— SOFTWARE ANNOUNCEMENTS —

New Software

CORV: A Microcomputer Program for Five Models of Correspondence Analysis of Contingency Tables

Simple correspondence analysis (CA) refers to a series of techniques for the principal component analysis of two-way contingency tables so that the rows and columns of a table can be geometrically represented as points in multi-dimensional space. All variants of CA involve the extraction, by means of the singular value decomposition, of the characteristic roots and vectors of a normalized contingency table. However, a variety of normalizations of the basic structure of the CA solution have appeared in the statistical literature for over 50 years under such names as: (1) Carroll, Green, and Schaffer's (1986) distance normalization; (2) Greenacre's normalization (1984); (3) Nishisato's (1980) "optimal" scaling; (4) Hill's (1974) reciprocal averaging normalization; and (5) Gabriel (1971) and Maxwell's (1977) biplot normalization.

Hoffmann (1991) reviewed four major commercial programs for correspondence analysis, but none of them incorporated all of the normalizations available in the literature. Since different authors have claimed that differences in normalizations provide different interpretations of the resulting point projections and vectors in correspondence analysis, the microcomputer program CORV was written to implement five major normalizations of correspondence analysis of two-way tables. Although somewhat smaller than the programs in Hoffmann's (1991) article, the program provides a practical tool for users who wish to explore variations of simple correspondence analysis.

Input. Users state the number of rows and columns of the contingency table to be analyzed. The table can be entered either from the keyboard or from an ASCII file. The program was designed to handle up to a 30-row by 30-column table. After examining the output, users may choose the number of factors they wish to retain, and they are given a choice of rotating the factor solutions by a varimax orthogonal rotation.

Output. All output appears both on the screen and in an ASCII text file. After echoing back the original data, the program reports the eigenvalues, the proportions of extracted variance for each factor, and the approximate chi-square tests (Maxwell, 1977) for testing the statistical significance of association for the whole contingency table and for individual factors. Since CA researchers do not yet agree on the choice of scaling the eigenvalues and

eigenvectors of the resulting decomposition of the contingency table, five normalizations of CA (see above) are reported. As an option, users are asked to select an appropriate number of factors to retain for further varimax rotation of the biplot normalization.

Computer and language. The program was written in Microsoft QUICKBASIC Version 4.5 and was compiled as a 38K EXE file for MS-DOS/PC-DOS machines. Given the size of the program and the likelihood that most contingency tables will rarely have more than 30 rows or columns, the program does not require a hard disk. Users should have at least 512K of RAM. The program does not require a math coprocessor but it will use one if it is present. The program does not provide high-resolution graphic displays, so that any monitor will be sufficient.

The program, along with a user's guide, a shareware ASCII text editor, and a low-resolution plotting program, will be sent free of charge on request. Interested readers should send a 3.5-in. diskette (any density) or a 5.25-in. double density diskette, along with a self-addressed, stamped diskette mailer to Bernard S. Gorman, Psychology Department, Nassau Community College, Garden City, NY 11530.

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