TRAN

TRAN is a text-to-speech program for the IBM-PC. It can read ASCII text files, translate normal English spelling to phonemes, and sound out each phoneme through the speaker of the IBM-PC.

```
usage: tran [+/-flags] [-options] [filename]
```

The filename is an ASCII text file (with no word processor formatting codes). If no filename is given TRAN reads input from the keyboard. The flags and options control various features of the program. A '+' turns the flag on and a '-' turns the flag off. Options can use either '+' or '-'.

```
flags: + = on, - = off
       p   type output of phoneme translation [off]
       r   add rule no. to phoneme translation [off]
       s   say output [on]
       t   echo input to console [off]
       T   do phoneme translation [on]
       v   type other internal information [off]

options:
       c        say the time of day [once]
       C        say the time of day [every 10 seconds]
      d1 N      use N for space rate timing [5]
      d2 N      use N for voice rate timing [1]
       R        print all pronunciation rules
       ?        type usage
```

The following are example of ways to use the TRAN program. You can have tran type out and read this file with the command:

```
tran +t tran.doc
```

If you also want to see the phoneme translation add the +p flag:

```
tran +p +t tran.doc
```

You can save the phoneme translation in a file by typing:

```
tran -s +p tran.doc > tran.phn
```

and listen to the phoneme at some other time file by typing:

```
tran -T tran.phn
```

The TRAN program will say the time once if you type:

```
tran +t +c
```

or will continue to say the time every 10 seconds if you type:

```
tran +t +C
```

There are two timing parameters, d1 and d2, that control the rate that TRAN speaks. Making d1 larger increases the pauses between words and

making d2 larger lowers the pitch of the voice phonemes. Both d1 and d2 must have a value of 1 or greater. On an IBM-PC/XT, good values for the timing parameters are d1=2 and d2=1. If these parameters are not set explicitly, the program will try to determine acceptable values automatically. Setting these values, will let TRAN by-pass the automatic setting, which save a second or two starting the program. These values can be set on the command line:

```
tran -d1 2 -d2 1 ...
```

or by using the environment variable TRAN to pass these values as d1,d2:

```
set TRAN=2,1
```

On a 10 MHz IBM-PC/AT the timing prarameters need to be larger, d1=4 d2=13.

Most of the speech-to-text rules used in the tran program come from an article in an IEEE journal:

Elovitz, H.S., Johnson, R., McHugh, A., and Shore, J.E. (1976). "Letter-to-Sound Rules for Automatic Translation of English Text to Phonetics," IEEE Transactions on Acoustics, Speech, and Signal Processing, Vol. ASSP-24(6), 446-458.

The program contains a set of 35 phonemes, each encoded as a sequence of bits controlling the position (in or out) of the PC speaker. The phoneme codes come from the public domain program SPEECH by Andy McGuire.

Send your comments and suggestions to:

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