news. If you create conditions incompatible with life, the program lets you know your patient is dead; this is the MacMan equivalent of crashing your airplane in a flight simulator, and should this happen you merely start again, because there is no equivalent to reversing the program and resurrecting the dead. Some of the experiment options include: cutting the buffer nerves, resetting baroreceptor function to that expected of a moderately hypertensive subject, and working changes in any of the following: the systemic arterial and/or venous resistance, the cardiac pump performance, mean intrathoracic pressure, the blood volume, and the venous capacitance. Usually you can predict what will happen from what you know about physiology, when you change one factor only. The real value of the program comes when you change one factor only. The real value of the program comes when you change two or more factors simultaneously, which sometimes leads to unexpected results. This conclusion may, of course, be due to my rusty physiology, but I suspect most physicians and physiologists would find educational value in making multiple changes and seeing what happens. Our built-in compensatory mechanisms are impressive. Indeed, the program may make you agree with the Psalmist (139:14) that we are "fearfully and wonderfully made."

In conclusion, MacMan is, for the proper hardware, a clean, simple, yet instructive physiologic simulation which is highly recommended.

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SPSS/PO+. SPSS Inc., 444 N. Michigan Avenue, Chicago, IL 60611, 1987. $795.00.

SPSS/PO+ is a modular program which originated from a widely used mainframe version capable of processing large data files. It has been ranked as offering the same volume as such programs as SAS and BMDP. The package evaluated for this review was the SPSS/PC+ base package, containing all data- and file-handling routines: description, categorization, correlation, analysis of variance, and regression procedures as well as report writing, graphing, and plotting functions. The base package is available in both 3¼-inch and 5½-inch floppy disks. The latter consists of eight floppies, including a key diskette and a tutorial diskette; the base package contains a large detailed manual (667 pages) and two smaller supplementary manuals.

Installing the program was fairly uncomplicated once I followed the instructions in the supplemental manual Getting Started with SPSS/PC+; however, the instructions in the larger manual were incorrect. A problem arose when I tried to install the key diskette on a drive "g" on an IBM model 80; the program could not be installed on a drive higher than "f."

To familiarize myself with the program. I began with the SPSS/PC+ tutorial disk, which can be used independently without installing the base program. In 14 lessons, the user is informed of SPSS/PC+ commands and operations along with basic data analysis concepts. I thought that the tutorial did an excellent job of introducing me to the following: the preparation of a set of data for analysis, the use of help requests, commands, log files, and external files. After each lesson, the main points were reviewed. Simple exercises were also provided for the user to work through various procedures.
I tried a base test to verify that the base system installation was successful. The program ran a histogram as well as a cross tabulation and plots of several variables in an acceptable format. The plot of the histogram offered a normal plot superimposed on the data, which I considered a redundant feature. I also ran a multiple regression and an anova with little difficulty. Numerous statistics were obtained by subcommands: chi-square, phi, Cramer’s V, contingency coefficient, lambda, uncertainty coefficient, Kendall’s tau-b and tau-c, gamma, Somer’s d (symmetric and asymmetric), eta, and Pearson’s r. A command is available for all of the above, however. SPSS/PC+ has an efficient method for obtaining statistics by using a number for each of them. A wide range of non-parametric statistics are also offered.

Defining data to SPSS/PC+ involves naming to input data where one must define locations for variables and indicate whether variables are alpha-numeric. The program is menu-driven, which can be advantageous, particularly for the beginner, or cumbersome, for the experienced user. The programming language involves using bars and periods, which makes it a little more involved than other competitive packages; moreover, the program is limited to 200 variables for each observation.

The review command is the SPSS/PC editor, which permits editing or browsing through log and listing files. This command allows full-screen editing with a current listing file. In addition, there is an option of editing both the listing file and the log file simultaneously between command and output. One can change commands, insert new ones, and then automatically return to SPSS/PC and execute a group of commands. An option to use another editor is also provided.

The execute command allows the running of almost any other program from inside SPSS/PC+ and return to the session. Using the review editor offers the advantage of easy return to files on memory and the access to a help menu of SPSS/PC+.

SPSS/PC+ reports the ability to process files from other PC software such as Lotus 1-2-3, Symphony, dBASE II or III, or Multiplan. In fact, a Lotus file was easily called into the system and successfully used for further analysis. The fact that the program includes KERMIT allows file transfer facility to mainframe computer to SPSS-X or SAS (providing the mainframe facility also has KERMIT) as well as read and write ASCII files.

The manual was direct and easy to read. It displayed nicely annotated printouts to provide samples of graphics. Statistical formulas and descriptions of when to use basic statistics were also provided. I found the section on Pearson chi-square statistics very good, especially since it outlined the conditions which must be met in order to use the statistic. These features make the manual a suitable teaching tool in introductory statistics. In fact, sample sessions are provided for basic commands.

Available additions to the base package include (a) SPSS/PC+ Data Entry: for data entry, cleaning, and editing, allowing data to be entered in a spreadsheet manner; (b) SPSS/PC+ Advanced Statistics: containing procedures such as factor, cluster, loglinear, discriminate analyses, and multivariate analysis of variance; (c) SPSS/PC+ Graphics: for more sophisticated presentation of data; (d) SPSS/PC+ Tables: to display results of analyses or summarized data in various tabular forms; (e) SPSS/PC+ Mapping: a combination of Map-Master (by Ashton-Tate) and a map procedure. Technical support is provided for all registered users by phone, and training is available on a regular basis in several cities around the world. A newsletter is also available.

SPSS/PC+ is made to run on IBM PC XT or AT, COMPAQs, or other compatible microcomputers. The base program requires 384 K memory. The SPSS/PC+ Tables
and the Manova procedure in the advanced statistics package require 448 K. The base package requires a minimum of 1 megabyte of hard disk space, and 7 megabytes of hard disk space are required if the complete system with all four options is installed. In general, a 10-megabyte hard disk or hard card is recommended (20 megabytes is recommended for mapping and large data files). The program runs on PC-DOS(MS-DOS) 2.0 or higher. SPSS/PC+ Graphics requires either an IBM Enhanced Graphics Adaptor, IBM Color/Graphics Monitor Adaptor, or Hercules Graphics Card.

SPSS/PC+ is a fine package for performing basic statistics and editing. SPSS mainframe users will, I am sure, be delighted to have this version for their PCs, as it provides them with the option of adding more sophisticated procedures to the basic package. The question for the unacquainted user is whether to buy cheaper software packages that offer the same range of features. Also, the user should consider whether to invest in more expensive software, which offers more ease in data management and programming. These points are important to keep in mind when considering the purchase of this package.

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