A BASIC PROGRAM FOR CALCULATING SCALE VALUES USING FOUR UNIDIMENSIONAL SCALING METHODS IN RANDOM SUBSAMPLES

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This MS BASIC program calculates and stores for further analysis scale values obtained from random subsamples using four unidimensional scaling methods: Dunn-Rankin's variance stable rank sums, Thurstone's case V (paired comparisons), Thurstone-Chave's IAI, and Green's successive categories.

RESEARCHERS who work with unidimensional scaling methods often need to compare scale values obtained from several methods and/or compare values obtained from several subsamples. The computer program described in this paper accomplishes this task easily and systematically. It offers the options of calculating the scale values from (a) the whole data set or (b) random subsamples extracted from the whole data set.

The program computes scalar values for (a) Dunn-Rankin's variance stable rank sums, (b) Thurstone's Case V (paired comparisons), (c) Thurstone-Chave's IAI, and Green's successive categories (for descriptions of each of these methods see Dunn-Rankin, 1983; Meliá, 1991). Suggestions about the selection of appropriate unidimensional scaling methods and a critical review of these scaling methods, assumptions, and procedures may be found in Torgerson (1958) and Meliá (1991).

Recent papers have been published regarding agreement among scale values produced by multidimensional scaling methods and related topics (Conchillo, 1987; Conchillo and Pérez-Meléndez, 1987; Meliá, Sospedra, Molina, Ramón, and Islas, 1991; Meliá, Sospedra, Ramón, and Molina; Olea and San Martín, 1989; Pon-

soda, García, and Olea, 1989; Ruiz and Conchillo, 1992; San Martín and Olea, 1989). Although some of these reports have used working programs, the computer program described in this paper is the first available for public use that includes features that are user-oriented.

Program Input

The user must open a file and supply the number of cases, the number of objects or items, and the whole sample size as a program requirement. After determining the subsample size and the number of random subsamples to extract, the user can select a method of scaling. Then, the Lordahl (1988) algorithm is employed to extract random subsamples of a fixed size.

Program Output

The output includes scalar values and can be stored to check the stability between samples and the degree of agreement between methods. The program uses the Rose (1988) algorithm to calculate z-score probabilities and to support statistics generated for the Dunn-Rankin (1983) procedure.

Limitations

There are no other limitations than those intrinsic to the methods employed or common computer restrictions. The upper case limit depends on the computer store capabilities and the lower, on the methods requirements. The program is written in MS QuickBASIC for Apple Macintosh and is suitable to other computers. Comment lines provide clear structure, input/output specification and the opportunity to include, remove, or change specific scaling methods without difficulty.

Program Availability

The program is available both as a listing or as a Macintosh 3 1/2″ diskette. It may be obtained by sending a formatted floppy diskette and returnable mailer to: Jesús Gabriel Molina, Facultad de Psicología: Area de Metodología, Av. Blasco Ibañez, 21, 46010-Valencia (Spain).

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