MSP 99 USER GROUP

Vol. 10 No. 5
June 1987

THE MSP 99 NEWSLETTER

WATT IS ELECTRICITY ANYWAY?

Electricity is a colorless, odorless gas which burns with a bright flame. Light is grown from a bulb.

An amp is a little animal that crawls along a wire. An amp lives in its ohm. In summer, an amp lives in a coulomb. An ammeter is an animal that eats amps. A battery flies amps around the circuit on a megacycle. Megacycles are parked on a grid. Flemmings Right Hand Rule states that all amps must ride their megacycles on the right hand side of the wire. A charge occurs when all the amps run down the circuit at the same time. All amps meet at an accumulator.

An oerstead is an ohmstead for orses. A joule is a fight between two amps. You will receive a shock when an amp isn't wearing any shoes.

Editors Note: When Watt had read this, he invented the steam engine as a decent alternative... and was then prematurely retired to the old volts home.

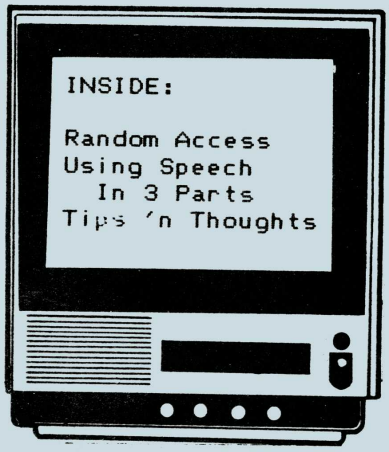
This comes to us courtesy of the Amrillo 994A Users Group newsletter, Apr/May 1987

RAFFLE UPDATE

Last months raffle was the best one ever. That's why we decided at the last minute to include an extra prize aside from the TI 99/4A console we were intending to raffle off. That's right an extra copy of Don Granros' "Old Dark Caves" was thrown in just for grins.

Steve Ellis went home from the May meeting with a new TI tucked under his arm, but I'm afraid that John O'Hara will have to look for his copy of "Caves" in the mail. I'm sure he'll enjoy it just as much anyway.

Next month, the list says we'll be raffling off another copy of this wonderful game program, so if you've missed it before you still have another chance but remember, you must attend the meeting to win.



The MSP 99 USERS GROUP meets each month for discussion and presentations that enable its members to be better informed about their computers. Users group members share and exchange information. Some members have a broad range of computer expertise, others are just beginning. We are not affiliated with or sponsored by any other group or company. Membership dues are $18 a year for a family or individual, and $50 for a sponsor member. You are welcome to visit a meeting as a guest before You join. Call or write for more information.

USERS GROUP MEETINGS are held the third tuesday of each month at Dunwoody Technical Institute, 818 Wayzata Blvd., Minneapolis, MN 55403. Meetings start at 7:00 PM.

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The MSP 99 NEWSLETTER is published eleven times per year on a monthly basis, except during July, by the MSP 99 Users Group. Members are encouraged to contribute articles for publication. Opinions expressed are those of the writers and not necessarily those of the MSP 99 Users Group, its officers, editors, or members. Materials accepted by the Editor for publication in the MSP 99 Newsletter, including software listings, are believed to be in the public domain. Newsletter articles may be reproduced by other user groups if appropriate credit is given to the author (if one is listed), and to the Minneapolis, St. Paul 99 Users Group.

NEWSLETTER EDITOR

Gary Gese 571-4702

Articles intended for the next newsletter should be submitted NO LATER than the Users Group meeting on the month prior to publication. Articles submitted after this deadline are likely to appear in the following month's newsletter.

COMMITTEE VOLUNTEERS are sought for all of our committees. (Education, Equipment, Program, Publicity, Software, Newsletter)
If you would like to join one of these committees or have an idea for a monthly program, please contact one of the officers.

COMMERCIAL ADVERTISMENT RATES:
Business firms that wish to communicate with our members may do so by placing an advertisement in the newsletter. Rates are:
Full page $40; Half page $30; Quarter page $22.

Each ad must be camera ready in one of the sizes indicated and paid in advance. Inserts (printed by the advertiser on 8 1/2 X 11 or 8 X 10) may be inserted in the Newsletter at $20 per sheet. Contact the Editor for more information.

CHANGE OF ADDRESS: Before you move, please mail a change of address to the Users Group. DO NOT rely on the standard Post Office change of address card since the P.O. may not always forward this Newsletter.

RANDOM BIT PATTERNS

by Tom Fairbairn

WOW!! TWO WHOLE YEARS SINCE I WROTE MY FIRST COLUMN FOR THIS CLUB!! I'M ASTOUNDED ANYONE WOULD PUT UP WITH MY RANTINGS FOR THIS LONG.!! You folks are sure gluttons for punishment....

This special column is a mixed bag of several things that have come to light over the past couple months.

The newsletter of the Tucson, AZ, SOUTHWEST NINETY-NINERS user group was nice enough to send me a personal copy of their April 87 edition newsletter in which they had quoted my article on the power supplies problem. I would like to return the favour by quoting an article by the club president in the same newsletter:

BJ Jack Mathis - Southwest Ninety-Niners, Tucson, AZ - April 1987

In February, Steve Lisonbee of SLAVE 99ERS in Utah visited us. He noticed our constant problems with lock-ups on our main console. He mentioned the power supply from Radio Shack had solved that problem for many members of his users' group. We put new power supplies in both our consoles. Lockups caused by what we thought was dirty contacts on our modules, or by Extended BASIC, have been eliminated. The only lock-ups now are programming errors. One of the consoles we took to the February meeting lost its color; we thought the video processor had gone out. On a chance of fixing it (can't hurt), Jack put in a new power supply; the color came back!

We replaced several power supplies for various members of the group at the General Users' Workshop in March. We found the +5 volt line on many old supplies was putting out around +5.25 to +5.40 volts. On the new supplies, we adjusted the +5 volt line to approximately +5.0 volts (-Tom-'s note: I'm not sure about the TI, but most CMOS logic appears to like +5.1 about the best). Members who thought they needed new Extended BASIC cartridges found their XBASIC no longer caused them any problem.

Some of the supplies we obtained from Radio Shack (Cat. #277-1016) had an unsteady +12 volt line, jumping between 9.5 and 11.5 volts. We were able to return these and found those with incorrect 12 volt lines had a part number on the board (above the serial number) of 1053214-2; the good ones had a part number of 1053201. All the good power supplies had LEDs, so Jack

(Continued on Page 12)

MSP 99 Calendar of Events

JUNE 16: FORTRAN -- A NEW (?) programming language finally available for the TI 99/4A Home Computer. Come on down and find out what it's all about.

JULY 14: Software Reviews Night -- Tonight we take a look at some of the fantastic new software releases that have come along in the past few months. A night you won't want to miss.

AUG 18: MSP 99 AUCTION -- That's right! It's that time of year again. Time to bring all the little goodies you no longer need to the meeting for the Auction. Don't forget to bring your checkbook!

Subgroup Meetings

ASSEMBLY GROUP -- 1st Tuesday of month, 7:00 p.m.
Bryant Community Center
Bryant Ave and 31st St.

BUSINESS and APPLICATION SIG
Call Dick Clemetson (926-8083)

EDUCATION -- At monthly meetings

YOUTH GROUP - At monthly meetings

Committee Chairs

EQUIPMENT -- George Madline (784-2395)

NEWSLETTER -- Gary Gese (571-4702)

PUBLICITY -- We Need Someone (-)

SOFTWARE -- Steve Gonnella (533-8494)
6281 Winnetka Ave
Brooklyn Park, MN 55428

YOUTH GROUP --
Ed Johnson (690-3442)
Gordy Myers (377-6713)

From the Editor:

Well, another month has come and gone and lots has happened since I prepared the last issue. For me that translates to moving day which you will notice has inadvertantly delayed this current issue of the MSP 99 Newsletter. I hope you will forgive me if your copy does not reach you until after the June meeting, but as I sit here amidst various stacks of boxes of as yet unpacked items, I really did not have much choice in the matter. However things will definitely be on track for future issues.

Did You Know...?

That there is a new TI Bulletin Board in the Twin Cities area. It's being run by MSP 99 member John Ives and is operating 24 hrs a day except Sunday when he shuts down to use the computer for other things. Feel free to give him a call during operating hours at:

TI BBS
489-5430

EXCHANGE LIBRARY UPDATE

by Gary Gese

For some time now we the officers of the MSP 99 Users Group have debated the fate of the extensive collection of newsletters that we've received from the other groups we exchange newsletters with. These include hundreds of articles on dozens of different topics, however these items of information are buried within the enormous bulk of material. Making that information available to the rest of you is the problem.

Many methods have been discussed with no final decisions made. Some of the ideas suggested include:

a) binding the information from the various groups dated consecutively with an index to the material for easy of use.

b) physically cutting apart the various issues and compiling articles on related subjects into binders for quick reference.

c) grouping the newlsetters into bunches and setting up a library checkout system.

d) re-keying pertinent articles into TI-Writer files for ease of distribution.

e) outright selling the issues to the members.

Of these, the first two seem to be the most popular. However one calls for retaining the various issues intact. At present, this collection requires two large boxes to contain them all and a good strong back to transport them to and from meetings. Adding the bulk of three-ring binders would only enhance the problem.

The other means physically dismantling the pages. Of course, the issues could be photocopied to accomplish this, but the cost could reach quite high. Presonally, I like this idea better since it will eliminate all of the data pertaining to any one specific group that are of little interest to us in general, (group activities, meeting minutes, etc.) while creating a collection of reference materials on the various aspects of using and programming the TI. The final product would require much less space to store, be easy to transport from meeting to meeting, and make it much easier to locate information on a specific topic, as well as being easy to update as new items appear.

The problem produced quite a discussion at the May meeting. Lots of ideas were bandied about with much the same results. Still, some headway was made. For now it has been decided to at least begin indexing the exsisting collection of newsletters. Several members volunteered to take a portion of the library home for indexing and cataloging.

To establish a standard for indexing, it would be most helpful if everyone could follow the same format. This will speed things up later when the entire library is once again reassembled. At that time, a master index will be compiled. This will allow our fellow members to access the newsletters by group or by topics of interest until a final decision is reached on the matter.

For those of you currently doing the indexing:

List the name of the newsletter along with the name of the group publishing it and the date. Include the titles of the various articles with a very short (one line) description of the contents. Be sure to include the page number (even if you must number the pages yourself).

If any problems occur or for more information, feel free to contact me.

RANDOM ACCESS

"Miscellaneous Ramblings"

By Dick Lauhead

If you missed the May Users Group meeting, you missed a good one. We often have a surprise or two for you, but this time we were ALL surprised by the appearance of a Geneve at the meeting! Donn Granros had just that day received a Geneve, and he kindly brought it along to show us. While it did not have all the software that will eventually be shipped with the Geneve, (MDOS was not even included), it proved, to me at least, that the thing really does exist. Since Donn had not yet even powered it up, he obviously was not too familar with it. It took all of our collective ignorance to make the Geneve do anything. However, we were eventually able to get BASIC loaded and run some of the Myarc Extended Basic graphic demos that we had run 1/2 hour earlier on a TI99/4A. To say the Geneve runs fast is the understatement of the year! Look for much more in the way of demos and information about the Geneve coming your way as Donn becomes familar with his new "toy". Thanks Donn for giving us our first glimpse of what promises to be a fascinating TI99/4A compatible computer.

Incidentally, a letter from Tenex to all who ordered the Geneve from them, states that orders will probably not be shipped for a couple of months. They will not ship them until all the software is available. I don't know how Donn got his, but as noted before, it did not come with all the software.

At the same meeting, we had a demo of Myarc's Extended Basic. I must say, this is also a nice product from Myarc. The graphics capability of this language is very impressive. It is also much faster than TI Extended Basic. The only drawback, from my point of view, is the price. You must purchase the Myarc memory card to make this software work.

If you do not regularly attend our meetings, please consider attending at least a couple. Many new and exciting products have and will be shown at our monthly meetings. If you weren't at the May meeting, I think you missed one of the best we've had in a long time. You also missed out on the chance to win a TI99/4A console by buying a $1 raffle ticket.

For a number of months now, we have been pondering the question of how to deal with all the exchange newsletters we receive each month. We have hundreds, if not thousands of them. Well once again our loyal meeting attendees came through for us. We held a discussion about the subject, and came to a decision to give several volunteers stacks of newsletters to index for us. We (the officers) had almost decided to cut them up and make up binders by subject, but the members did not like that idea. They decided to keep them intact, and index them. With a number of people doing just that, it is easier than cutting them up. After they are all indexed, we will decide how to file them, and how to loan them out to you. Thanks to all who volunteered to help us out, and to the members who made known to us that their desires were not what the officers suggested. That's the way the group is supposed to operate.

I was one who reluctantly volunteered to index a few of the newsletters. The very first one I picked up was from late 1983. Most of you know what happened on "Black Friday" of Oct. 1983. That is when TI announced their withdrawal from the home computer business. I found it fascinating to read the comments that were printed in that newsletter. For the newcomers in our group, I would like to share some of the thoughts that were in everyone's mind that October. All you "old timers" may be amused by remembering what you and I were thinking back then.

My greatest concern in Oct. 1983 was whether hardware would continue to be available for me to upgrade my system. At the time I had only the console, PEB, and RS232 card. I had planned to slowly upgrade my system, but almost bought everything immediately. Luckily I fought off the panic. I did purchase a "spare" console for $59.95 at a Target fire sale. Nearly 4 years later it's still in the box!

I was NOT concerned about software, as my greatest enjoyment is in writing my own anyway. Software WAS probably one of the greatest concerns of most TI99/4A owners, however. The concern, and even some panic, in 1983 is a tribute to the TI99/4A. Like myself, many did not want to give up their TI99/4A even though TI had given up on it. The concern was how we would ever be able to get along without TI's support. I found a prophetic statement (not shared by everyone at the time) in the Tri State Newsletter: "Others will pick up where TI left off and we may be better off with TI out of the picture. All in all I think things will be OK, but only time will tell." Time has told!

Some other prophecies did not come true. The same newsletter quoted above said that CorComp would continue making hardware (true), and software in command module form at the rate of 10 to 15 modules per year as well as 2 versions of FORTH (none of this came to pass). Curiously, I find no mention anywhere of anyone predicting quality user written software (fairware) as an alternative to commercial software. Perhaps this is because we were still hung up on command module software back then.

In the Johnson Space Center User Group Newsletter I found a bit of nonsense (in retrospect): "...We don't need TI products except the computer, the speech synthesizer, the Extended BASIC CM, and the terminal emulator." Today, none of those things is needed from TI including the computer (if Geneve ever ships). Few use the Speech Synthesizer, which is the only thing you can't buy elsewhere, to my knowledge. Be sure to see the articles on using speech elsewhere in this issue.

I could go on and on, but I'm running out of space so will quit rambling. You may wish to look at the late 1983 newsletters when we get them all indexed and start loaning them out. There's some interesting reading there.

Before I sign off, I'd like to remind you that we do not publish a newsletter in July. The next newsletter will be dated August 1987. We do continue our monthly meetings through July, however. Have a nice summer. -RWL-

SPEECH Part I

HARNESSING THE POWER OF SPEECH

by Craig Dunn

(Reprinted from the Central Texas 99/4A Users Group newsletter, Feb 1986.)

The TI Speech Synthesizer is an amazing little device. It was a breakthrough for the lower end (priced) computers. Unfortunately, many 99/4A owners still don't know how to access speech along with all its little features. Sure, a lot of games use speech to add interest and excitement, but the aplications of speech goes far beyond games.

One of the major features of the speech synthesizer is its ability to let you add speech to your programs. There are several ways to do this, including TI's Terminal Emulator II, XBASIC, and through the use of assembly language routines. XBASIC provides a rather limited vocabulary (unless you are using one of several recent utilities that give you unlimited speech in XB but that's another story). TE2 allows for unlimited speech directly from BASIC. This built-in text-to-speech capability of TE2 will be the focus of this article.

First, plug in the TE2 command module, turn on the computer, and select TI BASIC. Now type and run the following program:

```
100 OPEN #1:"SPEECH",OUTPUT
110 INPUT A$
120 PRINT #1:A$
130 GOTO 110
```

If you get an error, make sure you have the sppech synthesizer connected properly to the side port. Now we have a very simple text-to-speech editor. Line 100 contains the OPEN command needed to access TE2 speech capabilities. Line 120 sends the text strings that you type in to the text-to-speech interpreter, which then sends the info to the synthesizer. Experiment with this for awhile by typing in phrases, followed by an ENTER.

In the above example, you were in the default speech mode. This

means that no commands have been sent to alter the voice. We can change the voice easily using the "//" command. The proper format is:

```
//PITCH SLOPE
```

ex. //34 118

The PITCH is a number between 0 and 63. A zero causes the speech synthesizer to wisper phrases. Pitches from 1 to 63 range from the highest pitched (1) to the lowest pitched (63). For best sound, figure the SLOPE using the following formula:

SLOPE = 32 x (PITCH/10)

Round this result to the nearest whole number. Now, when you enter the command along with these two numbers, it will appear that nothing has happened. But type in a simple phrase and press ENTER. You'll notice the change in voice. For example, at the prompt in our simple little speech editor, type "//55 176" and press ENTER. (Be sure to include a space between numbers.) Nothing happened, right? Well, now type something in and press ENTER. See how the voice changed? It became much deeper. Now try "//0 0" and press ENTER. Again, type in a short phrase. Another voice tone! Experiment with these and other PITCH/SLOPE combinations to get the feel of working with these.

Before we wrap up this tutorial, we'll take a look at the inflection symbols. The symbols are; "^" (carat), "_" (underline), and ">" (greater than). The "^", when placed in front of a word, indicates a primary stress point to the text-to-speech interpreter. Only one "^" may be used per string. The "_" is used to indicate a secondary stress point and may be used without limit through the string. The ">" will shift the stress points within a word. Experiment with all these to make words sound better and more human like. Remember, all inflection symbols must precede the word they are to affect.

Well I hope someone benefitted from this article. On a final note, remember that the text-to-speech interpreter is not perfect. Sometimes you might have to alter a words spelling drasticaly to make it sound right. Have fun!

SPEECH Part II

TURBO SPEECH

(or How to Speed up the Spoken Word)

by Stephen Shaw

(Excerpted from the TI99/4A Exchange TI*MES of Great Britain, Issue #6, Autumn 1984)

Now on to something really juicy. SPEECH. Old hat huh? Well, this information will give you speech in TI BASIC with the Mini Memory, or if you have XBASIC with 32K RAM, will give you speech just a mite faster than using CALL SAY which slows programs down no end.

For this information I am indebted to Neil Lawson who has been delving.

Speech requires either:

XBASIC with 32K memory
or: Mini-Memory

and: Speech Synthesizer

Program framework (For timing purposes):

```
 20 CALL INIT
 30 S=-27648
100 FOR I=1 TO 1000 :: NEXT I
110 PRINT "START......"
120 FOR X=1 TO 20
130 REM TEST ROUTINE HERE
140 FOR T=1 TO 30
150 PRINT ">";
160 NEXT T
170 NEXT X
180 PRINT "END......"
```

This standard routine sets up a framework to test our new routine in, and gives a basic time reference.

(NB: Times quoted are for MY system: yours may be different, but the ratios should be similar.)

Running the above program, with the loop in line 140 running 30 times as shown, takes 18.7 seconds from "START" to "END". Change line 140 to loop just 20 times and the timing is 12.7 seconds.

Now we can insert our two possibilities:

The first is available only in XBASIC:

```
130 CALL SAY("#THAT IS
    INCORRECT#")
```

Run the program again: If line 140 is looped 20 times, the time is 44 seconds. If line 140 is looped 30 times, the time is 50 seconds.

The time for the speech is constant, it adds about 21 seconds to the program.

Now for something different, (also works with Mini-Memory):

```
130 CALL LOAD(S,70,"",S,65,"",
S,72,"",S,70,"",S,64,"",S,80)
```

If you now run the program, it says the same thing as many times, but look at the timing:

If line 140 loops 20 times: 26.3 S
30 times: 26.5 S

We know that looping line 140 an extra 10 times adds 6 seconds... so where have those 6 seconds gone?

The CALL SAY routine holds everything up until it has finished speaking. But using the CALL LOAD equivalent, while the computer is speaking, it gets on with the next chore too. The "dead time" is used, and soaks up those 6 seconds.

Thus using the CALL LOAD equivalent, the computer speaks faster, and also permits your program to run more quickly if there is work for it to do between speech outputs.

That's the clever demonstration! (Impressed?) Now for the theroy.

References: Editor/Assembler Manual, pages 351, 355, 422 to 427

(Errata: The reference in para 1, page 355, should be to Section 22.1.4, not as printed in the manual.)

Address -27648 is the SPEECH WRITE address. We keep feeding it with bytes, and in due course the computer speaks. The bytes to feed to that address are found out as follows:

First, decide what you want to say from the standard vocabulary. Then look in the table (pp. 422-427) for the address of that word or phrase. "THAT IS INCORRECT" is given as 6816. That is Hexadecimal not a Decimal number. The four numbers are reversed, and become 6186.

Now we offset them by Hex 40 and feed them in. As we are dealing with decimals with our CALL LOAD, that means we add decimal 64 to each digit in turn:

(6+64)	(1+64)	(8+64)	(6+64)
70	65	72	70

(If the numbers were Hex A-F these have a decimal value as follows:

A=10 B=11 C=12 D=13 E=14 F=15

Now we must indicate end of word by loading a zero, again offset, thus 0+64=64. Finally, instruct the computer to speak by loading Hex 50, Decimal 80.

Thus we have loaded, in order;

70,65,72,70,64,80

Check back to the listing. Note the way CALL LOAD has been used; a single command to load the same address with several different values.

To assist your experimentation, here are some Hex addresses from the manual. Remember to reverse them, translate to decimal and offset.

```
TEXAS INSTRUMENTS...6696
WHAT WAS THAT.......77E9
YOU WIN.............7DDB
ANSWER..............1913
CHOICE..............1DA2
ELSE................28B6
HELP................3571
INSTRUCTIONS........39BD
I WIN...............37CF
NAME................47C0
PLEASE..............5093
THAT IS RIGHT.......68FE
READY TO START......56B3
AGAIN...............17A5
CHECK...............1D82
COMMAND.............1F1A
GOODBYE.............3148
HURRY...............3757
I...................3793
JOYSTICK............3AED
NICE TRY............49A5
```

This is not only a useful programming aid in its own right, but by demonstrating a part of the E/A manual's sometimes complex instructions, it should assist you when you are ready to move on th FORTH or Assembly language proper.

SPEECH Part III

SPEECH - THE CALL SPGET STATEMENT

(Reprinted from the Amarillo 99/4A Users Group newsletter, Feb 1983. Author unknown.)

The field of the CALL SAY statement is formatted with a series of "word" and "direct" string expressions, each seperated by a comma. Further, the string expressions must be in specific positions in the field of the CALL SAY statement. Word strings must occupy the odd positions and direct strings must occupy the even positions. To illustrate, here is an example of the use of word strings:

```
10 A$="HELLO"      )
20 B$="HOW"        )word strings
30 C$="ARE YOU"    )
40 CALL SAY(A$,"",B$,""C$)
```

Note the placement of the word strings in the odd positions of the CALL SAY field.

Direct strings are defined by the CAL! SPGET statement. When the CALL SPGET is used, the speech code for the word is read from the ROM in the Speech Synthesizer and stored in active memory as a string variable with the nameas specified in the statement. For example:

```
10 A$="HELLO"
20 CALL SPGET("HOW",B$) )direct
30 CALL SPGET("YOU",C$) )string
40 CALL SAY(A$,B$,"ARE",C$)
```

The speech code for "HOW" and "YOU" are stored in active memory and called B$ and C$ respectively.

The two previous examples show that the field of the CALL SAY statement must alternate between word-strings and direct-strings. The format is:

```
CALL SAY(Word string[,Direct
string,Word string...])
```

The CALL SPGET statement actually calls the code pattern for a word resident in the Speech Synthesizer and assigns it ti a string variable. You can then apply this string variable in a variety if ways including using it with the CALL SAY in the same program, storing the speech data on a storage device, or viewing the actual speech data. If the word or phrase specified in the CALL SPGET is not found in the Speech Synthesizer resident vocabulary, the code pattern for UHOH is stored in the string variable.

If the word called does exist, the speech data is stored in the string variable and is preceded by three bytes (ASCII characters) of control information. The first byte is a command to the Speech Synthesizer. The next two bytes represent the number of bytes of speech information following. The maximum number of bytes of speech data is 252 and the total length of a direct string cannot exceed 255 bytes.

The usefullness of the CALL SPGET statement is that speech data can be put in the form of a string variable that can be added to other speech data, shortened, and/or stored on cassette or disk.

Following is a program to store spech data on cassette tape:

```
10 OPEN #1:"CS1",INTERNAL,
   OUTPUT,FIXED 192
20 CALL SPGET("RED",B1$)
30 CALL SPGET("GREEN",B2$)
40 PRINT #1:B1$
50 PRINT #1:B2$
60 CLOSE #1
70 END
```

and following is a program to read the speech data from tape:

```
100 OPEN #1:"CS1",INTERNAL,
    INPUT,FIXED 192
110 INPUT #1:B1$
120 INPUT #1:B2$
130 CALL SCREEN(7)
140 CALL SAY("THIS IS",B1$)
150 FOR I=1 TO 500 :: NEXT I
160 CALL SCREEN(13)
170 CALL SAY("THIS IS",B2$)
180 GOTO 180
```

Following is a program to display speech data on the screen:

```
100 REM HEX DUMP OF SPEECH DATA
110 CALL CLEAR
120 INPUT "TYPE WORD: ":WORD$
130 CALL SAY(WORD$)
140 CALL SPGET(WORD$,R$)
150 HEX$="0123456789ABCDEF"
160 L=LEN(R$)
170 PRINT "LENGTH=";L;"BYTES":
180 FOR I=1 TO L
190 DEC=ASC(SEG$(R$,I,1))
200 HIGH=INT(DEC/16)
210 LOW=DEC-16*HIGH
220 HIGH=HIGH+1
```

(Continued on Page 16)

TIPS 'n Thoughts

by Tom Fairbairn

A great many of us find need, from time to time, to generate documents that exceed 80 columns. This could be a combination of output files, for example, from MULTIPLAN or some other spreadsheet program that you are merging into compressed font and on wide paper (could be up to 255 columns), special reports, or possibly a compressed font style printout on conventional width (8.5 inch) paper (which could be up to 136 columns).

Now, TI-Writer has a screen width of 80 columns. In all cases, the manual that comes with TI-Writer deals with using the program to work with 80 or less print columns. No examples nor intimations are given that would indicate TI-Writer can do any more than this.

If you remember, I mentioned a bit back that there are three different sets of margins we must be concerned with when using TI-Writer: the screen margins, set by the margin/tab ruler; the formatter margins that regulate the printed margins and indenting; and the printer margins that regulate the final positioning of the result on paper.

As it turns out, the limit of characters per line permitted by the formatter is 256 (in the range of 0 through 255). So far as many printers are concerned, you may use the number of characters that will fit on a line within the margins set on the printer. Therefore, if you do not force CRs within a line to be printed, you may use however many characters the printer can handle.

The key is the settings of the Formatter and printer margins. The Formatter takes the Editor file and formats each line to the length you specify with the .LM and .RM commands. If you specify margins, for example, of 10 at the left and 127 at the right, the Formatter will set up lines of 117 characters with the first character at 10 positions from the left margin that is set in the printer. So long as this long a line fits within the printer's limits, it will be entirely printed on one line by the printer.

In any event, if you are going to make use of the capability, you have to be certain that you include th necessary commands to your printer within the file. Generally, control of the printer may be accomplished with the .TL commands, coded up to send the necessary margin, font selection, and character size commands to your printer. You must also set the Formatter left and right margins appropriately.

So far, I have waltzed all around a problem that is of major importance during entry of your data into the Editor file. There is absolutely no way that the Editor can be made to work with more than 80 characters per line for the screen display. Note this isn't a limitation on how many characters per line will print, just on how many you will see on each line as you are entering data.

The easiest way to get around this is to calculate the number of lines it will take to form an even division of the number of characters you will print. If we are considering 118 characters per line, then two lines of 59 characters each can be set up in the Editor display; this means that every other line represents the end of a printed line. For 256 characters per line, use 4 lines of 64 characters each, were every fourth line represents the end of the printed line. If posible, try to use formatter and printer margin settings that are an integral multiple of two, three, or four lines of the screen per print line.

Breaking up the printed line in this fashion allows you to see when you should hyphenate text entry or break off a string of data to wrap it down to the next line. It does not make for a real easy process to see what a formatted printout will look like, though. Very few word processors of which I am aware can do much better in this regard, in any event. Even the big quarter-million dollar system I use at work can't handle more than 132 columns, period, and then only if the system is specified accordingly by the sysop.

Where the ability to use 256 column line widths is useful is in the presenting of spreadsheets. Some spreadsheet print formatters as they are provided in the TI version limit the spreadsheet printout to 80 column chunks. Even if you use

a wide printer carriage and compressed font, the printout is still in 80 column chunks that you have to cut and paste to make the full sheet.

By using TI-Writer and its Editor, you can create wide sheets from the spreadsheet print files, providing they can be written to a disk in DIS/VAR 80 format. You have to use the Editor to read selected lines from the spreadsheet print file and format them into full length print lines under TI-Writer, then use the TI-Writer Formatter to produce the final printout. The process involves "printing" the spreadsheet output to the disk instead of the printer so that TI-Writer can read the spreadsheet document. You would probably do best to also take the hardcopy of the original sheet so that you can properly format the resulting sheet under TI-Writer.

Using a larger-than-80-column print width also permits you to use either compressed or elite type sizes in order to cram more characters per line on a conventional width page and thus use less pages. You should keep in mind, though, that the compressed font may not reproduce too well under some processes, so you want to be careful where and how you use it.

Centering will also work with the wider-than-normal line lengths. Do the centering in the normal manner, but remember that in the case of expanded width characters, you will have to recalculate the characters-per-line appropriately to the size of the characters you are using and the actual width of the printout. A formula for this was discussed in another column that specialized in the use of the centering commands under TI-Writer.

To merge a spreadsheet printout into a wide document, we need to know how they structure their output files.

When you create a spreadsheet under any such program, you are building a document that can contain columns of information. The columns can be of any selected width, and may also be as many lines as are necessary to contain the formatted information.

As the spreadsheet program you are using formats a spreadsheet for printout, it will break the printout at any point where full columns will no longer fit within the 80-character limits of your normally 8.5-inch page. It will print the first few columns continuously until all rows are displayed; it then shifts to the next set of columns, and so on until the entire sheet is printed. To widen the printed sheet out to the full TI-Writer width, you would need to read in the first line of the first segment from the print file, then the first line of the second segment, and so on until you have read in the entire first line of the final document. You would then edit this line to the proper column spacing, then repeat the process with the second line, and so on until you have reformatted the entire print file. You would then print the reformatted print file under the TI-Writer Formatter.

Reading of the document segments involves using the LF command under Editor, specifying the line number on the screen after which you want the new data to appear and the starting and ending line numbers of the document from which you are reading. This method allows you to cut and paste the new information into an existing document and select the data lines to be inserted all in one move.

Note that under MULTIPLAN you can set printing top and left margins, print widths, and number of print lines as desired; if you know what your TI-Writer document format will be, you can match it with MULTIPLAN print format commands. Since MULTIPLAN does have this flexibility you would have much less editing to do under TI-Writer than you might have with other spreadsheet systems. Unfortunately, the one thing TI forgot to put into their manual on MULTIPLAN is how to enter the printer commands to change the character pitch and line spacing with the setup: field of the PRINT OPTIONS command. That is another whole story, however.

So that pretty well discusses the capability of wide documents with TI-Writer. Play around with this a while; you may find, once again, that getting away from using the PF function under Editor can open up a whole world of neat things you can do with the program.

RANDOM BITs.....cont. from Page 2

put a neat hole in our white consoles. Now we have a power indicator light, too.

So now we have the facts of the case, folks, with thanks to the SOUTHWEST NINETY-NINERS and the SLAVE 99ERS. It seems to me that the TI folks brought out not one, but TWO, defective models of the supplies. Possibly some kind soul can experiment with the "bad" replacement supplies and come up with a reliable fix for them.

Mike Dodd, of the LA 99ers, reports a resolution to the problem with DM 1000 not working properly with the CORCOMP disk controllers. The known problem is that the number of sectors per track is given as 16 by DM 1000 when running in double density mode; the correct number of sectors is 18. Because of the way the controllers are operating internally, the CORCOMP controllers are sensitive to this while other brands don't seem to be.

Mike indicates this can be fixed in version 3.5 by using a disk editor to modify byte >216 of the first sector in the MGR1 file from >10 00 to >12 00. Jack and BJ Mathis, of the SOUTHWEST NINETY-NINERS group, suggest that if you have the source code for DM 1000, find MGRPART1, line label SCT CNT, and change the value from >1000 to >1200. With this correction, DM 1000 should work properly on all disk controllers.

For those of you into using the bulletin boards and other communications media with your computer (I am), will be interested to know that there is a new version of the excellent terminal program MASS TRANSFER out and available via the St. Boni TECHIE BBS. Now under a new name and with better software for the BBS, Ralph Johnson (sysop) has now built up a first-class operation.

The new version of MASS TRANSFER includes both XMODEM and YMODEM protocols, along with both single and multiple file transfer in both protocols. It maintains a received data buffer that can be logged automatically to printer or disk, and may also be reviewed and any specific portion printed in screen-sized chunks on key command. It also permits autodialing from any of 8 files of 16 phone numbers if your modem has the autodial capability, and will do redialing and auto hangup operations. It works at all baud rates up to 2400 and is very easy to use: those who have worked at all extensively with FASTERM and then tried this one generally like the MASS TRANSFER program better because of its ease of use. I have been using an older version of the program for over two years now and am in the process of getting the update. If you DO use this program, be sure the Fairware author gets a contribution so he will be encouraged to continue his excellent support of TI systems.

I would also like to ask all those of us who use Ralph's BBS at all make a contribution to him to help compensate for the cost he lays out to run that board. Between power, telephone service, and both machine and programming costs, Ralph has put himself out to considerable degree for our enjoyment. We can not expect him to carry these expenses out of pocket forever. How about it, folks; if the board is one you use and you want to help ensure its continued existence, be sure that Ralph sees some of that all-too- necessary green stuff come via the snail mail every now and again. Also, if you ever want to impress anyone with what the TI can do, you might have them see this board in action; it is a very fitting tribute to the real power of this machine and software.

SOMEBODY PUNCHED ONE OF MY HOT BUTTONS AGAIN!!! A number of recent issues of other user newsletters have once again referred to the TI keyboard as being scrunched or in some manner smaller than the normal keyboard. Ladies and gentlemen of the TI world, I have in the past argued this point vehemently and will continue to challenge that attitude with great gusto.

I am a touch typist and I use the keyboards of at least 5 different terminals and/or computer systems very regularly. I also type on three different typewriters, one of them being manual. I will tell you with no fear of being proved wrong that the standard keyboard has keys that are spaced three quarters inch center-to-center both vertically and horizontally. Further, the second row of keys is offset from the top row one-half key width, the

third row is offset from the second by one-third keywidth, and the bottom row is offset from the third row by a further one-half keywidth. All machines using a standard key configuration are arranged this way. If they were not, I could not touch type on them.

I suggest that those of you who think the TI has a non-standard keyboard grab your rulers and measure out the spacings of the keys on this machine against the measurements between corresponding keys of any standard typewriter or an IBM keyboard. SURPRISE!! I have used the TI long enough to wear out the keycaps on one keyboard and it does not affect my ability to touch type one whit. So to those of you who rail on about the scrunched keyboard on the the TI, I tell you "Fie, and a pox on your perceptions!!" If you think I am slowed down in the slightest bit, talk to Ralph about how fast I can respond to him in "chat" mode on his BBS.

What throws me much more than the locations of the special characters on the TI keyboard is the arrangement of two of the terminals I use at work, where the zero key is to the LEFT instead of the RIGHT, and the remaining number keys are shifted one key to the right as a result. Every time I go for a number key it is in the wrong place and I go absolutely nuts trying to get to the right key. The guy who laid out those keyboards should be shot at sunrise; there are two different keyboards that are laid out that way. Because that arrangement also affects the locations of the top-row special characters, I also have problems with those characters as well.

Surprisingly, I can do a fair job of touch typing on the 99-4 and on my son's pocket terminal, both of which use the "chiclet" type keys but also have them spaced the proper distances. The offsets are not quite standard on either of those boards, though (the keys are square to the columns instead of offset), and that does affect my typing on those machines somewhat.

Has anyone ever tried mounting the 99/4A keyboard on a 99/4? Did it work? Are the keystrobes the same on both machines?

Something I have often though about doing is remounting the TI in a larger case with a conventional keyboard, and working out a different arrangement for the electron hose that is used to attach the PEB to the system. Goodness knows that there are plenty of keyboards, and cases they will fit into, available on the third-party market these days. However, a product that may just make the difference in the TI is now available from RAVE 99, run by by John McDevitt and Rick Hakemian of the NUTMEG 99ERS in Bloomfield, CT.

They are marketing a PC style keyboard that replaces the one on the console. The console is still used for all the conventional functions, but can be put out of the way. The RAVE keyset attaches to it via an interface card and a six-foot coil cord. Numeric pad, all special key characters, etc. have their own keys; special function keys are defined for the commonly used TI programs such as TI-W, E/A, XBASIC, and MULTIPLAN.

There are two models; the 99/84 is selling, at last information, for $149.95, and has 84 keys on the board. The 99/101 provides even more keys (101 of 'em), with the function keys across the top rather than down the left side (this will allow the use of the standard keystrips) and is priced at $164.95.

Now I know the above seems a bit pricey. However, if you consider the current availability of the PC attachment, and the ability to expand the TI beyond all previous considerations, it really does seem to me that this would be right nice an addition to the system. It can allow you to stack the console atop the PEB or hang it on the wall or the side of the monitor to get it out of the way. The model 101 only can be equipped with an optional 25 foot (!!) coil cord for any of you who like to get WAY back and use your projection TV as a monitor. You can contact the RAVE folks at RAVE 99; 23 Florence Rd; Bloomfield, CT 06002. (Thanks to the LONG ISLAND USERS GROUP and the ATLANTA A9CUG CALL newsletter for the information above).

Seems to me this might be the solution to the problem of using the TI console keyboard with the PC BRIDGE.

-TOM- MSP

XBASIC REQUIRED

From MSP member George Madline comes a few comments on last months column.

1) "Don't Lose That Line" talked about saving a program line after an accidental "Erase" (FCTN 3). George says that using CLEAR (FCTN 4) will also work to save the line. This does not give you an "Incorrect statement" warning, but just clears the newly inputed line thus giving you the old line back.

2) You can trick the pre-scan into accepting lines without actually running them by hiding them behind a GOTO. For example;

```
100 GOTO 150
110 CALL CLEAR :: CALL HCHAR(1,
1,32):: DATA :: X,Y,Z=0
     *
     *
150 !@P-
160 REM rest of program
```

While working on a program, include the following line as the first line of the listing. Updating the program is made easier since you do not have to worry about backing up over another program should you forget what you called it.

```
1 !SAVE DSK1.FILENAME
```

When you are ready to backup, recall line #1 to the screen for editing. (Press 1, FCTN X) Press ENTER without editing the line. Now press REDO (FCTN 8), spacebar 3 times to remove the "1 !", and press ENTER. The program will save under the proper filename.

The following tips come to us from the Tasmanian TI Users Group.

Sometimes there is a noticable pause when printing a character, word or phrase from a DATA statement in a FOR-NEXT loop. e.g.

```
DATA 71,82,69,69,84,73
FOR Y=1 TO 6
READ L
CALL HCHAR(9,Y,L)
NEXT Y
```

The pause is before the last letter is printed. This problem can be circumvented by adding a non-printable character such as ASCII 32 to the DATA statement and printing it at the end of your series...

```
DATA 71,82,69,69,84,73,32
FOR Y=1 TO 7
READ L
CALL HCHAR(9,Y,L)
NEXT Y
END
```

Ever wanted to enter a CALL KEY statement that would only take one input at a time, no matter how long you held the particular key down? Here is an example that may help...

```
110 CALL KEY(0,K,S)
120 IF S<1 THEN 110
```

By restricting the status to a +1, you can control the unit more easily. This overcomes the problem of the sometimes repeating key.

Would you like to use TWO keys at the same time? Eg, if you wanted to move a target and then fire upon it. Well, this is possible through the use of the split keyboard. When using the CALL KEY and it asks you for the key unit, you have the option of 0-5. 0 allows you to use all of the keyboard but with only one input. 1 allows you to use the left side of the keyboard or remote control 1. 2 allows you to use the left side of the keyboard or remote control 2. 3, 4 or 5 are reserved for future use. When using 1 or 2 it is like having two keyboards tied together.

Another way to print data to a screen to stop the annoying habit of scrolling. Try this variation...

```
100 INPUT "DATA":A$
  (or READ A$ or A$= etc.)
110 FOR R=1 TO 24
120 FOR C=1 TO 32 (or 3 to 28)
130 IF LEN(A$)<(R-1)+C THEN 170

140  CALL HCHAR(R,C,ASC(SEG$(A$,
    (R-1)+C,1)))
150 NEXT C :: NEXT R
```

There are lots of variations of this, but line 140 is the key line.

Test Your I Q

Just concentrate, but remember you have only three minutes:

1. Read everything before you do anything.
2. Put your name in the upper right hand corner of this paper.
3. Circle the word name in sentence two.
4. Draw five small squares in the upper left hand corner of this paper.
5. Put an "I" in each square.
6. Put a circle around each square.
7. Sign your name under the title.
8. After the title write Yes, Yes, Yes.
9. Put a circle around each word in sentence No. 7.
10. Put an "x" in the lower left hand corner of this paper.
11. Draw a triangle around the "x" you just put down.
12. On the reverse side of this paper multiply 703 by 9805.
13. Draw a rectangle around the word "paper" in the sentence No. 4.
14. Call out your first name when you get to this point in the test.
15. If you think you have followed directions up to this point call out, I have.
16. On the reverse side of this paper add 8950 and 9850.
17. Put a circle around your answer. Put a square around the circle.
18. Count out loud in your normal speaking voice backwards from 10 to 1.
19. Now that you have finished reading carefully, do only sentences one and two.

_____

SIGN YOUR NAME

SPEECH.....cont. from Page 9

```
230 LOW=LOW+1
240 PRINT SEG$(HEX$,HIGH,1);
250 PRINT SEG$(HEX$,LOW,1);
260 IF I/10<INT(I/10) THEN 280
270 PRINT
280 NEXT I
290 PRINT : :
300 GOTO 120
```

Finally, in appendix M of the XBASIC manual is a description of how to add some suffixes onto speech words. This is a good description of how CALL SPGET is used and how the speech data can be taylored and combined with other speech data.

The majority of the information presented in this discussion on speech was derived from the SPEECH EDITOR CM manual.

WANTADS

FOR SALE

TI 99 4/A computer console. Like new, $35. Also will sell box car RS232 and Okidata printer cable. Best offer.

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