOT_SUBTREE:
           goto C1_176_BLANK;
       C1_176_BLANK_EX:
           goto C1_178_IF_HEADER;
       C1_178_IF_HEADER_EX:
           goto C1_181_CONDITION_LINES;
       C1_181_CONDITION_LINES_EX:
           goto C1_197_END_IF;
```

```
       C1_197_END_IF_EX:
           goto C1_198_POSSIBLY_OPERATIONS;
       C1_198_POSSIBLY_OPERATIONS_EX:
           goto C1_175_IF_IFNOT_SUBTREE_EX;
      /**/
       C1_176_BLANK:
       C1_177_BLANK_EX:
           if(!(
  /*C29*/          (*char_pointer!=' ')
))
                   goto C1_177_BLANK;
           goto C1_176_BLANK_EX;
      /**/
       C1_177_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
           goto C1_177_BLANK_EX;
      /**/
       C1_178_IF_HEADER:
           if((
  /*C09*/          (is_it(inrec,"IF NOT") && (!is_it(inrec,"IF NOT NOT")))
))
                   goto C1_179_IF_NOT;
           if(!(
  /*C09*/          (is_it(inrec,"IF NOT") && (!is_it(inrec,"IF NOT NOT")))
))
                   goto C1_180_IF;
       C1_179_IF_NOT_EX:
       C1_180_IF_EX:
           goto C1_178_IF_HEADER_EX;
      /**/
       C1_179_IF_NOT:
  /*020*/       fprintf(outfile,"if(!(\n");
  /*004*/       fgets(inrec,100,infile);
  /*007*/       char_pointer=inrec;
           goto C1_179_IF_NOT_EX;
      /**/
       C1_180_IF:
  /*023*/       fprintf(outfile,"if((\n");
```

```
  /*004*/      fgets(inrec,100,infile);
  /*007*/      char_pointer=inrec;
           goto C1_180_IF_EX;
       /**/
        C1_181_CONDITION_LINES:
        C1_182_CONDITION_LINE_EX:
           if(!(
  /*C16*/          (is_it(inrec,"GO TO") || is_it(inrec,"!Q!"))
))
                    goto C1_182_CONDITION_LINE;
           goto C1_181_CONDITION_LINES_EX;
       /**/
        C1_182_CONDITION_LINE:
           goto C1_183_NORM;
        C1_183_NORM_EX:
           goto C1_196_GET_NEXT;
        C1_196_GET_NEXT_EX:
           goto C1_182_CONDITION_LINE_EX;
       /**/
        C1_183_NORM:
           goto C1_184_START;
        C1_184_START_EX:
           goto C1_185_BLANK;
        C1_185_BLANK_EX:
           goto C1_187_POSSIBLE_OP_ETC;
        C1_187_POSSIBLE_OP_ETC_EX:
           goto C1_193_REST_OF_LINE;
        C1_193_REST_OF_LINE_EX:
           goto C1_195_TERMINATE;
        C1_195_TERMINATE_EX:
           goto C1_183_NORM_EX;
      /**/
        C1_184_START:
 /*021*/      loop=0;
           goto C1_184_START_EX;
      /**/
        C1_185_BLANK:
        C1_186_BLANK_EX:
           if(!(
```

```
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_186_BLANK;
              goto C1_185_BLANK_EX;
       /**/
        C1_186_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
  /*028*/       loop++;
              goto C1_186_BLANK_EX;
       /**/
        C1_187_POSSIBLE_OP_ETC:
              if((
  /*C18*/          (loop<5)
))
                    goto C1_188_NEED_TO_COMMENT;
        C1_188_NEED_TO_COMMENT_EX:
              goto C1_187_POSSIBLE_OP_ETC_EX;
       /**/
        C1_188_NEED_TO_COMMENT:
              goto C1_189_START_COMMENT;
        C1_189_START_COMMENT_EX:
              goto C1_190_COMMENT_THESE;
        C1_190_COMMENT_THESE_EX:
              goto C1_192_END_COMMENT;
        C1_192_END_COMMENT_EX:
              goto C1_188_NEED_TO_COMMENT_EX;
       /**/
        C1_189_START_COMMENT:
  /*029*/       putc('/',outfile); putc('*',outfile);
              goto C1_189_START_COMMENT_EX;
       /**/
        C1_190_COMMENT_THESE:
        C1_191_BLANK_EX:
              if(!(
  /*C11*/          (*char_pointer==' ')
))
                    goto C1_191_BLANK;
              goto C1_190_COMMENT_THESE_EX;
```

```
      /**/
       C1_191_BLANK:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
           goto C1_191_BLANK_EX;
      /**/
       C1_192_END_COMMENT:
  /*015*/      putc('*',outfile); putc('/',outfile);
           goto C1_192_END_COMMENT_EX;
      /**/
       C1_193_REST_OF_LINE:
       C1_194_CHAR_EX:
           if(!(
  /*C14*/          (*char_pointer=='\n')
))
                   goto C1_194_CHAR;
           goto C1_193_REST_OF_LINE_EX;
      /**/
       C1_194_CHAR:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
           goto C1_194_CHAR_EX;
      /**/
       C1_195_TERMINATE:
  /*014*/      putc('\n',outfile);
           goto C1_195_TERMINATE_EX;
      /**/
       C1_196_GET_NEXT:
  /*004*/      fgets(inrec,100,infile);
  /*007*/      char_pointer=inrec;
           goto C1_196_GET_NEXT_EX;
      /**/
       C1_197_END_IF:
  /*022*/      fprintf(outfile,"))\n");
           goto C1_197_END_IF_EX;
      /**/
      /** The if may be derived from a quit*/
      /** in which case it is possible that there */
      /** may be operations associated with the*/
```

```
      /** if statement as well as conditional */
      /** statements.*/
      /** these are represented in probench*/
      /** for the purpose of this program as*/
      /** starting with !Q! on the first op*/
      /**/
       C1_198_POSSIBLY_OPERATIONS:
           if((
  /*C17*/          (is_it(inrec,"!Q!") )
))
                   goto C1_199_QUIT_OPS;
           if(!(
  /*C17*/          (is_it(inrec,"!Q!") )
))
                   goto C1_233_JUST_GOTO;
       C1_199_QUIT_OPS_EX:
       C1_233_JUST_GOTO_EX:
           goto C1_198_POSSIBLY_OPERATIONS_EX;
      /**/
       C1_199_QUIT_OPS:
           goto C1_200_FIRST_OP_LINE;
       C1_200_FIRST_OP_LINE_EX:
           goto C1_207_OP_LINES;
       C1_207_OP_LINES_EX:
           goto C1_223_GOTO_LINE;
       C1_223_GOTO_LINE_EX:
           goto C1_232_END_OF__QUIT_OPS;
       C1_232_END_OF__QUIT_OPS_EX:
           goto C1_199_QUIT_OPS_EX;
      /**/
       C1_200_FIRST_OP_LINE:
           goto C1_201_BLANK;
       C1_201_BLANK_EX:
           goto C1_203_SHRIEK_Q_SHRIEK;
       C1_203_SHRIEK_Q_SHRIEK_EX:
           goto C1_204_REST_OF_LINE;
       C1_204_REST_OF_LINE_EX:
           goto C1_206_END_OF_LINE;
       C1_206_END_OF_LINE_EX:
```

```
            goto C1_200_FIRST_OP_LINE_EX;
        /**/
         C1_201_BLANK:
         C1_202_BLANK_EX:
             if(!(
  /*C29*/          (*char_pointer!=' ')
))
                  goto C1_202_BLANK;
             goto C1_201_BLANK_EX;
        /**/
         C1_202_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
             goto C1_202_BLANK_EX;
        /**/
         C1_203_SHRIEK_Q_SHRIEK:
  /*025*/       char_pointer+=3;
  /*024*/       putc('{',outfile);
             goto C1_203_SHRIEK_Q_SHRIEK_EX;
        /**/
         C1_204_REST_OF_LINE:
         C1_205_CHAR_EX:
             if(!(
  /*C14*/          (*char_pointer=='\n')
))
                  goto C1_205_CHAR;
             goto C1_204_REST_OF_LINE_EX;
        /**/
         C1_205_CHAR:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
             goto C1_205_CHAR_EX;
        /**/
         C1_206_END_OF_LINE:
  /*014*/       putc('\n',outfile);
  /*004*/       fgets(inrec,100,infile);
  /*007*/       char_pointer=inrec;
             goto C1_206_END_OF_LINE_EX;
        /**/
```

```
       C1_207_OP_LINES:
       C1_208_OP_LINE_EX:
           if(!(
  /*C07*/          (is_it(inrec,"GO TO"))
))
                    goto C1_208_OP_LINE;
           goto C1_207_OP_LINES_EX;
      /**/
       C1_208_OP_LINE:
           goto C1_209_NORM;
       C1_209_NORM_EX:
           goto C1_222_NEXT;
       C1_222_NEXT_EX:
           goto C1_208_OP_LINE_EX;
      /**/
       C1_209_NORM:
           goto C1_210_START;
       C1_210_START_EX:
           goto C1_211_BLANK;
       C1_211_BLANK_EX:
           goto C1_213_POSSIBLE_OP_ETC;
       C1_213_POSSIBLE_OP_ETC_EX:
           goto C1_219_REST_OF_LINE;
       C1_219_REST_OF_LINE_EX:
           goto C1_221_TERMINATE;
       C1_221_TERMINATE_EX:
           goto C1_209_NORM_EX;
      /**/
       C1_210_START:
  /*021*/      loop=0;
           goto C1_210_START_EX;
      /**/
       C1_211_BLANK:
       C1_212_BLANK_EX:
           if(!(
  /*C29*/          (*char_pointer!=' ')
))
                    goto C1_212_BLANK;
           goto C1_211_BLANK_EX;
```

```
      /**/
       C1_212_BLANK:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
  /*028*/      loop++;
           goto C1_212_BLANK_EX;
      /**/
       C1_213_POSSIBLE_OP_ETC:
           if((
  /*C18*/         (loop<5)
))
                  goto C1_214_NEED_TO_COMMENT;
       C1_214_NEED_TO_COMMENT_EX:
           goto C1_213_POSSIBLE_OP_ETC_EX;
      /**/
       C1_214_NEED_TO_COMMENT:
           goto C1_215_START_COMMENT;
       C1_215_START_COMMENT_EX:
           goto C1_216_COMMENT_THESE;
       C1_216_COMMENT_THESE_EX:
           goto C1_218_END_COMMENT;
       C1_218_END_COMMENT_EX:
           goto C1_214_NEED_TO_COMMENT_EX;
      /**/
       C1_215_START_COMMENT:
  /*029*/      putc('/',outfile); putc('*',outfile);
           goto C1_215_START_COMMENT_EX;
      /**/
       C1_216_COMMENT_THESE:
       C1_217_BLANK_EX:
           if(!(
  /*C11*/         (*char_pointer==' ')
))
                  goto C1_217_BLANK;
           goto C1_216_COMMENT_THESE_EX;
      /**/
       C1_217_BLANK:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
```

```
            goto C1_217_BLANK_EX;
        /**/
         C1_218_END_COMMENT:
  /*015*/       putc('*',outfile); putc('/',outfile);
            goto C1_218_END_COMMENT_EX;
        /**/
         C1_219_REST_OF_LINE:
         C1_220_CHAR_EX:
            if(!(
  /*C14*/          (*char_pointer=='\n')
))
                   goto C1_220_CHAR;
            goto C1_219_REST_OF_LINE_EX;
        /**/
         C1_220_CHAR:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_220_CHAR_EX;
        /**/
         C1_221_TERMINATE:
  /*014*/       putc('\n',outfile);
            goto C1_221_TERMINATE_EX;
        /**/
         C1_222_NEXT:
  /*004*/       fgets(inrec,100,infile);
  /*007*/       char_pointer=inrec;
            goto C1_222_NEXT_EX;
        /**/
         C1_223_GOTO_LINE:
            goto C1_224_BLANK;
         C1_224_BLANK_EX:
            goto C1_226_GO_TO;
         C1_226_GO_TO_EX:
            goto C1_227_GOTO_LABEL;
         C1_227_GOTO_LABEL_EX:
            goto C1_231_FULLSTOP;
         C1_231_FULLSTOP_EX:
            goto C1_223_GOTO_LINE_EX;
        /**/
```

```
       C1_224_BLANK:
       C1_225_BLANK_EX:
           if(!(
  /*C29*/          (*char_pointer!=' ')
))
                   goto C1_225_BLANK;
           goto C1_224_BLANK_EX;
      /**/
       C1_225_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
           goto C1_225_BLANK_EX;
      /**/
       C1_226_GO_TO:
  /*017*/       fprintf(outfile,"goto C");
           char_pointer+=6;
           goto C1_226_GO_TO_EX;
      /**/
       C1_227_GOTO_LABEL:
       C1_228_CHAR_EX:
           if(!(
  /*C12*/          (*char_pointer=='.')
))
                   goto C1_228_CHAR;
           goto C1_227_GOTO_LABEL_EX;
      /**/
       C1_228_CHAR:
           if((
  /*C15*/          (*char_pointer=='-')
))
                   goto C1_229_HYPHEN;
 /*ELSE*/       goto C1_230_NOT_HYPHEN;
       C1_229_HYPHEN_EX:
       C1_230_NOT_HYPHEN_EX:
           goto C1_228_CHAR_EX;
      /**/
       C1_229_HYPHEN:
  /*012*/       putc('_',outfile);
  /*009*/       char_pointer++;
```

```
            goto C1_229_HYPHEN_EX;
        /**/
         C1_230_NOT_HYPHEN:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
             goto C1_230_NOT_HYPHEN_EX;
        /**/
         C1_231_FULLSTOP:
  /*018*/       putc(';',outfile);
  /*014*/       putc('\n',outfile);
             goto C1_231_FULLSTOP_EX;
        /**/
         C1_232_END_OF__QUIT_OPS:
  /*026*/       fprintf(outfile,"                    }\n");
             goto C1_232_END_OF__QUIT_OPS_EX;
        /**/
         C1_233_JUST_GOTO:
             goto C1_234_GOTO_LINE;
         C1_234_GOTO_LINE_EX:
             goto C1_233_JUST_GOTO_EX;
        /**/
         C1_234_GOTO_LINE:
             goto C1_235_BLANK;
         C1_235_BLANK_EX:
             goto C1_237_GO_TO;
         C1_237_GO_TO_EX:
             goto C1_238_GOTO_LABEL;
         C1_238_GOTO_LABEL_EX:
             goto C1_242_FULLSTOP;
         C1_242_FULLSTOP_EX:
             goto C1_234_GOTO_LINE_EX;
        /**/
         C1_235_BLANK:
         C1_236_BLANK_EX:
             if(!(
  /*C29*/          (*char_pointer!=' ')
))
                  goto C1_236_BLANK;
            goto C1_235_BLANK_EX;
```

```
      /**/
       C1_236_BLANK:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
           goto C1_236_BLANK_EX;
      /**/
       C1_237_GO_TO:
  /*017*/      fprintf(outfile,"goto C");
           char_pointer+=6;
           goto C1_237_GO_TO_EX;
      /**/
       C1_238_GOTO_LABEL:
       C1_239_CHAR_EX:
           if(!(
  /*C12*/          (*char_pointer=='.')
))
                   goto C1_239_CHAR;
           goto C1_238_GOTO_LABEL_EX;
      /**/
       C1_239_CHAR:
           if((
  /*C15*/          (*char_pointer=='-')
))
                   goto C1_240_HYPHEN;
 /*ELSE*/      goto C1_241_NOT_HYPHEN;
       C1_240_HYPHEN_EX:
       C1_241_NOT_HYPHEN_EX:
           goto C1_239_CHAR_EX;
      /**/
       C1_240_HYPHEN:
  /*012*/      putc('_',outfile);
  /*009*/      char_pointer++;
           goto C1_240_HYPHEN_EX;
      /**/
       C1_241_NOT_HYPHEN:
  /*008*/      putc(*char_pointer,outfile);
  /*009*/      char_pointer++;
           goto C1_241_NOT_HYPHEN_EX;
      /**/
```

```
      C1_242_FULLSTOP:
 /*018*/      putc(';',outfile);
 /*014*/      putc('\n',outfile);
          goto C1_242_FULLSTOP_EX;
     /**/
      C1_243_NORMAL_LINE:
          goto C1_244_NORM;
      C1_244_NORM_EX:
          goto C1_243_NORMAL_LINE_EX;
     /**/
      C1_244_NORM:
          goto C1_245_START;
      C1_245_START_EX:
          goto C1_246_BLANK;
      C1_246_BLANK_EX:
          goto C1_248_POSSIBLE_OP_ETC;
      C1_248_POSSIBLE_OP_ETC_EX:
          goto C1_254_REST_OF_LINE;
      C1_254_REST_OF_LINE_EX:
          goto C1_256_TERMINATE;
      C1_256_TERMINATE_EX:
          goto C1_244_NORM_EX;
     /**/
      C1_245_START:
 /*021*/      loop=0;
          goto C1_245_START_EX;
     /**/
      C1_246_BLANK:
      C1_247_BLANK_EX:
          if(!(
 /*C29*/         (*char_pointer!=' ')
))
                goto C1_247_BLANK;
          goto C1_246_BLANK_EX;
     /**/
      C1_247_BLANK:
 /*008*/      putc(*char_pointer,outfile);
 /*009*/      char_pointer++;
 /*028*/      loop++;
```

```
            goto C1_247_BLANK_EX;
        /**/
         C1_248_POSSIBLE_OP_ETC:
            if((
  /*C18*/          (loop<5)
))
                    goto C1_249_NEED_TO_COMMENT;
         C1_249_NEED_TO_COMMENT_EX:
            goto C1_248_POSSIBLE_OP_ETC_EX;
        /**/
         C1_249_NEED_TO_COMMENT:
            goto C1_250_START_COMMENT;
         C1_250_START_COMMENT_EX:
            goto C1_251_COMMENT_THESE;
         C1_251_COMMENT_THESE_EX:
            goto C1_253_END_COMMENT;
         C1_253_END_COMMENT_EX:
            goto C1_249_NEED_TO_COMMENT_EX;
        /**/
         C1_250_START_COMMENT:
  /*029*/       putc('/',outfile); putc('*',outfile);
            goto C1_250_START_COMMENT_EX;
        /**/
         C1_251_COMMENT_THESE:
         C1_252_BLANK_EX:
            if(!(
  /*C11*/          (*char_pointer==' ')
))
                    goto C1_252_BLANK;
            goto C1_251_COMMENT_THESE_EX;
        /**/
         C1_252_BLANK:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
            goto C1_252_BLANK_EX;
        /**/
         C1_253_END_COMMENT:
  /*015*/       putc('*',outfile); putc('/',outfile);
            goto C1_253_END_COMMENT_EX;
```

```
      /**/
       C1_254_REST_OF_LINE:
       C1_255_CHAR_EX:
           if(!(
  /*C14*/          (*char_pointer=='\n')
))
                    goto C1_255_CHAR;
           goto C1_254_REST_OF_LINE_EX;
      /**/
       C1_255_CHAR:
  /*008*/       putc(*char_pointer,outfile);
  /*009*/       char_pointer++;
           goto C1_255_CHAR_EX;
      /**/
       C1_256_TERMINATE:
  /*014*/       putc('\n',outfile);
           goto C1_256_TERMINATE_EX;
      /**/
       C1_257_LINE_END:
  /*004*/       fgets(inrec,100,infile);
           goto C1_257_LINE_END_EX;
      /**/
       C1_258_END:
  /*006*/       fprintf(outfile,"veryend: ;\n}");
  /*027*/       fclose(infile);
  /*030*/       fclose(outfile);
           goto C1_258_END_EX;
      /**/
       C1_259_OOPS:
  /*003*/       exit(1);
           goto C1_259_OOPS_EX;
      /**/
      /*   Data Analysis Map*/
      /**/
      /*                          ------------- Data Analysis By -------------*
      /**/
      /*                          BOX TYPE                OPERATION  ALLOCATION*
      /*  Tree name: COBOL_TO-C*/
      /**/
```

```
      /*                    Leaf      : 132          Operations: 239*/
      /*                                             Quits     :   4*/
      /*                    Selections:  19*/
      /*                    Sequences :  53*/
      /*                    Iterations:  54*/
      /*                    Backtracks:   1*/
      /*                    Subtrees  :   0*/
      /**/
      /**/
      /**/
veryend: ;
}
```