MISSING BUT RECOVERED....

The material below was submitted for publication in TI*MES around 1989–1993, but -as far as a quick scan can tell! -was not printed or not printed in full.

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## Fractal graphics
 THIS ARTICLE WAS PRINTED IN ISSUE 28,  BUT WAS RADICALLY CURTAILED.  THIS IS THE FULL TEXT.

### Spherical shapes – planets – balls

 The first set of programs generates planets or balls — this enables you to create animated sequences just a little bit like the NASA pictures! Unlike the skeleton globes you often see generated by computer, frequently see-through wire frames only, these programs generate a true planet, and map all parts but only show what should be shown. Thus you may go into any orbit you wish, polar or equatorial or (with tiny adjustment) any other. You may approach or depart from the planet, and can set the speed of planetary revolution, and even decide whether the poles are to be vertical or horizontal. With a tiny tweak you can set the poles at an angle.

The global mapping algorithm is by Mark Datko, July 1989, and appeared in Issue 4 of Fractal Report, which is available by subscription only, for UK residents at £10 for six issues (irregular but about 6 issues a year) from Reeves Telecommunications Laboratories Ltd

The first listing is in Myarc Extended Basic and requires that language — a program for standard TI XB plus JBM103 (from disk library) follows.

```
(ON ERROR takes care of off-screen plots.)
100 !ON ERROR 110 :: GOTO 12
0
110 !ON ERROR 110 :: RETURN
NEXT
120 RANDOMIZE
130 CALL GRAPHICS(3)
140 REM SEEDS:
(k high, a low seems to give more detail.
 Experiment!)
150 K=RND*0.5 :: A=RND*0.01
160 CALL WRITE(1,1,1," "&STR
```

```
$(K)&" "&STR$(A))
170 REM DENSITY OF IMAGE:
180 NUMITS=42
190 REM VIEWPOINT:
200 MYLAT=RND*90
210 MYLONG=RND*90
220 CALL WRITE(1,2,1," "&STR
$(MYLAT)&" "&STR$(MYLONG))
230 RADIUS=64
240 PIBY28=PI/28
250 PIPT8=PI+0.8
260 TWOPI=PI*2
270 TWOPI1O=TWOPI/10
272 TWOPI10=PI*2/10
280 CONRAD=0.0174533
290 MYLAT=MYLAT*CONRAD
300 REM This sort of thing r
educes processing time - hon
est ...
310 SINMYLAT=SIN(MYLAT)
320 COSMYLAT=COS(MYLAT)
330 MYLONG=MYLONG*CONRAD
340 FOR H=1 TO 8
350 CALL DCOLOR(H+2,1)
360 FOR V=TWOPI10 TO TWOPI10
*8 STEP TWOPI10
370 X=H*3 :: Y=V
380 FOR I=1 TO NUMITS
390 X=X-K*SIN(Y)
400 Y=Y+X*(1-A*X)
410 IF Y>TWOPI THEN Y=Y-TWOP
I :: GOTO 410
420 IF Y<0 THEN Y=Y+TWOPI ::
 GOTO 420
430 LAT=(X-14)*PIBY28
440 LONG=Y+PIPT8
450 COSLAT=COS(LAT)
460 SINLAT=SIN(LAT)
470 LONG=LONG-MYLONG
480 SINLONG=SIN(LONG)
490 CLCL=COS(LONG)*COSLAT
500 IF CLCL*COSMYLAT+SINLAT*
SINMYLAT<0 THEN CALL POINT(1
,26+RADIUS*(SINLONG*COSLAT+1
),22+RADIUS*(1+CLCL*SINMYLAT
-SINLAT*COSMYLAT)+30)
510 NEXT I
520 NEXT V
530 NEXT H
540 CALL WRITE(1,24,1," PRES
S SPACE FOR ANOTHER")
550 CALL KEY(5,A,B):: IF NOT
 B THEN 550
560 RUN
```

Now in TI Extended Basic using JBM103:

```
100 REM PLANET FOR JBMI03
110 REM requires jbml03 disk
 from group library
120 CALL LOAD(-31890,56,0)
130 CALL LOAD(-31964,56,0)
140 CALL CLEAR
150 RANDOMIZE
160 K=RND*0.5
170 A=RND*0.01
180 NUMITS=30
190 MYLAT=RNDO
200 MYLONG=RNDO
210 RADIUS=60
220 PIBY28=PI/28
230 PIPT8=PI+0.8
240 TWOPI=PI+PI
250 TP10=TWOPI/10
260 CONRAD=0.0174533
270 MYLAT=MYLAT*CONRAD
280 SINMYLAT=SIN(MYLAT)
290 COSMYLAT=COS(MYLAT)
300 MYLONG=MYLONG*CONRAD
310 CALL LINK("CLEAR")
320 CALL LINK("SCR2")
325 CALL SCREEN(16)
330 FOR H=1 TO 8
340 COLR=H+2
350 FOR V=TP10 TO TP10*8 STE
P TP10
360 X=H*3 :: Y=V
370 FOR I=1 TO NUMITS
380 X=X-K*SIN(Y)
390 Y=Y+X*(1-A*X)
400 IF Y>TWOPI THEN Y=Y-TWOP
I :: GOTO 400
410 IF Y<0 THEN Y=Y+TWOPI ::
 GOTO 410
420 LAT=(X-14)*PIBY28
430 LONG=Y+PIPT8
440 COSLAT=COS(LAT)
450 SINLAT=SIN(LAT)
460 LONG=LONG-MYLONG
470 SINLONG=SIN(LONG)
480 CLCL=COS(LONG)*COSLAT
490 IF CLCL*COSMYLAT+SINLAT*
SINMYLAT>=O THEN 510
500 CALL LINK("POINT",COLR,2
6+RADIUS*(SINLONG*COSLAT+1),
50+RADIUS*(1+CLCL*SINMYLAT-S
INLAT*COSMYLAT))
510 NEXT I :: NEXT V :: NEXT
 H
520 REM
530 REM SAVE PICS
540 PIC=PIC+1
```

```
550 PIC$="PIC"&STR$(PIC)&" P
"
560 S$="DSK2."&PIC$
570 CALL LINK("SAUVE",S$)
580 CALL LINK("SCR1")
590 GOTO 140
```

To create a COMIC SHOW animation:

```
100 REM AUTO GENERATION OF A
 PICTURE SEQUENCE FOR COMIC
SHOW v4.0
110 RAD@=26
120 REM FOR JBMI03
130 RANDOMIZE :: K=RND*0.5 :
: A=RND*0.01
140 REM requires jbm103 disk
 from group library
150 CALL LOAD(-31890,56,0)
160 LAT@=135
170 LON@=5
180 CALL LOAD(-31964,56,0)
190 CALL CLEAR
200 RANDOMIZE
210 REM
220 REM
230 NUMITS=30
240 RAD@,RADIUS=RAD@*1.06
250 OFF=55-RADIUS/3
260 LAT@,MYLAT=LAT@+RADIUS/8
270 LON@,MYLONG=LON@+8+RADIU
S/20
280 PIBY28=PI/28
290 PIPT8=PI+0.8
300 TWOPI=PI+PI
310 TP10=TWOPI/10
320 CONRAD=0.0174533
330 MYLAT=IYLAT*CONRAD
340 SINMYLAT=SIN(MYLAT)
350 COSMYLAT=COS(MYLAT)
360 MYLONG=MYLONG*CONRAD
370 CALL LINK("CLEAR")
380 CALL LINK("SCR2")
390 CALL SCREEN(16)
400 FOR H=1 TO 8
410 COLR=H+2
420 FOR V=TP10 TO TP10*8 STE
P TP10
430 X=H*3 :: Y=V
440 FOR I=1 TO NUMITS
450 X=X-K*SIN(Y)
460 Y=Y+X*(1-A*X)
470 IF Y>TWOPI THEN Y=Y-TWOP
I :: GOTO 470
480 IF Y<0 THEN Y=Y+TWOPI ::
 GOTO 480
```

```
490 LAT=(X-14)*PIBY28
500 LONG=Y+PIPT8
510 COSLAT=COS(LAT)
520 SINLAT=SIN(LAT)
530 LONG=LONG-MYLONG
540 SINLONG=SIN(LONG)
550 CLCL=COS(LONG)*COSLAT
560 IF CLCL*COSMYLAT+SINLAT*
SINMYLAT>=O THEN 580
570 CALL LINK("POINT",COLR,O
FF+RADIUS*(SINLONG*COSLAT+1)
,OFF+RADIUS*(1+CLCL*SINMYLAT
-SINLAT*COSMYLAT))
580 NEXT I :: NEXT V :: NEXT
 H
590 REM
600 REM SAVE PICS
610 PIC=PIC+1
620 PIC$="P"&STR$(PIC)&"_P"
630 S$="DSK2."&PIC$
640 CALL LINK("SAUVE",S$)
650 CALL LINK("SCR1")
660 GOTO 190
```

I ran the above program in Myarc XB, which can be used with JBM103, as follows:
Place on your ramdisk TIVDP from your Myarc XB disk, SCRO from the JBM103 disk, and the above program, say PROGRAM.
Now type:
CALL LOAD("RD.TIVDP") :: CALL LOAD("RD.SCRO") :: RUN "RD.PROGRAM"
The catch is if the program bombs and you are returned to GRAPHICS(1) mode, the screen is blank! You must type NEW (and lose the program) to see text mode again!
Having generated a set of pictures you can then animate them using Comic Show v4.0 from the disk library. Here is a sample command file for use with that utility...

```
FP DSK2.P1_P
SC 31
SN DSK3.GREENBALL
MP
AP DS K2 .P1 P
KW 50
AP DSK2.P2_P
KW 3C
AP DSK2.P3_P
KW 3C
AP DSK2.P4_P
KW 3C
AP DSK2.P5_P
KW 3C
AP DSK2.P6_P
KW 3C
AP DSK2.P7_P
KW 3C
AP DSK2.P7_P
KW 3C
AP DSK2.P8_P
```

```
KW  3C
AP  DSK2.P9_P
KW  3C
AP  DSK2.P10_P
KW  3C
AP  DSK2.P11_P
KW  65
AP  DSK2.P11_P
AP  DSK2Y1_P
GO
```

You end up with a memory image machine code program which will run from E/A 5 or equivalent.

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# BULLRUN

[This item was submitted for publication first on 12/1990 and then resubmitted on 3/1991]

This strategic game is played out on a 6 × 6 grid, with rows identified by the letters A–F and columns identified by the numbers 1-6.

At the start of the game, the human player allocates a total of 100 men around the 36 squares, which may have from zero to 9 men in each. After the men have been allocated, the computer allocates its men.

The computer, having the handicap of no brains, always goes first.

Each player in turn selects one square as the center of a battle, which will rage over all adjacent squares, with a maximum of nine squares in the center. Or, if the battle is centered on one of the four corner squares, only four squares are involved. Six squares are involved for any other edge square.

The total men for each player is calculated for all these actives squares, and the winner is the player with the most men. The loser sees all his men in the active squares wiped out.

Play terminates when one player has more than twice the number of men that his opponent has, or after 18 battles. The winner is the player in control of most squares at game's end. The winner may even end up with fewer men than his opponent.

It is easy to play for a draw on territory. So, as a penalty, in the event each player controls the same territory as the other, the games is awarded to the computer. It doesn't pay to play for a tie.

Your playing strategy takes two parts:

!   What is the best arrangement of your 100 men to tackle any computer play?

!   What is the best pattern of battle to take territory or to defend territory, or to grab the most computer  men?

There is a winning strategy which will usually beat the computer. How fast can you find it?

As written, beating the computer may be difficult. Various adjustments may be made to make the computer play more intelligently. Or less so. I will leave this to the reader. Basic programmers may note how the board is placed rapidly on the screen, and how player input is handled. Notice the use of RND*RND as the computer places its men. Can you see why? You may manipulate distribution patterns by using more than one RND – RND*RND or (RND+RND)/2 or even

(RND*RND+RND)/2.

Enjoy!

```
100 REM
110 REM based on FIRST BULL
   RUN by Tim hartnell 1984
120 REM for TI99/4A by s sha
w October 1990
130 REM winner has most terr
itory at end not most troops
140 REM
150 REM JUST NEEDS EX BAS!
160 REM
170 REM PLACE UP TO 9 TROOP
    IN EACH TERRITORY  TROOPS
 IN BLOCK OF ARE COUNTED FOR
   RESULT
180 REM
190 CALL CLEAR :: GOSUB 290
:: T=0 :: RANDOMIZE
200 GOSUB 350
210 GOSUB 610 :: IF FLAG=1 T
HEN 1110
220 GOSUB 820
230 GOSUB 610 :: IF FLAG=1 T
HEN 1110
240 GOSUB 730
250 BATL=BATL+1 :: IF BATL=9
 THEN 1110 ELSE 210
260 ,5
270 REM HUMAN SELECTS
280 REM
290 REM SETUP
300 CALL COLOR(11,15,15,12,1
6,16)
```

```
310 A$="ppppzzzzppppzzzzpppp
zzzz" :: B$="zzzzppppzzzzppp
pzzzzpppp"
320 FOR T=1 TO 14 STEP 6 ::
DISPLAY AT(T,1):A$:A$:A$:B$:
B$:B$ :: NEXT T
330 FOR T=1 TO 6 :: DISPLAY
AT(T*3-1,25):CHR$(64+T):: DI
SPLAY AT(19,T*4-2):CHR$(48+T
):: NEXT T
340 RETURN
350 REM PLACE
360 DISPLAY AT(20,1):"YOU MU
ST PLACE 100 MEN" :: TOT=100
370 DISPLAY AT(21,1):"ROW
 COL     MEN"
380 CALL HCHAR(21,7,32):: CA
LL KEY(5,A,B):: CALL HCHAR(2
1,7,30):: IF A<65 OR A>70 TH
EN 380 ELSE ROW=A-64 :: CALL
 HCHAR(21,7,A)
390 CALL HCHAR(21,15,32):: C
ALL KEY(5,A,B):: CALL HCHAR(
21,15,30):: IF A<49 OR A>54
THEN 390 ELSE COL=A-48 :: CA
LL HCHAR(21,15,A)
400 CALL KEY(5,A,B):: IF A>2
0 THEN 400
```

```
410 CALL HCHAR(21,23,32):: C
ALL KEY(0,A,B):: CALL HCHAR(
21,23,30):: IF A<48 OR A>57
THEN 410 ELSE MEN=A-48 :: CA
LL HCHAR(21,23,A)
420 IF ARRAY(ROW+1,COL+1)>0
THEN TOT=TOT+ARRAY(ROW+1,COL
+1):: ARRAY(ROW+1,COL+1)=0 4
430 IF TOT-MEN<0 THEN 410
440 DISPLAY AT(22,1):TOT-MEN
;" LEFT TO PLACE" :: TOT=TOT
-MEN :: ARRAY(ROW+1,COL+1)=M
EN
450 CALL HCHAR(ROW*3-1,COL*4
,A)
460 IF TOT=0 THEN 480
470 GOTO 370
480 COMP=100 :: FOR ROW=1 TO
 6
490 FOR COL=1 TO 6
500 A=INT(RND*RND+1):: IF CO
MP-A<0 THEN 500
510 COMP=COMP-A :: CALL HCHA
R(ROW*3-1,COL*4+2,A+48):: DI
SPLAY AT(24,1):"COMPUTER HAS
 ";COMP;" LEFT"
520 GRID(ROW+1,COL+1)=A :: I
F COMP=0 THEN 590
530 NEXT COL
540 NEXT ROW
550 IF COMP=0 THEN 590
560 FOR COL=7 TO 2 STEP -1 :
: FOR ROW=2 TO 7 :: IF GRID(
ROW,COL)<9 THEN GRID(ROW,COL
)=GRID(ROW,COL)+1 :: COMP=CO
MP-1
570 CALL HCHAR((ROW-1)*3-1,(
COL-1)*4+2,48+GRID(ROW,COL))
:: IF COMP=0 THEN 590
580 NEXT ROW :: NEXT COL 2
590 CALL HCHAR(20,1,32,160)3
600 RETURN
610 REM CHECK END?
620 YOURTOT,COMPTOT,FLAG=0
630 FOR ROW=2 TO 7
640 FOR COL=2 TO 7
650 YOURTOT=YOURTOT+ARRAY(RO
W,COL)
660 COMPTOT=COMPTOT+GRID(ROW
,COL)
670 NEXT COL :: NEXT ROW
680 IF YOURTOT<16 OR COMPTOT
<16 THEN FLAG=1
690 IF YOURTOT<COMPTOT/2 THE
N FLAG=1
700 IF COMPTOT<YOURTOT/2 THE
N FLAG=1
710 DISPLAY AT(21,1):" ":"YO
U NOW=";YOURTOT;" COMP=";COM
PTOT :: CALL DELAY
720 RETURN
730 REM HUMAN SELECTS
740 DISPLAY AT(22,1):"BATTLE
  CENTER: ROW COL":"":""
750 CALL HCHAR(22,21,30):: C
ALL KEY(5,A,B):: CALL HCHAR(
22,21,32):: IF A<65 OR A>70
THEN 750 ELSE ROW=A-64 :: CA
LL HCHAR(22,21,A)
760 CALL HCHAR(22,27,30):: C
ALL KEY(5,A,B):: CALL HCHAR(
22,27,32):: IF A<49 OR A>54
THEN 760 ELSE COL=A-48 :: CA
LL HCHAR(22,27,A)
770 ROW=ROW+1 :: COL=COL+1
780 IF BATTLE(ROW,COL)=1 THE
N DISPLAY AT(21,1):"FOUGHT T
HERE ALREADY" :: CALL DELAY
:: GOTO 740
790 BATTLE(ROW,COL)=1
800 GOSUB 930
810 RETURN
820 REM COMP SELECTS
830 FOR A=1 TO 16 :: ROW=INT
(RND*4+3):: COL=INT(RND*4+3)
:: GOSUB 1210
840 IF CT>UT AND BATTLE(ROW,
COL)=0 AND UT>3 THEN 900
850 NEXT A
860 FOR ROW=7 TO 2 STEP -1 :
: FOR COL=2 TO 7 :: GOSUB 12
10
870 IF CT>UT AND UT>0 AND BA
TTLE(ROW,COL)=0 THEN 900
880 NEXT COL :: NEXT ROW
890 ROW=INT(RND*6+2):: COL=I
NT(RND*6+2):: IF BATTLE(ROW,
COL)=1 THEN 890
900 DISPLAY AT(22,1):"COMPUT
ER FIGHTS AT ";CHR$(ROW+63);
COL-1:" ":" "
910 IF BATTLE(ROW,COL)=1 THE
N 820
920 BATTLE(ROW,COL)=1 :: CAL
L DELAY
930 REM LETS COUNT
940 GOSUB 1200
950 DISPLAY AT(21,1):" ":"YO
U:";UT;" COMPUTER:";CT
960 CALL DELAY
```

```
970 IF CT=UT THEN DISPLAY AT
(23,1):" -NO BATTLE-" :: GOT
O 1100
980 IF UT>CT THEN DISPLAY AT
(23,1):"YOU WIN" ELSE DISPLA
Y AT(23,1):"YOU LOSE"
990 IF UT>CT THEN GRID(ROW-1
,COL-1),GRID(ROW-1,COL),GRID
(ROW-1,COL+1),GRID(ROW,COL-1
),GRID(ROW,COL+1),GRID(ROW+1
,COL),GRID(ROW+1,COL-1)=0
1000 IF UT>CT THEN GRID(ROW,
COL),GRID(ROW+1,COL+1)=0
1010 IF CT>UT THEN ARRAY(ROW
-1,COL-1),ARRAY(ROW-1,COL),A
RRAY(ROW-1,COL+1),ARRAY(ROW,
COL-1),ARRAY(ROW,COL+1),ARRA
Y(ROW+1,COL+1)=0
1020 IF CT>UT THEN ARRAY(ROW
,COL),ARRAY(ROW+1,COL-1),ARR
AY(ROW+1,COL)=0
1030 CALL DELAY
1040 FOR ROW=2 TO 7 :: FOR C
OL=2 TO 7
1050 CALL HCHAR((ROW-1)*3-1,
(COL-1)*4,ARRAY(ROW,COL)+48)

1060 CALL HCHAR((ROW-1)*3-1,
(COL-1)*4+2,GRID(ROW,COL)+48
)
1070 NEXT COL :: NEXT ROW
1080 DISPLAY AT(22,1):"CALCU
LATED NEW TROOPS":"" :: CALL
 DELAY :: CALL HCHAR(22,1,32
,32)
1090 RETURN
```

```
1100 CALL DELAY :: RETURN 7
1110 REM FINAL PRINT OUT 3
1120 DISPLAY AT(21,1):"":"FI
NAL TROOPS:":"YOU:";YOURTOT;
" COMPUTER";COMPTOT
1130 FOR ROW=2 TO 7 :: FOR C
OL=2 TO 7
1140 IF ARRAY(ROW,COL)=0 THE
N CW=CW+1
1150 IF GRID(ROW,COL)=0 THEN
  UW=UW+1
1160 NEXT COL :: NEXT ROW
1170 IF UW>CW THEN DISPLAY A
T(24,1):"YOU WON MOST TERRIT
ORY" ELSE DISPLAY AT(24,1):"
COMPUTER WON MOST TERRITORY"
1180 DISPLAY AT(20,1):"PRESS
  ANY KEY TO RE-RUN" :: CALL
KEY(5,A,B):: DISPLAY AT(20,1
):"PRESS ___ KEY TO RE-RUN"
:: IF B<1 THEN 1180 ELSE RUN
1190 CALL KEY(5,A,B):: IF B>
0 THEN RUN
1200 REM CHECK COMP CHOICE
1210 UT,CT=0
1220 CT=GRID(ROW-1,COL-1)+GR
ID(ROW-1,COL)+GRID(ROW-1,COL
+1)+GRID(ROW,COL-1)+GRID(ROW
,COL)+GRID(ROW,COL+1)+GRID(R
OW+1,COL+1)+GRID(ROW+1,COL)
1230 CT=CT+GRID(ROW+1,COL-1)
1240 UT=ARRAY(ROW-1,COL-1)+A
RRAY(ROW-1,COL)+ARRAY(ROW-1,
COL+1)+ARRAY(ROW,COL-1)
1250 UT=UT+ARRAY(ROW,COL)+AR
RAY(ROW,COL+1)+ARRAY(ROW+1,C
OL+1)+ARRAY(ROW+1,COL)+ARRAY
(ROW+1,COL-1)
1260 RETURN
1270 SUB DELAY :: FOR T=1 TO
 700 :: NEXT T :: SUBEND
```

==========================================================

continued.......

# TI-Writer hints, tips, and answers
## Compiled by Stephen Shaw

(F refers to a tip for the Formatter while E refers to a tip for the Editor section. Equivalents include Funnelweb.)

1F.    Outdenting. This is the reverse of "indenting." It will allow the first line of a paragraph to be started further to the left then the remaining lines in the paragraph. Example: .LM12;IN7;RM71 causes the first line to start at column 7 and subsequent lines to begin at column 12.

2E.    When using Replace String you should use word wrap OFF if the document lacks carriage returns or you will end up with one huge paragraph. With word wrap ON, Replace String will reformat from the amended word to the end of the paragraph.

3E.    This is for use in Funnelweb Text Editor mode (not TI-Writer). Want to convert the character case (upper to lower; lower to upper)?
 i. Upper to Lower — depress CTRL . (period).
ii. Lower to Upper — depress CTRL ; (semi-colon).
By keeping the keys depressed the auto-repeat function will take effect and every character the cursor passes over will be converted (you only need hold the , or ; once auto repeat takes over — you can let go of CTRL).

4E.    To save part of a document insert in front of the filename the first line number you wished saved then either a comma or a space and then the last line number you wished saved. Example:  5 30 DSK1.MINUTES  will save lines 5 to 30, inclusive, to disk drive #1 under the name MINUTES.

5E.    To "get rid" of the line numbers on the left of the screen press FCTN 0 (zero). To get them back  press FCTN 0 again.

6E.    If you erase a line in error, press CTRL 1 (Oops) and your line will be restored. Note: This usually only works if you have not pressed any other keys after the accidental erasing. There are a few exceptions, however. I have often had it happen that after editing several parts of a line and then making a mistake I tried to recover by using CTRL 1. By doing so I found that Oops! returned the  entire line to what it was like before I started editing it!

7E.  When using the "SearcH" command remember that the search is only from the point that the cursor is located. Therefore to search the total document the cursor must be on line 1 before you    go to the Command mode.

8E.  To backspace beyond the left margin press CTRL Y. This will temporarily disable the left margin. It will also disable the right margin in latest Funnelweb only. In both cases the cursor should be    next to the margin.

9F.  When using the Header or Footer command with the page number it is possible to have no value printed (such as for the introduction, etc) by using the .PA format command with a value of zero.    The page numbering will begin on the following page. A .PA at the end of each page will delay the  numbering further.

10E. TI-Writer can save a file in other than the normal D/V 80 format by using the PF command and either putting an "F" in front of the filename (i.e. F DSK1.MYFILE) or by putting a "C" in front of the filename. "F" causes a file to be created in DISPLAY/FIXED 80 format. "C" strips any control characters from the file as it is sent.

11E. TI-Writer can be used as a database. Each line must be a record and set up exactly the same. For example if the data was names, addresses and phone numbers then all names must start in the same column; all addresses must start in the same column and all phone numbers must start in the same column. There can be no lines which are blank or which have other type of information on them (i.e. titles). Then using the program Sort Utility (by D.R. Romer and J. Clulow) you can sort this file. Once sorted, which is done very quickly, titles can be added if you are printing it.

12E. There are CTRL keys equivalents to most FCTN keys, plus a few others. For example to tab to the right you can go FCTN 7 or CTRL W (Funnelweb also has CTRL Z). To tab back (to the left) you can go CTRL T (there is no equivalent FCTN key).

13E. If you must go to the bottom of your text (and it is very long), instead of paging down simply go to the Command Line and press S for "Show Line" and at the prompt "Enter Line Number" just type E and press ENTER. E is a valid line number for the last line (end) of a document. This feature is active in all the commands requiring you to enter a line number.

14F. If you wish to prevent the form feed at the end of printing when using the Formatter then make the last line of your text ".PL 1". This will suppress the form feed, but note: do not forget to reset PL if you have another document to print.

15F. You can string the Formatter commands on the same line separated with a semicolon. Example:     .LM 10;RM 70;IN +5;FI;AD
There does not have to be a space between the Formatter command and the number which follows it. In other words, the commands .LM 4 and .LM4 are equivalent.

16F. If you are having problems with Formatter commands, make sure they are UPPER case letters.

17E. To avoid a Buffer Full notice, just keep saving the file as it gets larger, then use the SD command to see the file size. The Buffer is usually becoming full at 92 sectors. (Note: Due to the use of Run Length Encoding in the buffer area, a full buffer may occur at very different file sizes depending on nature of text.)

18F  When using the .CE command you must also use the .LM and .RM commands because .CE centers the text between the SET margins, not necessarily the middle of your paper.

19F. The Formatter also ensures that you have two spaces after each period. To control this when you are typing such things as "Mrs. E Smith" or "1023 N. Queen Street" then use the "^" sign in place of the space after the period. Example:
    Mrs.*E Smith, 1023 N.^Queen Street

20F. If you must have a dot in column one of your text, transliterate it. ".TL 124:46" will allow FCTN A to print a period. The reason for avoiding the dot (.) is because when the text is passed through the Formatter the whole line following the dot will be erased. If you are not passing it through the Formatter then there will be no problems.

21F. To create a file without line feeds yet formatted, do the following:
 i. Use the Formatter to Print the text to disk.
ii. Go back to Editor, load the formatted text, and do a Print File (PF) replacing PIO with     C DSKn.filename.

22F. If you wish to include a program listing in your document, instead of retyping it into TI-Writer  just LIST the program to diskette using the following command:

    LIST "DSKn.filename"

This will save the program in D/V 80 format which allows it to be read by TI-Writer. You can now load this file into TI-Writer and place the carriage return character at the end of each program line.

23E. If you wish to place a Carriage Return at the end of a line of text (a line without the return will usually occur when you have inserted blank lines in the text and then put text on them) then place the cursor at the end of the text and press CTRL 8. This will place a Carriage Return where you want it and insert a blank line below. If this line is not wanted you can delete it with FCTN 3. Or, alternatively, enter Special Character Mode by pressing CTRL U, press SHIFT M and then leave the Special Character Mode by pressing CTRL U again. This may seem like a lot, but when you get used to it you can perform the three-step operation is less than a second!

24E. You can get a printout of your file with line numbers when printing from the Editor mode by placing an "L" and a space before the printer name in the command instruction. Example:     L PIO

This will eliminate the last 6 characters at the end of each line (columns #75 to #80) therefore keep your line lengths to a maximum of 74.

25E. Did you know that you can type anything you want after a carriage return on the same line and it will not print, but it will Save. This is great for text notes for screen reading.

26E. When typing a document which uses certain long words or phrases frequently, then a time saver (and also added insurance against typing errors) is to type the words in short form or initials (i.e. TI-Artist could become TIA; The Ottawa TI-99/4A User Group could become TOTIUG). When you are finished with the document use the Replace String function (RS) to change the words back to the full spelling (e.g. /TIA/TI-Artist/). Care must be taken in three forms when using this:

 i.   The search only begins from the spot that the cursor is on, so to do the whole document insure that the cursor is on line 1 before starting.

 ii. The search will locate all occurrences of the string. Therefore if the string searched for is "at" it will find word "at" and also the "at" in "cat" and "that", etc. So before telling the machines to "Change all occurrences automatically," be sure this condition

cannot arise. If you are not confident of this it is best to walk through and change each separately as it is found.

iii. As a reformatting will be done wherever a change is made, it would be wise to review the document afterwards to be sure that it is still formatted correctly.

27E. When using the Find String command you can specify which column range to search. Example: 5 15 /text/  will look for the string "text" in the columns 5 through to 15 inclusive. (Also available with Replace     String.)

28F. If your printer does not have a slashed zero and you want to print it out that way use the following Transliteration:
.TL 48:48,8,47
This will cause the normal zero (48) to be printed; then backspace (8); and then a printing of a slash (47).

29E. Two files can he loaded into the Editor (assuming the total size is not too large for memory) by loading in the first file then doing a LF and entering E DSKn.YYY (where n = disk # and YYY = second file). This will load the second file after the end of the first file.

30E. If you do not like the windowing when using the 80-column format, then set the margins for 0 and  39 and turn off the line numbers (FCTN 0). When you are finished, reset the left and right margins to what you desire and reformat each paragraph.

31E. You can merge sections of a second file into the current document by the following entry using the   LF command:  25 7 12 DSK1.YYY
This will load lines 7 to 12 (inclusive) from file YYY to the current document after line 25.

32E. If you are using Funnelweb 4.1 or greater, after you have the directory on the screen (using the SD command) you will be able to see how many lines are in a file by marking the file and then requesting (V)iew. The line count will be shown at the bottom of the screen as you read through     the document.


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Reminder *re* The Missing Link programs:

Because The Missing Link uses most of the VDP *ram*, in *order* to load programs into the console they must be saved to disk in the IV254 format - if you load a normal "Program" file the result will be at best some corruption of the image.

## Rabbits and Foxes

```
Now for a graphic program requiring The Missing Link.
100 ! RABBITS AND FOXES
110 ! Dolores Garcia, Spain
120 ! Dr M Ecker, PA, USA
130 ! S SHAW FOR TI-99/4A, X
B+TML, April 91
140 CALL LINK("CLEAR"):: A,B
=5
150 CALL LINK("PRINT",A,B,"R
abbits and Foxes"):: A=A+12
:: B=5
160 CALL LINK("PRINT",A,B,"P
lease input the variables re
quested below. Suggested val
ues are given for a 'TYPICAL
' response. Try others!")
170 CALL LINK("PRINT",70,12,
"RABBIT BIRTH RATE:")
180 CALL LINK("PRINT",80,12,
"RABBIT DEATH RATE (Excl. ea
ten ones!):")
190 CALL LINK("PRINT",100,12
,"RATE OF EATEN RABBITS:")
200 CALL LINK("PRINT",110,12
,"FOXES DEATH RATE:")
210 CALL LINK("PRINT",120,12
,"FOXES BIRTH RATE:")
220 CALL LINK("INPUT",70,150
,A,4,".04"):: IF A<.00001 TH
EN A=0.4
230 CALL LINK("INPUT",90,150
,B,6,".00005"):: IF B<LE-9 T
HEN B=.0005
240 CALL LINK("INPUT",100,15
0,C,4,".002"):: IF C<.00001
THEN C=.002
250 CALL LINK("INPUT",110,15
0,D,4,".03"):: IF D<.00001 T
HEN D=.04
260 CALL LINK("INPUT",120,15
0,E,5,".0002"):: IF E<1E-8 T
HEN E=.0002
270 CALL LINK("PRINT",140,12
,"RABBITS START AT:")
280 CALL LINK("PRINT",150,12
,"FOXES START AT:")
290 CALL LINK("INPUT",140,12
0,R,4,"300")
300 CALL LINK("INPUT",150,12
0,F,4,"30")
310 CALL LINK("CLEAR")
320 P=F*R
330 R=(1+A-B*R)*R-C*P
340 F=(1-D)*F+E*P
350 P=F*R
360 IF ER>500 THEN CALL LINK
(L80,L80,"---.")::  GOTO 360
370 IF NOT(F>0 AND R>0 AND F
<200 AND R<640)THEN ER=ER+1
:: GOTO 330
380 CALL LINK("PIXEL",2+4*F,
R*.7+2):: CALL LINK("PRINT",
181,1,"RABBITS:"&STR$(INT(R)
)&" ")
390 CALL LINK("PRINT",181,11
0,"FOXES:"&STR$(INT(F))&" ")
400 ER=0
410 GOTO 330
420 END
```