Survey of Mathematical Statistics

A/S REGNECENTRALEN

SURVEY OF MATHEMATICAL STATISTICS.

4.0 GENERAL

The real procedure, Fi, calculates the value of the normal cumulative distribution function. 1 page. English edition. A. Høskuldsson. Regne-centralen, August 1964. Order No. 252.

The real procedure, Chi, computes the value of the chi-square cumulative distribution function. 3 pages. English edition. A. Høskuldsson. Regne-centralen, August 1964. Order No. 253.

4.1 DATA DESCRIPTION

The procedure, chi square test, groups the observations into classes and performs a chi-square test of the hypothesis that the observations are from a normal population. 4 pages. English edition. A. Høskuldsson. Regnecentralen, April 1964. Order No. 206.

4.2 CORRELATION AND REGRESSION ANALYSIS

The ALGOL program, REG-1, works with a number of sets of data which are classified in groups. Each set of data shall contain a value of the independant variable x, and one or more values of the stocastic variable y. According to ordinary methods coefficients in the linear regression of y in dependence on x are estimated and test quantities computed. In a subsequent analysis of variance the group parameters are compared according to different hypotheses concerning the structure of the data. 18 pages. Danish edition. F. Nymand. Regnecentralen. June 1963. Order No. 142.

The first part of the SLIP program, KORRELATIONSANALYSE, calculates auto- or cross correlation functions of two strings containing a max. of each 5000 numbers where each number is represented by one character containing 7 bits. The normalized correlation function is printed out. The second part of the program performs a fourier analysis of the correlation function, after passing it through one of four possible windows. 21 pages. English edition. P. la Cour Christensen and L. Hansson. Risø, December 1964. Order No. 145.

The ALGOL program, Periodisk Korrelation, calculates the correlation function of two time series, periodical with the same period. One whole period of the correlation function, is calculated with an incremental shift equal to the time interval in the time series. Output is the normalized correlation function, the mean value and the variance. The number of values in each time series is limited to 360. 5 pages. English edition. P. la Cour Christensen. Risø, October 1963. Order No. 146.

The SLIP program, REG-2, calculates the linear regression of one stocastic variable in dependence on up to 29 independent variables. The parameters in the model are estimated and test quantities computed according to the methods described in chapter 20 in A. Hald: Statistical Theory with Engineering Applications. 17 pages. Danish edition. G. Gotaas. Regnecentralen, September 1963. Order No. 147.

The SLIP program, REG-4, is a framework program, by which an arbitrary number of data groups of various structures can be subjected to a regression analysis with respect to parameters which are simultaneously contained in an arbitrary number of special SLIP-coded models. Tests related to the overall structure and to the trend are performed. 36 pages. English edition. E. Jørgensen. Regnecentralen, November 1963. Order No. 154.

The ALGOL program, Corr-1, performs computation in some or all of the following scopes: correlations, partial correlations, multiple correlations and tests of independence, based on a sample from a multidimensional normal distribution. 20 pages. English edition. A. Høskuldsson. Regnecentralen, January 1964. Order No. 176.

The ALGOL program, Reg-3, performs in its first part the regression of several dependent variables upon several independent variables. Three types of input are possible. In the last part of the program, which can be run separately, several hypotheses of the regression coefficients can be tested. 35 pages. English edition. A. Høskuldsson. Regnecentralen, April 1964. Order No. 210.

4.3 ANALYSIS OF VARIANCE

The ALGOL program, EXDA-1, is a general program for statistical analysis of experimental data. The program is flexible in three respects: a) the design of the experiment, b) the transformation of data measured in the experiment into data being analysed, and c) the type of the statistical analysis performed. Actually, the program is a framework into which various subprograms for transformation of data as well as for statistical analysis may be fitted in a simple way. 51 pages. English edition. J. Vestergaard. Regnecentralen, 1963. Order No. 156.

The ALGOL program, VAR-1, executes an analysis of variance according to a model with random components and all criteria nested within each other. Means, dispersions, mean errors inside groups, mean squares, and variance components are computed. The analysis of variance of one stocastic variable can be replaced by an analogous analysis of covariance between two stocastic variables. 12 pages. English edition. F. Nymand. Regnecentralen, October 1964. Order No. 163.

The ALGOL program, VAR-3, executes an analysis of variance according to a factorial division of the data material in groups, eventually containing unequal numbers of observations. Various hypotheses concerning the disappearance of parameters in the mathematical models are possible. From computations according to two hypotheses, the one including the other, the table of results provides testing of the two hypotheses against each other. 38 pages. English edition. J. Vestergaard. Regnecentralen, October 1964. Order No. 211.

The ALGOL program, VAR-4, executes an analysis of variance on a balanced experiment with crossed or nested factors with fixed effects. The program performs a partition of the total sum of squares of deviations, and the user must specify the parts to be pooled in the experimental error. Mean squares and F-values will be computed, and tables of means and residuals may be formed. 26 pages. English edition. J. Vestergaard. Regnecentralen, February 1965. Order No. 305.

4.4 MULTIVARIATE ANALYSIS

The procedure, T2 test, calculates the test criterion from T^2 test of the hypothesis that the mean vector is a given vector. 5 pages. English edition. A. Høskuldsson. Regnecentralen, April 1964. Order No. 205.

The real procedure, equality of means, performs a test of the hypothesis that mean vectors of several normal populations are equal. 9 pages. English edition. A. Høskuldsson. Regnecentralen, September 1964. Order No. 255.

The real procedure, Covariance matrices, performs a test of the hypothesis that covariance matrices of several normal populations are equal. 7 pages. English edition. A. Høskuldsson. Regnecentralen, September 1964. Order No. 256.

The procedure, sphericity test, performs a test of the hypothesis that a covariance matrix is proportional to a given matrix. 8 pages. English edition. A. Høskuldsson. Regnecentralen, September 1964. Order No. 260