ADAMtalk 1.1

A Program for use with the EVE Speech Synthesizer

Created by Bob Lennes

Important: Read all instructions Carefully

WARNING: Do not turn the power off or on with the disk or tape still in the drive. Doing so may cause damage to programs. Keep disks and datapacks away from T.V.'S, printers, and any other magnetic fields.

Copying ADAMtalk

It is strongly recommended that you make yourself a backup disk or tape by using any copy program. However, in the best interest of everyone, please do not give copies to your "friends." It is a form of stealing.

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I. System Requirements

ADAM Computer System

One Digital Data Pack Drive

Eve SS-CC Speech Synthesizer / Clock Calendar

Optional

One or two ADAM disk drives

Second Digital Data Pack Drive

64K Memory Expander with RAM drive software

Audio Amplifier or Video Monitor with audio input

II. Getting Started

Make sure the SS-CC is attached, and turn on the computer. Insert the tape or disk into drive one and hit the RESET button. If the SS-CC is properly connected and the date has been previously set then the date and time will appear at the top of the screen . (to set the calendar and clock, see your EVE SS-CC manual.) The *Loading ADAMtalk..* message will appear and soon after loading the title screen will appear.

The title screen will remain for about 20 seconds, unless you hit any key to exit it immediately. Soon the main program will load, and you will see:

*   ADAMtalk 1.1
*

If your SS-CC is properly connected, ADAM will greet you with a verbal 'Hello' and the asterisk prompt appears, indicating you are at the command level.

III. Command Level

Hitting the [ESCAPE/WP] key at any time brings you to this level. At the command level, you can type one of the following:

S- Sentence Mode- ADAM interprets and says everything you type in without using the dictionary.

U- Use Dictionary- Like sentence mode, except the dictionary in memory is checked first to see if any of the words are present.

I- Input the Dictionary- from either disk, tape or RAM drive. Unless this is done, the dictionary is empty after every boot or clear.

O- Output the Dictionary to disk, tape, or RAM disk.

D- Define a word and store it in the current dictionary in memory. If no allophones are given for the word you enter, ADAM will delete it from the dictionary if the word is present

L- List the words in the dictionary- you can either list by letter or list all with the asterisk key. To get a hardcopy of the dictionary, hit the [PRINT] key before you list. (See the section on special keys)

H- Help

DELETE- Delete an 'H' type file from disk, tape, or RAM disk.

HOME- Home the cursor and clear the screen.

CLEAR- Clear the dictionary,- Erases all entries unless the [WILDCARD] key is pressed at confirmation.

IV. Special Keys

Several special keys can be used at all times when ADAM is waiting for input from the keyboard:

[ESCAPE/WP]- Returns you to command level (the asterisk prompt)

[PRINT]- Toggles the printer on and off.

[CONTROL] + [S] - Freeze the screen until another key is pressed.

[BACKSPACE] or the left arrow key- backspaces the cursor.

At Sentence or Use Dictionary mode

[ESCAPE/WP] - Returns to command level. All of the other above keys. are also still valid.

[WILDCARD] - Verbally repeats the previous sentence's allophones.

[MOVE/COPY] - Copies the previous sentence to the current sentence.

[RETURN] - Enter the sentence to be interpreted.

V. How the ADAMtalk Interpreter Works

Every time you type in a sentence and hit [RETURN], ADAM has to interpret it to allophones. The number eqivalents of these allophones will appear on the screen, each word to a line. These numbers are very important, since they can be used in defining a word to add to the dictionary or for your own programs. (See the section on how to use ADAMtalk to create programs with voice.) If you are in Use Dictionary mode, a 'D' will appear before the allophone numbers if they came from a dictionary entry.

Each word in a sentence can be separated by a space or one of several available puncuation marks. They are:

NOTE: See the allophone chart for a definition of the allophones.

Space, period, exclamation point, or comma- Interpreted as PA5.

Dash- Interpreted as PA1. The dash can be used to separate syllables so that a dictionary entry could be used. E.G. if the word 'LOVE' was in the dictionary, then you would type 'LOVE-S'

Direct Character Interpretation

The characters are interpreted as follows, if they are not part of a special combination or dictionary entry:

A	/AE/	26	N	/NN2/	56	
B	/BB1/	28	O	/OW/	53	
C	/KK3/	08	P	/PP/	09	
D	/DD1/	21	Q	/KK2/	41	
E	/EH/	07	R	/RR1/	14	
F	/FF/	40	S	/SS/	55	
G	/GG1/	36	T	/TT2/	13	
H	/HH1/	27	U	/AX/	15	
I	/IH/	12	V	/VV/	35	
J	/JH/	10	W	/WW/	46	
K	/KK2/	41	X	/KK/ + /SS/	42,55	
L	/LL/	45	Y	/YY2/	25	
M	/MM/	16	Z	/ZZ/	43	

Special Character Combinations

G + [SPACE] = /GG3/ (34)
Y + [SPACE] = /AY/ (6)
N + [SPACE] = /NN1/ (11)
AR = /AR/ (59)
EE = /IY/ (19)
OW, OU = /AW/ (32)
ER = /ER1/ (51)
OR = /OR/ (58)
OY = /OY/ (5)
TH = /TH/ (29)
CH = /CH/ (50)

T + [SPACE] = /TT1/ (17)
AU = /AO/ (23)
EW = /UW1/ (22)
AY = /EY/ (20)
NG = /NG/ (44)
UE = /UW2/ (31)
EA = /EH/ (7)
PH = /FF/ (40)
HN = /NN1/ (11)
AH = /AA/ (24)

Special Word Cases

Some combinations of more than two letters have a special interpretation.
Some letters may also have a special interpretation depending on their location
in the word.

Words in the format:

A + [any letter] + E = makes long A sound /EY/ (20)
I + [any letter] + E = makes long I sound /AY/ (6)
TH + E = TH changes from /TH/ to /DH2/ (54)
TH + EN = TH changes to /DH1/ (18)
OO + K = the 'OO' is equivalent to /UH/ (30)
OO + [any letter except K] = /UW2/ (31)
YE = when not at the beginning of a word /AY/ (6)
WH + O = 'WH' is equivalent to /HH2/ (57)
WH + [any letter except O] = /WH/ (48)
QU = /KK2/ (41) + /WW/ (46)
D = at the beginning of a word /DD2/ (33)
EL or LE = at end of word /EL/ (62)
GH = at end of word /FF/ (40)
AIR = /XR/ (47)
EAR = /YR/ (60)

Repetition for Stronger Sound

The allophone /EH/ and the letters E, F, G, I, S, and U are repeated for a
stronger sound unless they are part of a special combination.

VI. Defining or Deleting A Word to or from the Current Dictionary

To define or delete a word, follow these steps:

1) ADAM will ask you for the word.

2) After confirming the word is correct, ADAM asks you for the allophones.

3) Enter the allophone numbers (0-63), hitting [RETURN] after each number. Hit just the [RETURN] key (no number) when you are finished entering the allophones.

4) If you wish to *delete* a word entry from the dictionary, enter the word and do not enter any allophone numbers.

5) The [ESCAPE/WP] can be used any any time to return to command level.

VII. Storing , Loading and Deleting Dictionary Files

To [I]nput, [O]utput, or [DELETE] a dictionary file, follow these steps:

1) ADAM asks you for the drive. Type either A for DISK 1, B for DISK 2, C for TAPE 1, D for TAPE 2, or M for RAM drive (if you have the proper software).

2) You can then enter the filename with a [RETURN] . To display a *catalog* of the drive, hit only [RETURN] with no filename.

VIII. Technical Specifics

* ADAMtalk 1.1 is a fast-loading program implemented by SmartBASIC 2.0. Do not try to BRUN ADAMtalk with SmartBASIC 1.0.

* The dictionary files are standard Basic binary memory files, but you cannot BLOAD or BSAVE a dictionary file directly from SmartBASIC, since the dictionary files have a special H file type of 4 rather than SmartBASIC's 2. Therefore, ADAMtalk will not allow you to load any other H file except those created by ADAMtalk itself.

* There is a limit on word size of 25, with 38 allophones per word.

* Every 2 letters in the dictionary are allocated 1K (1,024 characters or allophones)

* Each 1K starts with a byte containing the number of word entries, and word entries are in the format: TOTAL_LEN byte, WORD_LEN byte, word, allophones.

IX. Errors

Due to the fact that ADAMtalk is a complex program implemented by SmartBASIC, the possiblity of the system corrupting itself (a Fatal System Error) may occur after extended use of the program.

Most errors are not destructive and handled by ADAMtalk itself:

File Errors

* *File protected* - the file is locked. It cannot be deleted unless it is unlocked from SmartBASIC or some other utility.

* *File Not Found* - the filename as you typed it does not exist.

* *Not Correct File Type* - you tried to input a file other than a dictionary file.

* *Disk* (or Tape) *Error* - there is a problem with your drive or media.

* *No More Room On Disk* (or Tape) - the disk or tape is full.

System Errors

* *Fatal System Error* (This message will not be displayed, but Basic will usually return you to the prompt) - For some reason after long use of ADAMtalk, Basic has a tendency to corrupt itself. If you are returned to the ']' prompt, you can still save your dictionary by typing the following:

] *POKE 20155, 4* [RETURN]

] *BSAVE FILENAME, A29000, L13312, D1* [RETURN]

] *POKE 20155, 2* [RETURN]

D1 can also be D2, D3, D4, or D7. To continue using ADAMtalk, you must re-boot.

* *Stack Overflow Error* - If this error occurs (usually it occurs with a few long sentences), then it is recommended that you use the [CLEAR] key to clear the stack (See section IV).

Special Use of the WILDCARD Key

If a system error occurs, you have to reboot or clear. If Reset is hit, the last part of your dictionary may be intact. If you use [CLEAR], then all of your dictionary is intact; You only have to press the [WILDCARD] key before ADAM says the 'Hello' message so that the dictionary is not erased.

Constantly Store Your Dictionary

It is important that if you are working on building a dictionary that you constantly store (output) it, so that in case of a Fatal System Error, power failure, etc. all data is not lost.

X. Using ADAMtalk to Create Basic Programs with Voice

Using the allophone numbers displayed after each line you type in sentence mode, you can add a voice subroutine to your programs:

```
5 LOMEM: 28280
10 REM Machine Language To Use Voice Synthesizer
20 DATA 62,129,211,75,219,74,230,1,202,100,110,58,0,0
30 DATA 211,72,246,128,211,73,175,211,73,201
40 FOR t = 28256 TO 28279: READ v: POKE t, v: NEXT t
```

Using possibly DATA statements with READ, you could send each allophone to the voice synthesizer:

```
490 READ a% : IF a% = 99 THEN GOTO 999
500 POKE 0, a% : CALL 28256: GOTO 490
900 DATA 27,7,45,15,53,99
999 END
```

XI. Allophones by Alphabetical Order

ALLOPHONE	DECIMAL VALUE	SAMPLE WORD	DURATION (MS)	ALLOPHONE	DECIMAL VALUE	SAMPLE WORD	DURATION (MS)
PA1	00	Pause	10	/JH/	10	dodGE	140
PA2	01	Pause	30	/KK1/	42	Can't	160
PA3	02	Pause	50	/KK2/	41	sKy	190
PA4	03	Pause	100	/KK3/	08	Comb	120
PA5	04	Pause	200	/LL/	45	Lake	110
/AA/	24	hOt	100	/MM/	16	Milk	180
/AE/	26	hAt	120	/NN1/	11	thiN	140
/AO/	23	AUght	100	/NN2/	56	No	190
/AR/	59	alARm	290	/NG/	44	aNchor	220
/AW/	32	OUt	370	/OR/	58	stORE	330
/AX/	15	sUcceed	250	/OW/	53	snOW	240
/AY/	06	skY	260	/OY/	05	bOY	420
/BB1/	28	Business	80	/PP/	09	Pow	210
/BB2/	63	Bath	50	/RR1/	14	Rural	170
/CH/	50	CHurch	190	/RR2/	39	bRain	150
/DD1/	21	CoulD	70	/SH/	37	SHip	160
/DD2/	33	Do	160	/SS/	55	veSt	90
/DH1/	18	THey	290	/TH/	29	THin	180
/DH2/	54	THey	240	/TT1/	17	parT	100
/EH/	07	End	70	/TT2/	13	To	140
/EL/	62	SaddLE	190	/UH/	30	bOOk	100
/ER1	51	littER	160	/UW1/	22	tO	100
/ER2/	52	fIR	300	/UW2/	31	fOOd	260
/EY/	20	bEIge	280	/VV/	35	Vest	190
/FF/	40	Food	150	/WH/	48	WHig	200
/GG1/	36	Got	80	/WW/	46	Wool	180
/GG2/	61	Guest	40	/XR/	47	repAIR	360
/GG3/	34	wiG	140	/YR/	60	clEAR	350
/HH1/	27	He	130	/YY1/	49	Yes	130
/HH2/	57	Hoe	180	/YY2/	25	Yes	180
/IH/	12	sIt	270	/ZH/	38	aZure	190
/IY/	19	sEE	250	/ZZ/	43	Zoo	210

XII. Questions and Comments

Any questions or comments are appreciated. Send them to:

Bob Lennes
LNS Ware
14637 Atlantic Avenue
Dolton, Illinois 60419

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Using the Dictionary

Each time you boot ADAMtalk, the
dictionary is empty. On your ADAMtalk
disk or tape, there is a premade
dictionary file which you can input
called 'SAMPLE.'

Creating Basic Programs with Voice

The program given is only a sample that
says 'Hello'. Any allophones can be in
the data statement, as long as the last
number in the data is 99.