compared with the mean of a control group. In using the Levy modification of the Dunnett test, each of $K-1$ independent correlations is compared with a standard correlation. Levy illustrated his method with a hypothetical example in which the product-moment correlation between age and scores on a test of abstract reasoning for a sample of North American children was compared with similar correlations for samples of children from three other cultures. Additional applications, such as those in a psychometric context involving validity coefficients or item discrimination indices, will occur to the reader.

The program elicits information regarding the number of samples, the common sample size (only equal n applications can be processed), the significance level, and the sample correlation coefficients. The monitor display of the information typed in makes it possible for the user to correct input errors. A normal deviate (z) is printed out for each of the $K-1$ comparisons, along with the z value required for statistical significance. Alpha levels of .10, .05, .02, and .01 are available for nondirectional tests of hypotheses, and these values can be halved to provide significance levels for directional tests. Joint significance levels are used for the entire set of $K-1$ comparisons. The program accommodates up to 10 independent samples, including the control or standard sample. The program is written in Microsoft QuickBASIC 4.5 and will run on IBM PC-compatible computers.

A copy of the program can be obtained by sending a 5.25- or 3.5-in. formatted diskette, together with a self-addressed, stamped mailer to Richard H. Williams, Department of Educational and Psychological Studies, P.O. Box 248065, University of Miami, Coral Gables, FL 33124.

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Tukey-Like Pairwise Comparisons Among Variances

All of the major statistical computer packages (e.g., SAS, BMDP, SPSS) contain subprograms for multiple comparisons on *means*. However, they usually exclude algorithms for comparisons defined on *statistics other than the mean*. A similar pattern is found in most of the standard textbooks in experimental design. This might lead one to conclude that the mathematical models for simultaneous comparisons among variances, product-moment correlations, or other statistics have not been developed. However, papers presenting procedures for conducting Scheffé-like, Dunnett-like, and Tukey-like comparisons constructed on statistics other than the mean have appeared in the psychological literature (see, e.g., Levy, 1975, 1977; Marascuilo, 1966).

Spjøtvoll and Stoline (1973) introduced "extended Tukey procedures" for application to fixed effects analysis of variance when sample sizes were unequal. They recommended that these procedures be used by investigators interested in conducting pairwise comparisons among sample means. Levy (1977) showed that these "extended Tukey procedures" could be applied to pairwise comparisons defined on variances, proportions, and product-moment correlations.

Although measures of central tendency or location are usually used in connection with multiple comparisons, in some studies variability or scale may be more relevant than location.

> In the behavioral sciences we sometimes expect that an experimental condition will cause some subjects to show extreme behavior in one direction while it causes others to show extreme behavior in the opposite direction. Thus we may think that economic depression and political instability will cause some people to become extremely reactionary and others to become extremely "left-wing" in their political opinions. Or we may expect environmental unrest to create extreme excitement in some mentally ill people while it creates extreme withdrawal in others. In psychological research utilizing a perceptual approach to personality, there are theoretical reasons to predict that "perceptual defense" may manifest itself in either an extremely rapid "vigilant" perceptual response or an extremely slow "repressive" perceptual response. (Siegel & Castellan, 1988, p. 156)

In research studies such as the above, analyses focusing on location rather than scale could be misleading.

The program enables the user to conduct pairwise comparisons on a set of K independent sample variances. The program prompts the user to input the number of samples, the sample sizes, the sample variances, and the significance level. The program displays the typed information so that errors can be corrected. Error trapping procedures are used so that interruptions during execution are minimized. The Studentized Q values, as described by Levy (1977), are printed, each of them representing the comparison between two independent variances. These observed Q values are then compared with a critical Q value. These tabled values, which appear in many experimental design textbooks, are included in the program. The program can accommodate alpha levels of .10, .05, .01, and .001 for nondirectional tests of hypotheses, and can handle up to 10 independent samples. Researchers requiring directional tests can halve these values. The program is applicable to analyses involving both equal and unequal sample sizes in the cells.

The program is written in Microsoft QuickBASIC 4.5 and will run on IBM PC-compatible microcomputers. A copy can be obtained free of charge by sending a 5.25- or 3.5-in. formatted diskette, together with a self-addressed, stamped mailer, to Richard H. Williams, Department of Educational and Psychological Studies, P.O. Box 248065, University of Miami, Coral Gables, FL 33124.

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Journal Reference Assistance

A number of programs have been written to assist students and researchers in making reference lists for books and journal articles. To ensure that references are correct, these programs prompt the user with detailed questions about each reference. For example, Manuscript Manager (1988) separately prompts users with questions about the last name and initials for each author, title of the manuscript, name of journal, and so forth.

The present Reference Help program follows a different approach to entering references. Reference Help provides access to a series of menus that allow the user to select an example of a reference that has the same form as the reference that the user is entering. In most cases the user can choose an example with as much specificity as necessary. For example, the user can select modifications from a menu so that the example has one, two, or three authors. Provisions for modifying the example do not intrude on rapid entry of a reference. If the user knows how to enter the reference with more than one author, the initial example need not be modified. When the user returns to the word processing program, the example or modified example is displayed at the bottom of the word processing screen. The user enters the reference with the assistance of the example at the bottom of the screen.

Since Reference Help enables the user to enter the complete reference (as opposed to answering a series of questions), the user quickly masters the appropriate format of references. In fact, a user can go through the menus and submenus of Reference Help in order to study various reference formats.

The word processing program used with Reference Help has a command structure that is very similar to the command structure in WordStar and MicroStar. In fact, the word processor portion of the program is a modification of MicroStar (Copyright © 1987, Borland International, Inc. Used by permission). Features have been added to the word processor to assist users in preparing research papers or student papers in the form specified by the American Psychological Association and the Psychonomic Society. For example, dot commands have been added to place an appropriate short title and page number at the top of each page of a complete manuscript or reference list. The program follows APA form (*Publication Manual of the American Psychological Association*, Copyright 1983 by the American Psychological Association. Adapted by permission) and places a page number in the appropriate location under the short title.

A free copy of the software (5.25-in. disk for IBM-compatible systems) and a free copy of the abbreviated manual (16 pages) are available. A complete manual covering the Reference Help portion of the program and the word processor (75 pages) is available for $10. Information about a Shareware dictionary program that works with WordProcessor/Reference Help will be included with all disks and manuals. Send requests to Allen H. Wolach, Department of Psychology, Illinois Institute of Technology, Chicago, IL 60616.

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Computerized Analysis of Variance Tutorial

Teaching the mechanics of calculating an analysis of variance is often difficult. This tutorial provides complete examples for calculating eight analyses of variance. These analyses include:

1. Independent groups one-way analysis of variance (CR-J) with an equal *n* and without an equal *n* in each group.
2. Randomized block analysis of variance (RB-J).
3. Independent groups two-way analysis of variance (CRF-JK) with equal or unequal *n*s in each cell.
4. Split-plot factorial analysis of variance (SPF-J.K) with and without the same number of observations at each level of the independent groups factor.
5. Randomized block factorial analysis of variance (RBF-JK).

At the beginning of the tutorial, the user is presented with the Main Menu for selecting the appropriate analysis of variance. As the tutorial progresses, data, means, and summary tables for the analysis are placed in the lower half of the screen. The top half of the screen is used to explain how to calculate means, sums of squares, degrees of freedom, etc. Flashing numbers make it easy to follow steps in calculating the analysis of variance. For example, numbers used in the calculation of a sum of squares flash at the bottom of the screen as they are entered in the formula at the top of the screen. When an *F* ratio is