

## — SOFTWARE ANNOUNCEMENTS —

### New Software

#### **Console-Protocol and Turbo-C Options for the McClelland and Rumelhart PDP-Handbook Programs**

The PDP handbook (McClelland & Rumelhart, 1987) is a workbook with exercises demonstrating some of the principles discussed in the two theoretical volumes on parallel distributed processing (McClelland & Rumelhart, 1986; Rumelhart & McClelland, 1986). Supplied with the handbook are seven programs on diskettes in both executable and source code forms. These programs run on the IBM PC class of computers for on-line simulation of many of the networks discussed in the theoretical volumes.

When just learning to use the programs, beginners sometimes become confused about what they have actually commanded the programs to do, and are therefore at a loss when interpreting the hard-copy output at the end of a session. For that reason, I have modified and recompiled the programs so that they create a file containing an almost verbatim protocol of the console interchanges between the programs and user for reference after the end of a session. Also incorporated is the option of compiling with Borland Turbo C, rather than the Microsoft C or UNIX C under which the unmodified programs are compiled. Permission has been granted by the original authors for me to distribute my modifications to scientific and educational users, with the following provisos:

1. I supply the source code form of only a few of the many files—just those that I had to modify. Therefore, my modifications are of no possible use to anyone who does not also have the original set of program files that are supplied with the purchased handbook.

2. The user must recompile the programs using Turbo C, Microsoft C, or the original UNIX C, and such compilation should not be attempted without a hard disk.

3. I cannot guarantee satisfaction or future support.

On receipt of a written request, accompanied by a self-addressed and postpaid mailer with blank diskette, I will return the diskette with the modified source files on it, along with a README file describing the intended usage and explaining how to recompile the seven PDP-handbook programs using Turbo C. The diskette must be 5.25 in.; the format will be standard IBM 360K.

Correspondence should be addressed to Phillip L. Emerson, Department of Psychology, Cleveland State University, Cleveland, OH 44118.

#### REFERENCES

McCLELLAND, J. L., & RUMELHART, D. E. (1986). *Parallel distributed*

*processing explorations in the microstructure of cognition: Vol. 2. Psychological and biological models.* Cambridge, MA: MIT Press.  
McCLELLAND, J. L., & RUMELHART, D. E. (1987). *Parallel distributed processing: A handbook of models, programs, and exercises.* Cambridge, MA: MIT Press.

RUMELHART, D. E., & McCLELLAND, J. L. (1986). *Parallel distributed processing explorations in the microstructure of cognition: Vol. 1. Foundations.* Cambridge, MA: MIT Press.

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#### **Operant Laboratory: Software for System and Directions for Constructing Hardware**

A system for inexpensively programming operant chambers is described. A simple circuit is presented for an interface box that interconnects the parallel printer port of an IBM-compatible microcomputer to feeders, house-lights, and so forth. The microswitch attached to the lever in the operant chamber is placed in parallel with a switch in the microcomputer keyboard. Detailed directions for modifying the keyboard are included. Software is provided for magazine training, shaping, extinction, continuous reinforcement, fixed ratio, variable ratio, fixed interval, variable interval, and differential reinforcement of low- and high-rate schedules. Examples of schedules are diverse enough to facilitate writing programs for other schedules of reinforcement. Data for an operant session are stored in a file. Later, a cumulative recording of the session can be printed with a standard printer in conjunction with software that is provided.

A manual, source code for the computer program, and a compiled version of the program are available on a floppy disk (5.25 in., DSDD) for \$3.00. The source code was written in Power BASIC with the constraint that it also run in Turbo and QuickBASIC.

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