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editori: Armin Koch, Uwe Haag

Původní přehled v SSN obsahuje navíc informace o přibližné ceně, nicméně tyto informace se rychle mění a ztrácejí na aktuálnosti. Přehled o cenách u nás používaných statistických systémů můžete najít v článku Ing. Řezankové v letošním 4. čísle *IT*.

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A Graphical Statistical System: AGSS, release 1.01.

P.D. Welch and A.M. Blum, IBM Research Laboratory, POBox PO 704, 10598 Yorktown Heights, NY, USA, tel. 001-914-784-7560, fax 001-914-784-7455, e-mail welch@watson.ibm.com.

Type: statistical analysis system. *Specification*: D, S, G, R.

Hardware platform: M, W, P. *Shareware*: No.

A Graphical Statistical System (AGSS) is an interactive system for scientific-engineering graphics, exploratory data analysis and applied statistics. It is an easy to use, menu driven system with a complete set of context sensitive helps. The graphics component includes a wide assortment of 2 and 3 dimensional color graphics including surface, contour, skyscraper and trajectory plots as well as functions for fitting curves and surfaces to data. The data analysis and statistics components combine extensive graphical output together with formal statistical model fitting and testing procedures. The exploratory data analysis component handles univariate and multivariate data and includes histograms, empirical densities and cumulative distribution functions (CDF's), box plots and coded scatter plots. The statistics component includes linear and nonlinear regression, reliability analysis, accelerated life testing, time series analysis, design of experiments, and quality control. The system also includes extensive work management utilities.

BLSS--The Berkeley Interactive Statistical System, release 4.1.

BLSS Project, UC Berkeley, Department of Statistics, 367 Evans Hall, 94720 Berkeley, CA, USA, tel. 510-642-5258, fax 510-642-7892, e-mail blss@stat.berkeley.edu.

Type: statistical analysis system. *Specification*: S.

Hardware platform: M, W, P, A. *Shareware*: No.

BLSS (pronounced 'bliss') is a flexible, highly interactive statistical system for UNIX-based computers and workstations. It is designed for both general purpose data analysis and educational use. It serves a broad range of users - from student or novice to advanced. BLSS provides a command-driven user interface which also recognizes assignments and algebraic and matrix expressions. Standard methods include descriptive statistics, plots, multiple regression, analysis of variance, frequency distributions, cross-tabulation, confidence intervals, hypothesis tests (t- tests, z-tests, chi-square tests), nonparametric methods, random number generation, probability functions, and EDA. Advanced techniques include ARMA time series modeling and forecasting, spectral analysis, estimation of optimal nonlinear transforms, and excellent matrix capabilities. Productivity features allow you to abbreviate commands, customize the environment, review and edit a history of the current session, and use BLSS in batch mode. Programming features allow you to write macros (command scripts), add new commands, and interface to UNIX at both the command and subroutine levels. Educational features include demonstration modules ('movies') and a library of data sets. Source code and trial copies are both available.

Reference: Cook, R.L. (1991): Statistical Computing Software Reviews The Berkeley Interactive Statistical System (BLSS 4.1). American Statistician (45), p. 146-149.

BMDP and BMDP PC-90, release 1988-1990.

BMDP Statistical Software, Cork Technology Park, Model Farm Road Cork, Ireland, tel. +353 21 542722, fax +353 21 542822, e-mail zzbm9001@iruccvax.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: M. Shareware: No.

BMDP Statistical Software is organized as a library of individual, specific applications covering a broad range of statistical procedures and an interactive data manipulation utility. This allows you to select the routine which closely matches your problem or design. This modular approach allows us to continually enhance existing programs and quickly introduce new statistical features. Our programs are classified under the following headings: Data Description; Group Comparisons; Plots and Histograms; Frequency Tables; Correspondence Analysis; Regression; Maximum Likelihood Estimation; Non-Linear Regression; Analysis of Variance; Multivariate Analysis; Nonparametric Analysis; Cluster Analysis; Missing Values; Survival Analysis; Time Series; Data Management. In addition BMDP PC-90 utilizes some of the latest computer technological advances. The BMDP manuals are concise and well-organized, with plenty of examples to guide new users. We also provide outstanding technical support for those times when you need personal assistance. With BMDP you can produce an extensive analysis by specifying just a few instructions. It's easy to interpret your results and present them to others because the output is well labelled and logically organized.

Reference: Wittkowski, K.M. (1992): Statistical analysis of unbalanced and incomplete designs - experiences with BMDP and SAS. Computational Statistics and Data Analysis (14), p. 119-124.

BOXX, AUTOBOX and MTS, release 3.0.

AUTOMATIC FORECASTING SYSTEMS INC., POBox BOX 563, 19040 Hatboro PA., USA, tel. 215-675-0652, fax 215-672-2534, e-mail -.

Type: special purpose program. Specification: L, O, D, S, G, R.

Hardware platform: M, W, P. Shareware: Yes.

BOXX, AUTOBOX and MTS are hands-on statistical forecasting systems for time series data. The programs embody complex modeling and forecasting operations on single and multiple time series. They also include an advanced data management module which offers the user unparalleled control and versatility. The powerful data management capabilities provide the user with a commanding tool for quickly and efficiently forecasting thousands of time series. Series can be retrieved by boolean expressions using either secondary tag fields or statistical characteristics (Give me a list of all series where MAD is > .03 and forecast the composite of those series). Forecast accuracies by lead time are presented to enable forecasters to assess models. Major differences are: BOXX (no automatic modelling), AUTOBOX (expert and hands-on), MTS (expert vector ARIMA)

Reference: Pickett, J.C. (1991): Software Review: BOXX 3.0 and AUTOBOX 3.0. OR/MS TODAY April/1991, p. 32-35.

BOX-B, release 2.1.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L, S, G, R.

Hardware platform: P. Shareware: No.

BOX-B is a pair of computer programs using Box- Behnken experimental designs to investigate three-factor and four-factor response surfaces. BOX-B is based on three-level designs that can detect and describe curvature effects that two-level designs cannot. It gives the user information on the linear and quadratic effects as well as two-factor interactions. It generates and prints out a specific design and analysis of the results.

Broccoli, release 1.1.

S. Mittnik, Department of Economics, State University of New York NY 11794-4384
Stony Brook, USA, tel. 001-516-632-7532, fax 001-516-632-7516, e-mail
smittnik@sbccvm.bitnet.

Type: special purpose program. Specification: D, S, G, R.

Hardware platform: P. Shareware: No.

Broccoli is a user friendly, menu-driven time- series-analysis package for DOS systems. It serves mainly educational purposes, but is also suitable for 'serious' applications. It handles ARIMA, seasonal ARIMA, ARIMAX, Intervention, time-varying ARIMA, and regression models. It includes a range of identification tools (e.g. ACF, PACF, IACF, PIACF); estimation methods (CLS, ULS, ML); numerical optimization algorithms; diagnostic-checking routines (e.g. Ljung-Box, AIC, AICC, BIC, comparison of sample and theoretical ACFs etc.); forecasting options (static, dynamic, with parameter updating, forecasting efficiency testing); and data simulation and dummy-variable generation options.

BVEST - a multiple trait animal model BLUP program, release 1.0.

General Manager Biometrics Unit, NSW Agriculture, 161 Kite St POBox Locked Bag 21, 2800 Orange, Australia, tel. < 61 > (0)63 913800, fax < 61 > (0)63 913899, e-mail -.

Type: special purpose program. Specification: S.

Hardware platform: W, P. Shareware: No.

BVEST was developed for the estimation of breeding values for sheep in the Australian lamb industry. It is designed for routine use after definition of the traits and fixed adjustments required. It uses multiple trait animal model BLUP procedures. Fixed effects other than management group are handled by prior adjustment. BVEST is designed for use by scientists who have access to the necessary genetic parameters and knowledge of appropriate fixed effect adjustments for the data. The genetic model allows for direct additive effects. When reading the data, extensive summaries are produced to aid the analyst validate the data. The report includes breeding values and a selection index. An evaluation copy is available on request.

CANOCO - a program for CANonical Community Ordination, release 3.12.

Microcomputer Power, Dr. R. Furnas, 111 Clover Lane Dept. SG, NY 14850-4930 Ithaca, USA, tel. 607-272-2188, fax 607-272-2188, e-mail D6881@AppleLink.Apple.com.

Type: special purpose program. Specification: S, G.

Hardware platform: M, W, P, A. Shareware: No.

CANOCO is a program for ordination methods to relate a set of response variables to a set of predictor variables through linear and unimodal (unfolding) models. The linear modelling methods include: principal component analysis, with centring/standardization variants, redundancy analysis and multivariate reduced-rank regression. The unimodal modelling methods include: multiple correspondence analysis, detrended correspondence and canonical correspondence analysis. The program is optimized for large sparse ecological community data, where the response data are typically species compositions and the predictors are environmental variables. Diagnostics for outlier detection are available. CANOCO 3.1 can also carry out forward selection of predictor variables, Monte Carlo permutation tests and partial techniques in which the ordination is adjusted for confounder variables (covariables). The program is menu-driven and comes with a data-editor CEDIT and a graphics program CANODRAW for producing high quality ordination diagrams, both on the screen and on many popular hardcopy devices. CANOCO is presently the leader in ordination software for ecological data analysis.

Reference: Wassen, M.J., Barendregt, A., Palczynski, A., de Smidt, J.T. and de Mars, H. (1992): The relationship between fen vegetation gradients, groundwater flow and flooding in a valley mire. *Journal of Ecology* (78), p. 1106-1122.

CoStat, release 4.1.

CoHort Software, POBox 1149, Berkeley, CA 94701, USA, tel. (510)524-9878, fax (510)524-9199, e-mail 71161.564@compuserve.com.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P. Shareware: No.

CoStat is an interactive, menu-driven, statistical program which makes commonly used statistical procedures easily accessible. CoStat has a wide selection of procedures: descriptive statistics, ANOVAs, regression (including all-subsets and backwards-elimination multiple regression and non-linear regression), analysis of frequency data, non-parametric tests, etc. An extensive collection of utilities are included for editing, transforming (with algebraic equations), plotting, sorting, importing data (from ASCII, Lotus, Excel, Quattro, and dBASE files), etc. Results from CoStat procedures are always displayed on the screen and may optionally be sent to any printer and/or to an ASCII output file on a disk. The manual includes three lessons and thorough descriptions of all procedures (including references and sample runs). Data files may contain any number of data points stored as 16-digit (64 bit), floating-point numbers. Two related programs from CoHort Software are CoPlot (for 2D and 3D publication-quality graphs of data and equations) and CoDraw (a technical drawing program). £159 each or £395 for all three programs.

CSS : STATISTICA, release 3.1.

LOLL + NIELSEN, Quickbornstr. 3, 2000 Hamburg 20, Germany, tel. 040 - 420 03 47, fax 040 - 491 13 10, e-mail -.

Type: statistical analysis system. Specification: L, D, S, G, R.

Hardware platform: P, A. Shareware: No.

CSS : STATISTICA is a high performance, integrated statistical data analysis, graphics, and data base management system for science, business, and engineering applications. It offers a comprehensive selection of statistical procedures fully integrated with numerous presentation-quality graphics (with on-screen customization) and a full-featured data base management system. The graphical system in STATISTICA contains various specialized graphics facilities such as extensive on-screen drawing, embedding of graphs, multigraphs, rotation of 3D graphs with interactive cross sections, custom-designed graphs, etc. It combines an extremely wide selection of scientific and technical graphs (with built-in analytic facilities) with customization and special effects capabilities for the creation of graphs in high presentation quality. The high level of functionality of STATISTICA includes many measurable dimensions such as: (a) speed; (b) number of statistical and data management procedures; (c) number of types of graphs; (d) quickness of user-interface; (e) size of supported analyses/designs; (f) size of data files; and others. The self-explanatory character and straight-forwardness of all menus allowing the user to complete even complex analyses without consulting the manual.

Reference: Sarnow, K. (1991): Zahlenwölfe - Statistikpakete unter MSDOS. C't magazin für computer technik (7), p. 154-165.

C-COMP, release 2.1.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L, S, G, R.

Hardware platform: P. Shareware: No.

C-COMP is used to explore multifactor systems to determine how each factor affects the response in the region of experimentation. That knowledge can then be used to improve the product or process, to determine 'ruggedness' with respect to each factor, to set factor tolerances for quality performance, to discover interactions among factors, and to make economic trade-offs among compensating factors. C-COMP generates a specific experimental design and analyzes the results. Two- or three-factor systems can be investigated with 9 or 15 factor combinations. Design points may be replicated, relocated, or removed, as desired. A separate worksheet is generated for each run. Standard full second-order polynomial models or any user-specified mathematically linear model may be fitted to the experimental data. Output includes parameter estimates, a sums of squares and degrees of freedom tree, Fisher's F ratios for significance of regression and lack of fit, predicted responses and residuals, R and R squared values, an analysis of variance (ANOVA) table for linear models, and contour plots of response as a function of the factors.

Reference: Ego, L. (1989): An Armload of Process Programs. CHEMICAL ENGINEERING (1989), p. 165-168.

Data Desk, release 4.0.

Majih Software, 5 South Leinster Street, Dublin, Ireland, tel. 353 1 766929, fax 353 1 619785, e-mail aunwin@vax1.tcd.ie.

Type: statistical analysis system. *Specification*: D, S, G.

Hardware platform: A. *Shareware*: No.

Data Desk provides powerful interactive graphical tools for exploratory data analysis, including multidimensional rotating plots, plot brushing, and Hyperviews that suggest related plots and analyses based on built-in intelligence and expertise. It also offers a full compliment of standard statistics. The latest release adds multivariate linear models, non-linear smoothers and many other enhancements.

Reference: Best, A.M. and Morgenstein, D. (1991): Statistics Programs Designed for the Macintosh. The American Statistician (45), p. 318-338.

DataScope, release 1.0.

I. Enyukov, StatPoint Ltd., 11 Tverskaya , Innofund, 103950 Moskow, Russia, tel. (7)(095)291 27 38, fax 2926511, box 003222, e-mail igen@compnet.npimsu.msk.su.

Type: statistical analysis system. *Specification*: S, G, R.

Hardware platform: P. *Shareware*: No.

DataScope provides a wide range of standard statistical tools as well as a set of novel statistical analyses which are particularly useful in solving the following problems: - visual analysis of the clusters, outliers and other structure types in data by means of projection pursuit; - construction of regression equations when the regression model is unknown; for example, projection pursuit and alternate conditional expectation methods can be used for it; - working out decision rules for classification when the canonical linear discriminant analysis is ineffective; the Interactive Graphic Decision Rules Designer can be used for it; - investigating cluster structures with the help of the Interactive Hierarchical Binary Tree System. A highlight of DataScope is its extensive use of interactive and dynamic graphics for viewing, editing, labelling, etc. the analyzed data and results. Matrix display is implemented. DataScope supports import and export of data for ASCII, dBASE, LOTUS, PARADOX, DIF, SAS, SYSTAT, SPSS, BMDP, STAGRAPHICS and SPAD formats. DataScope can process data sets with up to 144 variables, 4000 cases and with up to 60000 cells.

Diamond Fast, release 1.0.

Majih Software, 5 South Leinster Street, Dublin, Ireland, tel. 353 1 766929, fax 353 1 619785, e-mail aunwin@vax1.tcd.ie.

Type: special purpose program. *Specification*: G.

Hardware platform: A. *Shareware*: No.

Diamond Fast is for exploring, interrogating and manipulating time series graphically, whether one series or many, short or long, regular or irregular, over seconds or over years. Diamond Fast helps in highlighting outliers, in identifying lags and in exploring relationships between series. Diamond Fast complements analytic time series methods and is especially useful for working with multiple time series simultaneously.

EaSt: Sequential Design and Analysis of Clinical Trials, release 1.

Cytel Software Corporation, 675 Massachusetts Avenue, 02139 Cambridge, Massachusetts, USA, tel. 617-661-2011, fax 617-661-4405, e-mail -.

Type: statistical analysis system. Specification: L, O, S.

Hardware platform: P. Shareware: No.

EaSt is an interactive software package for designing and analysing two-arm randomized clinical trials in which accumulating data will be monitored at interim time points with a view to early possible early termination of the study. It provides considerable flexibility through the Lan-DeMets error spending function approach to interim monitoring. It supports a whole class of stopping boundaries that include the O'Brien-Fleming and Pocock stopping boundaries as special cases. Stopping boundaries are available either for early stopping when the two therapies are different or when they are similar. What EaSt provides cannot be obtained by looking up statistical tables, and is not readily available in any other commercial software package. EaSt has become available at just the right time. Formal guidelines for interim monitoring of clinical trials are gradually evolving through interactions between statisticians at the NIH, the FDA, university medical research centers, and the pharmaceutical industry. Protocols for large phase three multi-institutional cancer and AIDS trials automatically factor-in early stopping. EaSt can greatly facilitate writing the statistical sections of these protocols. It adheres to the 1988 FDA Guideline for NDA submissions.

Reference: Kim, K. and Tsatis, A.A. (1990): Study duration for clinical trials with survival response and early stopping rule. *Biometrics* (46), p. 81-92.

ECHIP, release 6.0.

ECHIP Incorporated, 724 Yorklyn Road, 19707 Hockessin, USA, tel. 302.239.5429, fax 302.239.6227, e-mail 72600.3137@compuserve.com.usa (internet).

Type: special purpose program. Specification: L, S, G, R.

Hardware platform: P, A. Shareware: No.

ECHIP is a leading software tool for the design of experiments. A proven training program in this exciting methodology is also available. Real world experimentation often involves many control variables and many responses that must be simultaneously optimized. Using ECHIP one can examine the effect of over 20 variables to determine those which most strongly control the desired outputs. The software allows simultaneous optimization of the measured responses, and 2-D and 3-D plotting of the results. The tool contains a complete state-of-the-art statistical engine, yet is designed to leverage the expertise of scientists and engineers without requiring them to become junior statisticians.

Reference: Nachtsheim, C. J. (1987): Tools for Computer-Aided Design of Experiments. *Journal of Quality Technology* (19), p. 132-160.

EGRET, release 0.26.06.

Statistics and Epidemiology Research Corporation, (SERC), 909 NE 43rd, Suite 202,
98105 Seattle, WA, USA, tel. +(206)-632-3014, fax +(206)-547-4671, e-mail
RHM@MS.WASHINGTON.EDU.

Type: statistical analysis system. Specification: S, G, R.

Hardware platform: P. Shareware: No.

EGRET emphasizes epidemiology and public health, although its models have a much wider applicability. The package emphasizes user friendliness, sophisticated models, and device independent graphics. EGRET is well known for being extremely easy to use. It is menu driven and screen oriented, with on-line context-sensitive help available at all times and free technical support. The statistical models are principally for survival analysis and discrete outcome variables, including conditional and unconditional logistic regression, random effects logistic regression, Cox proportional hazards regression with time-dependent covariates, Poisson, exponential and Weibull regression, Kaplan-Meier estimation, and stratified and unstratified, asymptotic and exact, 2xK contingency tables. Exact analysis is an option. The built-in graphics option can handle most popular printers, plotters, displays, and export options. It has scatterplots, standardized and unstandardized delta-beta plots, fitted value plots, Kaplan-Meier and post-Cox regression plots, including survival and failure curves, cumulative and log cumulative hazard curves, and kernel-smoothed hazard curves. It has numerous easy-to-use editing and annotation options.

EGRET SIZ, release 1.00.

Statistics and Epidemiology Research Corporation, (SERC), 909 NE 43rd, Suite 202,
98105 Seattle, WA, USA, tel. +(206)-632-3014, fax +(206)-547-4671, e-mail
RHM@MS.WASHINGTON.EDU.

Type: special purpose program. Specification: L, G.

Hardware platform: P. Shareware: No.

EGRET SIZ provides sample size and power estimates for a set of nonlinear regression models from the field of epidemiology and public health, although its models have a much wider applicability. The package emphasizes ease-of-use and sophisticated models. It is menu-driven and screen-oriented, with on-line context-sensitive help available at all times and free technical support. The statistical models are principally for survival analysis and discrete outcome variables, including logistic regression for unmatched case-control studies, logistic regression for cohort or cross sectional data, conditional logistic regression, Poisson regression with person-time data, and Cox proportional hazards regression, for which one can specify hazard, censoring, and accrual functions. Test for effect (using dummy variables) or for trend across levels. The program has display only graphics for popular displays, textual output, and limited Postscript output. It can estimate power, relative risk, and case-rate versus sample size, and relative risk versus power. Carry out Monte Carlo experiments for any of the models, and fit a generic 'sample size versus power' curve to the Monte Carlo results to provide empirical estimates.

EPICURE, release 1.8.

HiroSoft International Corporation, Suite 103, 1463 E. Republican 98112 Seattle, Washington, USA, tel. +1 206 328 5301, fax +1 206 328 1235, e-mail 71172.3560@compuserve.com.

Type: statistical analysis system. Specification: S.

Hardware platform: W, P. Shareware: No.

EPICURE is a package of interactive, command-driven programs for modeling and analysis of medical, public health, epidemiologic, econometric and reliability data. The package includes: GMBO for binomial regression; PECAN for matched case-control studies; PEANUTS for semi-parametric survival analysis including case-cohort studies; AMFIT for Poisson regression in cohort studies and clinical trials using grouped data or contingency tables; and DATAB for creating stratified person-year or other multiway tables. The modeling programs can be used to conveniently fit linear and non-linear risk models, including commonly used additive and multiplicative models, as well as a number of generalizations. Thus EPICURE easily handles complex analytical problems in the analysis of clinical trials, case-control or cohort studies. Transformation, subset selection, designation of missing values, and computation of summary statistics can be done interactively. PEANUTS and AMFIT can fit models with time-dependent covariates. DATAB person-year tables can include multiple time scales, time-dependent covariates, and expected values computed using external rates. The package includes detailed documentation, extensive examples using real data sets, and includes cancer incidence and mortality rate files for several countries.

EQS - A Structural Equations Package, release 3.0.

BMDP Statistical Software, Cork Technology Park, Model Farm Road Cork, Ireland, tel. +353 21 542722, fax +353 21 542822, e-mail zzbm9001@iruccvax.

Type: statistical analysis system. Specification: S, R.

Hardware platform: M, W, P, A. Shareware: No.

EQS tests the full range of structural equation models, including; Multiple Regression; Multivariate Regression; Path Analysis; Latent Variable Models; Confirmatory Factor Analysis; Structured Means Analysis; Multiple Populations Comparisons; Simultaneous Equations; EQS offers a simplicity of set-up that is unmatched by other structural equations programs. Parameter Estimation and Statistical Tests included in EQS are as follows; Normal; Elliptical theory; Distribution-free theory; Automatics starting values; Simple equality constraints; General equality and inequality constraints; cross-group equality constraint statistics; Blocking control for longitudinal models; Multiparameter Lagrange & Wald tests; Standard errors robust to wrong distribution; Output information includes the following; Automatic model modification; Standardized effect decomposition; Standardized solution; Path diagram. EQS is developed by Prof. Peter Bentler of UCLA.

Reference: Goldstein, R. (1991): Statistical Computing Software Reviews EQS Version 3.0. The American Statistician (45), p. 68-73.

EXECUSTAT, release 3.0.

ISE DATA GMBH, Herrrainweg 5, POBox D - 6050, Offenbach / Main, Germany, tel. 0049-69-80053-0, fax 0049-69-80053-132, e-mail -.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P. Shareware: No.

EXECUSTAT is a completely menu-driven statistical package, which is easy to learn and easy to use. All data selections are made from lists, and all options are displayed in windows for easy access. One important feature is the Statistical Interpreter, which explains the significance of the most recent numerical results.

EXPERIMENTAL DESIGN, release 3.2.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L.

Hardware platform: P. Shareware: No.

EXPERIMENTAL DESIGN is an expert system program using decision analysis techniques to help researchers determine which of 17 types of experimental designs are most appropriate for their research projects. Recommended designs include comparison of means, Latin squares, factorial, fractional factorial, saturated fractional factorial, hierarchical, Plackett-Burman, central composite, Box-Behnken, simplex mixture, fixed-size sequential simplex, and variable-size sequential simplex. User can enter a degree of certainty for each answer. Reasons for and against designs are included. Final summary can be printed upon exiting the program.

Reference: McAuliffe, D. and Hamel, C. (1991): Experiment Design. COMPUTER (Mar), p. 91-92.

FACTORIAL-DESIGN, release 2.1.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L, S, G, R.

Hardware platform: P. Shareware: No.

FACTORIAL-DESIGN implements classical full factorial designs that are often used to (1) determine the most significant factors, (2) model the influence of the factors on the response, and finally, (3) choose the optimum combination of factor levels. FACTORIAL-DESIGN is useful for acquiring data to fit a first-order polynomial model with all two-factor interaction terms. Factorial designs work with both qualitative factors (e.g., operator A vs. operator B) and quantitative factors (e.g., temperature). FACTORIAL-DESIGN leads the user through the process of setting up either a two-, three-, or four-factor full factorial 2-level design. Factor levels may be coded or uncoded. FACTORIAL-DESIGN then generates a table for four, eight, or sixteen factor combinations and replicates on screen. A separate worksheet is generated for each run and analysis is printed out as desired.

Reference: McAuliffe, D. and Hamel, C. (1991): Experiment Design.

Genstat 5, release 2.2.

Numerical Algorithms Group Ltd, Wilkinson House, Jordan Hill Road OX2 8DR Oxford, UK, tel. +44 865 511245, fax +44 865 310139, e-mail infodesk@nag.co.uk.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: M, W, P. Shareware: No.

Genstat is a general statistical analysis system. It works either interactively or in batch, using commands or an extendable menu system and is available on a wide range of computers. The system has been continuously developed at Rothamsted for over 20 years, and has regular new releases with enhancements; it is used worldwide. In addition to standard facilities for data-handling and graphics, Genstat provides a number of powerful and general techniques: a maths and stats calculator, for tables, vectors and matrices; a general framework for analysing linear, generalized linear, and nonlinear models, with exploration and comparison of relationships; an extremely powerful algorithm for the analysis of designed experiments; all generally balanced designs can be analysed; analysis of variance components, and general treatment of unbalanced data, using Residual Maximum Likelihood (REML); many standard methods of multivariate analysis, such as PCA, CVA, factor rotation, clustering and discriminant analysis; time-series analysis using Box-Jenkins ARIMA or seasonal ARIMA models, for univariate or transfer-function models, and FFT. The system is designed to be extendable, both at Fortran level and by procedures at command level, and can communicate with other systems.

Reference: M. Heiberger, R.M. (1991): GENSTAT 5. The American Statistician (45), p. 311-315. American Statistical Association.

GraphMu, release 4.11.

J. Thioulouse, Laboratoire de Biometrie - Universite Lyon 1, 69622 Villeurbanne CE-DEX, France, tel. (33) 72 44 80 00, fax (33) 78 89 27 19, e-mail jean@biomac.univ-lyon1.fr.

Type: special purpose program. Specification: G.

Hardware platform: A. Shareware: Yes.

GraphMu is designed to draw the graphical outputs of data analysis methods (principal axes planes), as well as several types of graphics useful for the analysis of multivariate data (scattergrams, line charts, bar charts, histograms, stepped curves, maps with circles and squares, ellipses, Gaussian curves). It is possible to superimpose graphics over digitized background maps. The main feature of GraphMu is the possibility to draw automatically collections of graphics. Each elementary graphic may correspond to one column of the data table (comparison of variables) and/or to one group of rows (comparison of sets of individuals). Drawings may be saved in files of type 'PICT', and are compatible with commercial drawing software of the Macintosh (e.g. MacDraw). Copy/paste operations on pictures are supported, making superimpositions easy.

Reference: Thioulouse, J. (1989): Statistical analysis and graphical display of multivariate data on the Macintosh. Computer Applications in the Biosciences (5), p. 287-292.

IGSS (Interactive Graphic Support System), release 1.0.

I. Enyukov, StatPoint Ltd., 11 Tverskaya , Innofund, 103950 Moskow, Russia, tel. (7)(095)291 27 38, fax 2926511, box 003222, e-mail igen@compnet.npimsu.msk.su.

Type: statistical analysis system. Specification: S, G, R.

Hardware platform: P. Shareware: No.

IGSS (Interactive Graphic Support System) is aimed at the use of interactive graphics and a table manager for viewing, editing, labelling etc. data. A user can apply the following facilities: - matrix display for plotting several scatter diagrams concurrently (both symmetric or rectangular mode); - nonparametric estimation of regression lines and densities; - construction of isolines (contour-grams); - 2.5D scatter-grams; - 3D-surfaces (densities, regressions); - histograms, 2D-histograms, box-whisker diagrams, etc. - probability plots; - dynamic graphics mode (2D- and 3D- rotations); - brushing mode; - labelling of the elements in a required color and shape for using the labels later as new variables; - zooming; - identification of objects; The table manager of IGSS is a spread-sheet with built-in statistics and graphics. IGSS supports ASCII, dBASE, LOTUS, DIF, PARADOX, DIF, SAS, SYSTAT, SPSS, BMDP, STATGRAPHICS and SPAD file formats.

IMSL C/Base/Library, release 1.0.

IMSL Germany GmbH, Adlerstrasse 74, W-4000 Duesseldorf, Germany, tel. +49 211-3677133, fax +49 211-3677100, e-mail support@imslger.uucp.

Type: subroutine library. Specification: S.

Hardware platform: P. Shareware: No.

The IMSL C/Base/Library is a selection of the most- used functions from the IMSL FORTRAN Libraries, rewritten to take advantage of features of the C programming language. It provides a simple user interface, with ANSI C conformity, optional arguments, dynamic workspace management and sophisticated error handling. The functions in C/Base/Library include linear and nonlinear systems, eigensystem analysis, interpolation, integration, differential equations, optimization, special functions and random numbers.

IMSL C/Math/Library, release 1.0.

IMSL Germany GmbH, Adlerstrasse 74, W-4000 Duesseldorf, Germany, tel. +49 211-3677133, fax +49 211-3677100, e-mail support@imslger.uucp.

Type: subroutine library. Specification: S.

Hardware platform: W. Shareware: No.

C/Math/Library is a library of mathematical functions in C for use in science and engineering. The IMSL C/Math/Library covers a wide range of areas in applied mathematics. These areas include linear and nonlinear systems, eigensystem analysis, interpolation, integration, differential equations, optimization, special functions and random number generation. The C/Math/Library provides a simple user interface, with optional arguments, ANSI C conformity, and sophisticated error handling. Comprehensive on-line hypertext documentation is included, with example programs for each

function. Each C/Math/Library function is tested and verified exhaustively to assure reliability and accuracy over the widest possible range of problems. The IMSL C/Math/Library reduces your development costs and enhances your productivity. Licenses are available for single-CPU or network-wide access, so that licenses can 'float' within a network.

IMSL C/Stat/Library, release 1.0.

IMSL Germany GmbH, Adlerstrasse 74, W-4000 Duesseldorf, Germany, tel. +49 211-3677133, fax +49 211-3677100, e-mail support@imslger.uucp.

Type: subroutine library. *Specification*: S.

Hardware platform: W. *Shareware*: No.

C/Stat/Library is a library of statistical functions in C that can be used to solve a wide variety of statistical analysis problems. Its abilities include basic statistics, correlation and regression, analysis of variance, time series analysis and forecasting, multivariate analysis, probability distributions and random numbers. The C/Stat/Library provides a simple user interface, with optional arguments, ANSI C conformity, and sophisticated error handling. Comprehensive on-line hypertext documentation is included, with example programs for each function. The IMSL C/Stat/Library reduces your development costs and enhances your productivity. Licenses are available for single-CPU or network-wide access, so that licenses can 'float' within a network and can be accessed as needed.

IMSL Exponent Graphics for FORTRAN and C, release 1.1 and 1.0.

IMSL Germany GmbH, Adlerstrasse 74, W-4000 Duesseldorf, Germany, tel. +49 211-3677133, fax +49 211-3677100, e-mail support@imslger.uucp.

Type: subroutine library. *Specification*: G.

Hardware platform: M, W. *Shareware*: No.

Exponent Graphics for FORTRAN is a flexible, FORTRAN- called library of subroutines for graphical data representation and analysis. Exponent Graphics provides powerful capabilities for creating high-quality 2-D and 3-D graphs. Most common mathematical and technical plot types can be created with just two subroutine calls. A large number of customization options are available, including colors, fonts, marker types, multiple axes per plot, line types, shading, plus much more. On workstation platforms IMSL Exponent Graphics for C is a flexible, C-callable library of subroutines that provide a vast array of graphical functions for creating high-quality 2-D and 3-D graphs for technical and scientific applications. Most common graphs can be created with just two C function calls. Exponent Graphics provides GUI-based interactivity for manipulating and customizing graphical results from within C applications.

IMSL FORTRAN Libraries, release 2.0.

IMSL Germany GmbH, Adlerstrasse 74, W-4000 Duesseldorf, Germany, tel. +49 211-3677133, fax +49 211-3677100, e-mail support@imslger.uucp.

Type: subroutine library. *Specification*: S.
Hardware platform: M, W, P. *Shareware*: No.

The IMSL Libraries are a comprehensive resource of more than 900 FORTRAN subroutines for applications in general applied mathematics, special functions, and for analyzing and presenting statistical data in scientific and business applications. Each IMSL subroutine is exhaustively tested and verified to assure reliability and consistently accurate results or the widest possible range of problem types. Features include automatic workspace allocation, sophisticated error handling, and extensive use of BLAS. The IMSL Libraries are available on over 50 different computing platforms, and include the same full range of capabilities on each platform. Vectorized and parallel versions are available to utilize the maximum capabilities of high performance supercomputers.

IMSL/IDL, release 1.0.

IMSL Germany GmbH, Adlerstrasse 74, W-4000 Duesseldorf, Germany, tel. +49 211-3677133, fax +49 211-3677100, e-mail support@imslger.uucp.

Type: other software. *Specification*: D, S, G, R.
Hardware platform: M, W. *Shareware*: No.

IMSL/IDL is the seamless integration of the IMSL C/Math/Library and the Interactive Data Language (IDL). IMSL/IDL provides you with an array-oriented interactive command language complete with powerful graphics and a robust set of mathematical, statistical, image processing and signal processing functions allowing you to visually explore your data. IMSL/IDL allows you to immediately see numerical data in a variety of graphical formats. The widget toolkit included facilitates application prototyping. IMSL/IDL also provides communication with existing subroutine libraries and applications. Licenses are available for single-CPU or network-wide access, so that licenses can 'float' within a network.

ITSM: An Interactive Time Series Modelling Package, release 1.0.

Springer-Verlag New York, Inc., 44 Hartz Way, POBox 2485, 07096-2491 Secaucus, New Jersey, USA, tel. 1-800-SPRINGER, fax (201) 348-4505, e-mail -.

Type: statistical analysis system. *Specification*: L, S, R.
Hardware platform: W, P. *Shareware*: No.

This book is designed for the analysis of linear time series and the practical modelling and prediction of data collected sequentially in time. Both time and frequency programs are included. The package is intended as a supplement to the text, Time Series: Theory and Methods. It can also be used in conjunction with most undergraduate and graduate texts in time series analysis. It will be of value to students in statistics, mathematics, business, engineering, and the natural and social sciences. Minor differences between the versions on different hardware- platforms exist.

KWIKSTAT 3.3 PLUS, release 3.3 PLUS.

TRXASOFT, POBox 1169, 75104 N/A Cedar Hill, USA, tel. 049-06221-764652, fax 001-214-291-3400, e-mail 70721.3145@compuserve.com.

Type: statistical analysis system. Specification: L, O, D, S, G, R.

Hardware platform: P. Shareware: Yes.

Graphic user interface with mouse support, pull-down windows, etc. Graphic display modes include Hercules, CGA, EGA, VGA, and PCX files. Database or Spreadsheet data entry and transfer in Dbase, 123, ASCII, comma delimited files, DBF, WKS, WK1, supports missing value data sets Descriptive statistics: analysis of mean, standard deviation, median, variance, maximum, minimum, standard error of the mean, percentiles, Tukey 5 number summary, confidence interval about the mean by user. Simple linear and Multiple linear regression, correlation matrix, data plots, residual plots, R-square and adjusted R-squared, Pearson's and Spearman's coefficient tests for significance. Survival analysis Single sample, independent group and paired t-tests. Independent group, repeated measures, multiple comparisons ANOVA Non-parametric tests: Mann-Whitney, Kruskal-Wallis, Cochran's Q, Friedman's ANOVA. Frequency and cross tabulation features: Goodness of fit test, (ratios) Frequency Distribution, McNemar's test, Chi square, Fisher's exact test, Yate's corrected Chi-square, Phi, Cramer's V. Two-Way Module contains two factor ANOVA including repeated measures, multiple comparisons and interaction plots. Time series module data plotting, partial autocorrelations, ARMA and Box-Jenkins models, lags.

LAMDA (Laboratory for Multidimensional Data Analysis), release 3.0.

N.C. Lauro and P. Amenta, Dip. Matematica e Statistica Universita Federico II, Napoli, Italy, tel. 081/675189, fax 081/675113, e-mail -.

Type: statistical analysis system. Specification: S, G.

Hardware platform: P. Shareware: Yes.

LAMDA is an interactive system for Multidimensional Data Analysis (MDA) written in APL language. Originally oriented to didactic goals it has now become a valid tool for Statistical research and analysis. It consists of about 300 functions divided in 15 workspaces, each allowing to run a specific multidimensional method. LAMDA also gives the opportunity of building prototypes of programs for new methodologies in a very short time. It offers a wide range of outputs, included two and three dimensional graphics which can be printed or stored in a file. All the programs are structured in a conversational way with a 'step-by-step' running, giving the user the opportunity of choosing among different algorithms, and a lot of helps to the interpretation of the results. In its latest version LAMDA includes the following methods: DESCRIPTIVE STATISTICS, LINEAR REGRESSION, PRINCIPAL COMPONENT ANALYSIS, FACTORIAL CORRESPONDENCE ANALYSIS, CORRESPONDENCE ANALYSIS ON MULTITABLES, DISCRIMINANT ANALYSIS, CANONICAL CORRELATION ANALYSIS, MULTIDIMENSIONAL SCALING, PARTITIONAL METHODS IN CLUSTER ANALYSIS, PIRAMIDAL CLUSTER ANALYSIS, STATIS. As a research tool, LAMDA contributed to develop some original techniques of MDA such

as: PRINCIPAL COMPONENT ANALYSIS ON A REFERING SUBSPACE, RELATIONAL FACTOR ANALYSIS, NON SYMMETRICAL ANALYSIS OF CORRESPONDENCE.

LogXact: Software for Exact Logistic Regression, release 1.

Cytel Software Corporation, 675 Massachusetts Avenue, 02139 Cambridge, Massachusetts, USA, tel. 617-661-2011, fax 617-661-4405, e-mail -.

Type: statistical analysis system. Specification: S.

Hardware platform: P. Shareware: No.

LogXact is the only software package in the world supporting exact inference for logistic regression. The usual method of estimating the parameters of logistic regression is maximum likelihood. However for small or imbalanced data sets the maximum likelihood method is often inaccurate, and sometimes unable to produce any estimates at all. In 1970 D.R. Cox proposed an alternative method of inference based on the exact permutation distribution of the sufficient statistics for the regression parameters. The method yields exact p-values and confidence intervals no matter how small, sparse, or imbalanced the data are. Until recently the computational difficulties inherent in generating the exact permutation distributions precluded using this method. But new algorithms by Dr. Cyrus Mehta and his colleagues at Harvard University have made exact inference in logistic regression practical. For this work they received the 1988 George W. Snedecor award from the American Statistical Association. LogXact has evolved over a period of five years and incorporates these computational advances into a friendly software package. It computes both exact and asymptotic p-values and confidence intervals. In addition to the usual logistic regression model, it also handles stratified logistic regression for matched case-control studies or clustered binomial data.

Reference: Hirji, K.F. and Mehta, C.R. (1987): Computing Exact Distributions for Logistic Regression. Journal of the American Statistical Association (82), p. 1110-1117.

L-moments, release 2.

J. R. M. Hosking, IBM Research Division, POBox P.O. Box 218, 10583 Yorktown Heights, NY, USA, tel. +1 914 945 1031, fax +1 914 945 3434, e-mail hosking@watson.ibm.com.

Type: subroutine library. Specification: S.

Hardware platform: M, W, P. Shareware: Yes.

The LMOMENTS package is a collection of Fortran-77 routines for statistical analysis using L-moments. L-moments are measures of location, scale and shape of probability distributions, similar to the ordinary moments but estimable from linear combinations of order statistics (Hosking, J. R. Statist. Soc. B, 1990). They can be used to summarize probability distributions and data samples, and to estimate the parameters of distributions fitted to a data set. The routines perform calculations of L-moments and parameter estimation via L-moments for 10 frequency distributions: gamma, generalized extreme-value, generalized logistic, lognormal, generalized Pareto, Gumbel, 4-parameter kappa, Normal, Pearson type III and Wakeby. The Fortran source code

and documentation for it (Hosking, IBM Research Report RC17097, 1991) are available at no cost. The source code has been placed in StatLib: to obtain it send the e-mail message 'send lmoments from general' to statlib@lib.stat.cmu.edu.

MacDendro, release 1.01.

J. Thioulouse, Laboratoire de Biometrie - Université Lyon 1, 69622 Villeurbanne CEDEX, France, tel. (33) 72 44 80 00, fax (33) 78 89 27 19, e-mail jean@biomac.univ-lyon1.fr.

Type: special purpose program. *Specification*: S.

Hardware platform: A. *Shareware*: Yes.

MacDendro is a cluster analysis program. The main features are: - computation of distances: Euclidean, Chi-2 and Jaccard's index - clustering algorithms. 4 agglomerative algorithms (single link, average link (UPGMA), complete link and second order moment), one divisive algorithm (based on the second order moment criterium), and one partitioning method (with the possibility to generate random initial partitions). - 'inertia analysis' of hierarchies and partitions to help understanding the contribution of variables to the formation of the nodes of the hierarchy, or to the formation of the clusters. GraphMu must be used to draw the resulting dendrograms and/or convex hulls. The algorithms used in MacDendro come from M. Roux (1985) 'Algorithmes de classification', 150p., Masson, Paris.

MacMul, release 3.12.

J. Thioulouse, Laboratoire de Biometrie - Université Lyon 1, 69622 Villeurbanne CEDEX, France, tel. (33) 72 44 80 00, fax (33) 78 89 27 19, e-mail jean@biomac.univ-lyon1.fr.

Type: statistical analysis system. *Specification*: S.

Hardware platform: A. *Shareware*: Yes.

MacMul performs three basic multivariate analyses: principal component analysis for quantitative variables, correspondence analysis for count tables, and multiple correspondence analysis for qualitative variables. Usage of the three methods has been completely standardized, both for input files and program outputs. MacMul includes a complete, original and unified set of numerical aids to interpretation: inertia analysis (absolute and relative contributions) for rows and columns, additional elements (rows and columns), data reconstitution, percentage tables, among others.

Reference: Thioulouse, J. (1989): Statistical analysis and graphical display of multivariate data on the Macintosh. Computer Applications in the Biosciences (5), p. 287-292.

MicroSiris, release 5.0.

Van Eck Computer Consulting, 4 Sycamore Court, 17870 Selinsgrove, PA, USA, tel. 717 374 5239, fax 717 372 2700, e-mail nvaneck@einstein.susqu.edu.

Type: statistical analysis system. *Specification*: D, S.

Hardware platform: P. *Shareware*: No.

Comprehensive statistical & data management package for MS-DOS and OS/2 based microcomputer systems. Accepts over 1000 permanent variables, unlimited cases, uses a math coprocessor if present and takes up only 1.1 meg of disk space. There is an interactive menu system and on-line help for choosing appropriate statistical techniques and commands. Handles weighted data, has powerful recode facility, checks and validates 'wild codes,' and can aggregate data. In addition to the usual basic statistics such as hypothesis testing, classical regression and correlation analysis, MicroSiris provides multivariate analysis of nominal- and ordinal-scaled data, and logit regression. MicroSiris produces scatterplots, univariate and bivariate frequency distributions and related statistics, non-parametric statistics, univariate and multivariate analysis of variance, multiple classification analysis, factor analysis, and life table analysis.

Reference: Sonquist, J.A. (1990): MicroSiris Statistical and Data Management Software System. The American Statistician (44), p. 236-239.

MIXTURE-DESIGN, release 2.1.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L, S, G, R.
Hardware platform: P. Shareware: No.

MIXTURE-DESIGN is a pair of computer programs that aids researchers in setting up and analyzing three- or four- component mixtures with a minimum of 7 or 11 factor combinations, respectively. MIXTURE-DESIGN leads the user through the process of setting up the design by quickly eliciting the user-specified overall constant (the 100% constraint), names of the factors, and their low and high levels. It then generates factor combinations which include vertex, edge, and centroid points. When the experiments have been carried out and the responses entered into the program, MIXTURE-DESIGN analyzes the data and prints either to screen or printer a statistical analysis of the results. MIXTURE-DESIGN is useful in all industries working with formulations, such as foods and paints and coatings.

ML3, release V2.2.

Multilevel Models Project, Department of MSC, Institute of Education, 20 Bedford Way, WC1H 0AL London, England, tel. 071 612 6681/6682, fax 071 612 6686, e-mail temsmya@uk.ac.ioe.

Type: special purpose program. Specification: D, S, G.
Hardware platform: P. Shareware: No.

Tools for analysis and manipulation of hierarchical data: - estimation of complex hierarchical variance structures - multivariate models - repeated measures models - binary response data - linear and non-linear models Modelling features above are additive. ML3 is a command driven package. Further features: - exploratory graphics: line, point, bar, error bar, histogram, box plot, zooming, annotation, point identification. - data manipulation: sort, merge, recode, omit, listwise delete etc - group operations: group means, SDs, SUMs, COUNTs, sequencing etc - arithmetic: expression parser provided - basic statistics and transformations, ned, zscore, regression, moments etc -

tabulations: one or two ways, counts & frequencies, means & SDs for continuous variables - random number generation: Uniform, Normal, Binomial, Poisson, Exponential, Chi-squared, user defined

Reference: Binks, M. (1991): Statistical software for microcomputers: ML3. British Journal of Math. & Stat. Psychology (44), p. 234-249.

MSUSTAT, Statistical Analysis Package, release Version 5.10+.

Research and Development Institute Inc., Montana State University, Attention R. E. Lund, 59717-0002 Bozeman, MT, USA, tel. 406 994-3271, fax 406 994-6579, e-mail PLund%alpine.dnet@mtunix1 (bitnet).

Type: statistical analysis system. Specification: D, S, G.

Hardware platform: P. Shareware: No.

MSUSTAT emphasizes 'ease of use' while providing comprehensive statistical analysis capability. Procedure control avoids reference to a lengthy set of command mnemonics and rigid inefficient menus. Instead, users interact with their data analysis as it progresses by efficient and rapid question-answers and with occasional reference to 'help' messages. Computer-driven introductory lessons are included. Procedure repertoire includes: anova for balanced designs with up to 8 classifying factors and 8 blocking/error strata and general linear model capability for unbalanced data sets, both with capability for analysis of covariance, repeated measures, multivariate, contrasts, multiple comparisons, table and graphical display of raw and fitted means and residuals, analyze incomplete factorials with confounding. Multiple linear regression includes response estimation, subset analysis, graphical display of data, estimation, residuals, and confidence and prediction intervals. Nonparametrics, classical and loglinear attribute data analysis, descriptive statistics, graphical displays, data entry and management, sample size needs, random number generation. The 220 page User's guide includes 100 pages of examples from Snedecor and Cochran, Statistical Methods and similar texts.

Reference: Marasinghe, M.G. (1985): MSUSTAT. MS/PC-DOS and CPM/M-80 Version 2.20. The American Statistician (39), p. 72-74.

Multigraf, release 2.8.

G-LOGIC Software GmbH, Neue Schlosstr. 4, D-6900 Heidelberg, Germany, tel. + 49 6221/12501, fax + 49 6221/162893, e-mail -.

Type: other software. Specification: S, G, R.

Hardware platform: P. Shareware: No.

Multigraf is designed to provide the user with a most flexible system for data analysis and graphical presentation. It can be run in menu-dialog as well as in batch mode, or in a combination of both. The data analysis part comprises a program language, a program library and a highly sophisticated regression and optimization module. The program language contains mask generation, interpretation of mathematical formulas etc. The programs can be added to the library. The library programs offer statistical, graphical and other tools. They are delivered including source to serve as a seed for own programs. The regression models can be written using the full syntax of the program language, thus any kind of hill-climbing- problems can be solved. A procedure

to calculate and display confidence regions of regression parameters and fitted curves (nonlinear) is available. The graphs are not constrained to fixed types, but are composed of modules which can be defined in detail by parameters and data. The user is free to design the charts and compose the graphic in his own way and store it for later use with other sets of data. Its flexibility, batch-ability and 'open architecture' concept makes Multigraf an ideal platform to develop fully automatic or interactive applications that integrate any kinds of calculation and graphics.

MVSP - A MultiVariate Statistical Package, release 2.0.

Dr. W.L. Kovach, Kovach Computing Services, 85 Nant-Y-Felin, LL75 8UY Pen-traeth, Anglesey, Wales, U.K., tel. (0248) 450414, e-mail warrenk@cix.compulink.co.uk, 100016.2265@compuserve.com.

Type: statistical analysis system. Specification: S.

Hardware platform: P. Shareware: Yes.

MVSP performs a number of numerical analyses useful in many fields. It calculates three basic types of eigenanalysis ordinations: principal components (PCA), principal coordinates (PCO), and correspondence analyses (CA). It can also perform cluster analysis, with eighteen different distance and similarity measures and seven clustering strategies. Three different diversity indices may be calculated for ecological data. Scatterplots and dendrograms of the results of these analyses can be plotted in graphics mode. The program also has a built-in data editor and a variety of options for data manipulation and transformation. It is menu driven, with context-sensitive help, and provides a large number of user-defined settings that can be saved for future use. The shareware version of the program can analyse matrices up to 100x100 and comes with an abbreviated manual on disk. An enhanced version, MVSP Plus, can analyse matrices up to 750x750 (if enough memory and hard disk space are available), supports the 80x87 math coprocessor, and comes with a complete printed manual.

N, release 2.0.

idv-Datenanalyse und Versuchsplanung, Wessobrunnerstrasse 6, D-8035 Gauting/Munich, Germany, tel. 089.8508001, fax 089.8503666, e-mail -.

Type: statistical analysis system. Specification: L, S.

Hardware platform: P. Shareware: No.

The program for planning and interpretation of studies concerning sample size and related topics. Different target parameters: sample size N, beta, alpha, smallest detectable difference. Different kinds of testing: test for difference and for equivalence. Two alternatives: one-sided and two-sided. Different study situations: one-sample and a constant two correlated samples parallel-group design implicit: two-period crossover. Data types: event data (binomial test) quantitative data (t-test). Various group size ratios: balanced and unbalanced. Many other features such as OC-values, critical values for testing of equivalence etc. Highlight: Elaborate user manual with validation of calculations and lots of examples for beginners as well as advanced users.

Reference: Chanter, D.O. (1989): Statistical software reviews. Applied Statistics (38), p. 529-534.

Nsurv, release 2.0.

idv-Datenanalyse und Versuchsplanung, Wessobrunnerstrasse 6, D-8035 Gauting/Munich, Germany, tel. 089.8508001, fax 089.8503666, e-mail -.

Type: statistical analysis system. Specification: L, S.

Hardware platform: P. Shareware: No.

The program for planning and interpretation of studies concerning sample size and related topics. For time- to-occurrence data. Different target parameters: sample size N , beta, alpha, smallest detectable difference. Two alternatives: one-sided and two-sided. Situations: test for difference and equivalence. Different specifications of difference: either difference or quotient, lambda (hazard), median, mean, proportion. Various group size ratios: balanced and unbalanced. OC-values available where reasonable. Different models: observation to the time-to- occurrence, observation to time T , common to all units, suspended recruitment and observation to time T , different for each unit, suspended recruitment to time T and observation to $R > T$, different for each unit.

PMGLM, release 1.01.

IFAS Department of Statistics, University of Florida, 401 Rolfs Hall, POBox 110560, 32611-0560 Gainesville, FL, USA, tel. (904)392-1946, fax (904)392-8555, e-mail gyro@stat.ufl.edu.

Type: statistical analysis system. Specification: S.

Hardware platform: P. Shareware: Yes.

PMGLM (Poor Man's Generalized Linear Models) is a small portable program, written in C, for fitting generalized linear models. The identity, log, logit, probit, inverse, or square root link functions, and the normal, Poisson, gamma, inverse Gaussian, binomial, or negative binomial distributions may be specified. Also, extrabinomial variation may be specified, invoking the algorithm of Williams (1982). Multiple degree of freedom linear hypotheses of parameters in the linear predictor may be tested by use of the CONTRAST statement. Estimates and associated standard errors of linear functions of parameters may be obtained by use of the ESTIMATE statement.

PS_STAT, release version 1.0.

Inst. of Computer Science, University of Wroclaw, Przesmyckiego 20, 51-151 Wroclaw, Poland, tel. (71) 251271, fax (71) 251271, e-mail JPE@PLWRUW11.

Type: special purpose program. Specification: S, G, R.

Hardware platform: P. Shareware: No.

PS_STAT is a didactic package highlighting and enhancing some basic concepts of probability and statistics. It is designed for students with low knowledge of mathematics. The topics are: elementary probability distributions, confidence intervals and ellipses, one-way ANOVA, regression line, distribution of sample mean, clustering of individuals and variables, correspondence analysis.

Rancode-Plus, release 3.1.

idv-Datenanalyse und Versuchsplanung, Wessobrunnerstrasse 6, D-8035 Gauting/Munich, Germany, tel. 089.8508001, fax 089.8503666, e-mail -.

Type: special purpose program. Specification: L.

Hardware platform: P. Shareware: No.

RANCODE is a program for the randomization of patients. Special purpose program for preparing: - random code lists - sealed envelopes - stick-on labels Random permuted block principle: - arbitrary block size - varying block size, if required - balanced/unbalanced code Randomization can be done for up to 20 centers with up to 16,000 cases in one run; lists may be stored for editorial work. The seed number can be printed (FDA-requirement).

REG - a generalized linear models program, release 92.01.

General Manager Biometrics Unit, NSW Agriculture, 161 Kite St POBox Locked Bag 21, 2800 Orange, Australia, tel. < 61 > (0)63 913800, fax < 61 > (0)63 913899, e-mail -.

Type: statistical analysis system. Specification: S.

Hardware platform: W, P. Shareware: No.

REG is a general linear models package developed over 20 years. It includes extensive data transformation facilities and analysis options including page plots, data summaries, analysis of variance tables, regression analysis, multivariate discriminant analysis, repeated measures analysis, variance component estimation for simple animal breeding models and generalized linear models. REG does not have the sophistication of the major commercial packages but is a serious analysis program for the price. An evaluation copy is available on request.

REPORT, release 4.1.

idv-Datenanalyse und Versuchsplanung, Wessobrunnerstrasse 6, D-8035 Gauting/Munich, Germany, tel. 089.8508001, fax 089.8503666, e-mail -.

Type: statistical analysis system. Specification: O, D, S, R.

Hardware platform: P. Shareware: No.

REPORT is a program package for data input, management, and processing in the field of socio-biology, with special emphasis on biomedical research. The type, layout, and contents of the REPORT-tables are according to the requirements of the FDA. There are unique features for the biomedical research: Inclusion of reference values for defining normal ranges, analysis procedures for non- normally distributed data. Features: Tables & statistics (listing data and presentations of important statistics, 24 statistics at disposal) Casewise listing (listings all data for a single case on one page complying with the guidelines of the FDA) Score-counting (counting frequencies of categorical and ordinal data with percentage values) Lab- counting (univariate demarcation and counting of pathologic values using specific tables with reference values Lab-test (describing and robust testing of changes within groups, exact sign-test) Shift-tables (bivariate

counting and testing of lab-data, testing for differences within groups: Bowker- and Stuart- Maxwell-Test, generalized inverse solution)

RESAMPLING STATS, release 3.0.

Resampling Stats, 612 N. Jackson St., Ste. 1B, 22201 Arlington, VA, USA, tel. 703-522-2713, fax 703-522-5846, e-mail jsimon@umdacc.umd.edu.

Type: special purpose program. Specification: S.

Hardware platform: P, A. Shareware: No.

PROGRAM DESCRIPTION: RESAMPLING STATS is an extraordinarily simple program – perhaps better called a language – that implements the 'New Statistics' of resampling, enabling you to solve both simple and complex problems in probability and statistics. It was developed by Julian Simon at the University of Maryland on the basis of 20 years of experience in applying resampling (or Monte Carlo) methods to basic problems in statistics. Most of the 25 commands in the program mimic the operations used to conduct these resampling experiments with dice, cards or random numbers. For example, 'SHUFFLE' randomizes a set of elements, 'TAKE' takes one or more elements from a set, and 'GENERATE' generates random numbers within a given range.

Reference: Elison, A. (1992): Statistics in Different Ways. Bulletin of the Ecological Society of America (73), p. 186-188.

RXridge: Maximum Likelihood Shrinkage Regression, release August 1992.

B. Obenchain, Ph.D., softRX shareware, 5261 Woodfield Drive North, 46033-8795 Carmel, Indiana, USA, tel. (317) 580-0144, e-mail OBENCHAIN.ROBERT.L@LILLY.COM.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P. Shareware: Yes.

softRX shareware modules help users to make well informed, objective decisions about the two most important questions that arise in each application of shrinkage methodology: 'Should I start shrinking?' and 'If I do start, when do I stop?' When one's regressor variables are highly inter-correlated, classical normal-theory confidence intervals for some linear combinations of regression coefficients will be extremely wide. The data are weak in information on these linear combinations, and they are thus prime candidates for shrinkage that will exploit variance-bias trade-offs to reduce mean-squared-error risk. Certain types of shrinkage yield Best Linear Unbiased Predictions (BLUP) for random coefficient regression models. And shrinkage estimates can be viewed as Bayesian posterior means that result from combining observed sample information with one's prior information about regression coefficients. Thus, in addition to classical maximum likelihood methods, RXridge.EXE also computes a random coefficient likelihood criterion and an 'empirical Bayes' likelihood criterion.

Reference: Obenchain, R.L. (1991): Ridge regression systems for MS- DOS personal computers. The American Statistician (45), p. 245-246.

S, release April, 1992.

AT&T, Software Licensing Manager, 10 Independence Blvd, Rm 3A36 07059-9908 Warren, NJ, USA, tel. +1 908-580-5388, fax +1 908-580-6355, e-mail cbcates@attmail.att.com.

Type: statistical analysis system. *Specification*: L, O, D, S, G, R.
Hardware platform: M, W, P. *Shareware*: No.

S is a very high level programming language and computing environment for data analysis, data management, graphics. S users express their computations in the S language, and can also use the language to add their own functions to the environment. S allows links to C and Fortran algorithms. S provides building blocks upon which you can carry out the computations you want to do. Unlike some software, it does not attempt to carry out 'canned' analyses where you throw in your data and the computer tells you if the result is 'significant.' S is designed for the person who understands what computations should be done or who requires more than 'standard' analyses. S is described in two books, *The New S Language*, by Becker, Chambers and Wilks, (1988) Wadsworth and *Statistical Models in S*, edited by Chambers and Hastie, (1991) Wadsworth. S is supplied in source form, and it is up to the recipient to install S. This requires C and Fortran compilers, as well as standard utilities supplied with the UNIX operating system. S is also available in binary from other companies, who may provide enhancements and support. For example, S- Plus from Statsci.

Reference: Lubinsky, D.J. (1991): Comment: Two Functional Programming Environments for Statistics - Lisp-Stat and S. *Statistical Science* (6), p. 352-360.

SC Statistical Calculator, release 1.103.

Mole Software, 23 Cable Road, BT38 9PZ Whitehead, Co. Antrim, N. Ireland, tel. (+44) 09603 78988, fax (+44) 09603 78988, e-mail fbgj23@uk.ac.ulster.ujvax.

Type: statistical analysis system. *Specification*: O, D, S, G, R.
Hardware platform: M, W, P. *Shareware*: No.

SC is an extensible environment for data analysis, based on a C-like programming language. It is supplied with about 430 built-in (compiled C) routines and about 450 external routines (macros). SC contains many recent robust, nonparametric, and exploratory methods, as well as classical methods. Programs written in the SC language are very compact and run nearly as fast as pure compiled C, because they can draw on the large library of built-in routines. In Unix, Protected Mode DOS, and transputer versions, very large data-sets can be handled; unlike some of its competitors, SC does not slow to a halt on big problems. There are special facilities for sparse vectors and matrices. There is a large library of routines for hardcopy graphics, which cooperates with graph, pic, et al. There are extensive and powerful on-line help facilities, and a manual of about 500 pages. All algorithms are fully documented. You can add compiled-C routines to SC, as well as macros, and there is a compiled C library that can be called from your own C programs. There is free user- support, and updates are supplied at minimal cost.

Reference: Daly, F. (1991): SC - statistical calculator. *Statistics and Computing* (1), p. 63-70. Chapman & Hall, London.

SCREEN, release 2.2.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L, S, G, R.

Hardware platform: P. Shareware: No.

SCREEN is a program using Plackett-Burman and fractional factorial screening designs to determine the most significant experimental variables in a research, development, or manufacturing system. SCREEN is especially useful for Statistical Process Control in situations where 'fishbone' diagrams have been generated to gain insight into possible causes of observed effects. Using a very small number of experiments, SCREEN can provide information to determine which factors exert the greatest effect. Data-based decisions can then be made to change these factors and improve the process. SCREEN generates a specific experimental design and analyzes its results. As many as 35 factors can be investigated and up to 8 responses may be recorded and analyzed. Optional foldover or reflection designs are available to separate main effects from two- factor interactions. Optional replication may also be selected.

Reference: McAuliffe, D. and Hamel, C. (1991): Experiment Design. COMPUTER, p. 91-92.

SimCA, release 2.0.

Prof. M. Greenacre, GREENACRE RESEARCH, POBox P O Box 567, 1675 Irene, South Africa, tel. +27+12+4296887, fax +27+12+4293221, e-mail greenmj@risc1.unisa.ac.za.

Type: special purpose program. Specification: S, G, R.

Hardware platform: P. Shareware: No.

SimCA is a PC-based program to analyse and display a data matrix by correspondence analysis. Version 2 represents a dramatic improvement over previous versions, especially its user-friendly interface with on-line help and its greater flexibility in obtaining hardcopy 'maps'. In addition to the usual 'PrintScreen' graphics and printing directly to laser printers, users can export accurate ASCII text graphics to their particular word-processing environments with no distortion of the aspect ratio (i.e. the scales on the horizontal and vertical axes are the same). Data matrices with up to 175 columns and thousands of rows can be analysed and the aim of the method is to display each row and column as a point in a map in order to understand the main features of the data. SimCA also provides extensive numerical output which may be directed to either the screen, printer or a specified file. This output is in the style of the French approach to correspondence analysis, that is in the form of absolute and relative contributions made by the rows and columns to the principal dimensions of the display. The coordinates of the rows and columns can also be saved in a disk file for further analysis or plotting. The completely revised 44-page manual which accompanies the program describes the input files and results of several test examples in annotated form.

Reference: Hoffman, D.L. (1991): Review of Four Correspondence Analysis Programs for the IBM PC. American Statistician (45), p. 305-311.

SIMPLEX-V, release 2.2.

Statistical Programs, 9941 Rowlett, Suite 6, 77075 Houston, Texas, USA, tel. (713) 947-1551, fax (713) 947-0604, e-mail -.

Type: not specified. Specification: L, S, G.

Hardware platform: P. Shareware: No.

SIMPLEX-V is an interactive menu-driven computer program for rapid experimental optimization. Up to twelve continuous variables can be adjusted simultaneously using a modified sequential simplex algorithm. SIMPLEX-V is typically used to rapidly increase the yield of a synthetic reaction, to improve the efficiency of an extraction process and to reduce the cost of an existing reaction or process. SIMPLEX-V supports both the fixed-size and variable-size simplex designs. It can accept a user-defined starting simplex derived from existing experimental information.

Reference: Nachtsheim, C. (1987): Tools for Computer-Aided Design of Experiments. Journal of Quality Technology (19), p. 132- 160.

SlideWrite Plus, release 4.1.

LOLL + NIELSEN, Quickbornstr. 3, 2000 Hamburg 20, Germany, tel. 040 - 420 03 47, fax 040 - 491 13 10, e-mail -.

Type: special purpose program. Specification: S, G, R.

Hardware platform: P. Shareware: No.

SlideWrite Plus is a powerful graphics tool specially designed for technical applications. It combines a straightforward, consistent interface for both keyboard and mouse users with advanced scientific features. With SlideWrite Plus you can create graphs, reports, charts, and slide presentations by integrating plots, text, and drawings. Make your own pictures with the draw-toolbox or use one of the hundreds pre-drawn symbols. The images can be enlarged or reduced in size, colored, and rotated with no loss of resolution. Besides the collection of symbols, objects, and figures in the standard version of SlideWrite Plus there are optional Figure Packs for different scientific fields available (Basic Scientific, Drug, Anatomy, Cell, Chemistry, Map, and Electronic/Logic). Besides lots of standard graphic options Slide Write Plus contains special advanced graphing features like dual Y axis plotting, error bars on scatter, bar, and line graphs, equation plotting, superscripts and subscripts in titles, legends, and labels, Greek and mathematical symbol font, spline and polynomial curve fitting from 1st to 6th order. The user has full control over how the graph looks (label size, font, color, line and frame thickness, scaling, break axes, and more). Drivers for all common plotters, printers, and cameras are provided.

Reference: Bakan, J.D. (1992): Selecting a Standard Presentation Graphics Software Program. Scientific Computing & Automation.

SOLO, release Version 4.0.

BMDP Statistical Software, Cork Technology Park, Model Farm Road Cork, Ireland,
tel. +353 21 542722, fax +353 21 542822, e-mail zzbm9001@iruccvax.

Type: statistical analysis system. Specification: L, O, D, S, G, R.

Hardware platform: P. Shareware: No.

SOLO helps make statistical analysis fun and exciting. It allows you to concentrate on analysing and interpreting your data rather than worrying about a complex statistical formula or learning a computer language. SOLO was written and tested by a Ph.D. statistician who has taken great care to ensure the numerical accuracy and statistical correctness of the results. SOLO works with other programs. You can load a data set from your favourite spreadsheet or data base, analyse it and insert the results into a report on your word processor. However it is possible to do all your work in SOLO. It provides easy data entry, editing and printing. Base SOLO includes these statistical and graphical functions. Descriptive Statistics; Cross Tabulation; t-Tests; ANOVA, GLM; ANCOVA; Multiple Regression; Factor and Discriminant Analysis; Nonparametric Statistics; Bar Graphs & Histograms; Pie Charts; Regression Plane; Ridge Contour Plots; 2D & 3D Scatter Plots; Multidimensional Plots; Casement Displays; Box Plots; XYZ Function Plots; SOLO also contains these specialized analysis Add-on Modules; Advanced Statistics; Experimental Design; Survival Analysis; SPC; Time Series/Forecasting; Curve Fitting; Categorical Data Analysis;

Reference: Evans, S. (1992): SOLO - Statistics and graphics for personal computers from BMDP, version 3.0. Applied Statistics (41), p. 605-609.

SPSS & SPSS/PC+, release 5.0 for both.

SPSS Inc., 444 N. Michigan Avenue, 60611 Chicago, IL, USA, tel. 312.329.2400, fax 312.329.3668, e-mail -.

Type: statistical analysis system. Specification: L, O, D, S, G, R.

Hardware platform: M, W, P, A. Shareware: No.

SPSS Release 5.0 and SPSS/PC+ are tightly integrated families of products that offer extensive data access, management and editing capabilities, in-depth statistical routines and high-resolution analytical, and presentation graphics. Add-on modules in the families offer advanced and specialized analytical, tabular, mapping, data entry and data translation tools. Users can add modules as their needs grow. SPSS' strengths are in the areas of data management and editing, depth of implementation of statistical routines, proven algorithms, ease of use, modularity of products that allow users to design the best system for their needs, pricing and graphical presentation of results. SPSS' implementation on a given platform conforms to that platform's design in a way that best supports the user in the environment. SPSS' documentation has been praised for being comprehensive and is regarded as the best in its category of software. SPSS offers flexible pricing and licensing, including academic, site and network licenses and single user one-time fee licenses. SPSS has a number of support policies which vary by country. SPSS maintains a catalog of its publications. It publishes its algorithms in a text, 'SPSS Statistical Algorithms, 2nd Edition' along with the 'SPSS Guide to Data Analysis.' Call your nearest SPSS office for more information.

Reference: Karney, J. (1992): 'SPSS for Windows: Stats Power with GUI Interface'. PC MAGAZINE (11), p. 37-40. Ziff-Davis Publishing Co.

StaTable: Electronic Tables for Statisticians, release 1.

Cytel Software Corporation, 675 Massachusetts Avenue, 02139 Cambridge, Massachusetts, USA, tel. 617-661-2011, fax 617-661-4405, e-mail -.

Type: statistical analysis system. Specification: L, S, R.

Hardware platform: P, A. Shareware: No.

StaTable provides immediate access to the twenty-five most commonly used statistical distributions. With just a few keystrokes, the tail area or percentage point you want appears in a pop-up window. StaTable eliminates hunting for books of tables, interpolation, and the chance of errors in calculation. The program can be run in stand-alone form or as a memory resident utility that pops up from programs such as Lotus-1-2-3 and Word Perfect. The distributions you can look up are: Normal, Uniform, Triangular, Beta, Gamma, Weibull, Chi-squared, Non-central Chi-squared, Student-t, Non-central Student-t, F, Non-central F, Gumbel, Logistic, Exponential, Lognormal, Pareto, Cauchy, Bivariate Normal, Binomial, Poisson, Geometric, Multinomial, Hypergeometric, and Negative Binomial.

STATGRAPHICS, release 5.5D.

ISE DATA GMBH, Herrrainweg 5, POBox D - 6050, Offenbach / Main, Germany, tel. 0049-69-80053-0, fax 0049-69-80053-132, e-mail -.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P. Shareware: No.

STATGRAPHICS and STATGRAPHICS PLUS are completely menu-driven statistical packages, which are easy to learn and easy to use. The systems integrate powerful statistical analysis capabilities (more than 250 statistical and system procedures in one base system) with sophisticated interactive graphics (more than 50 types of graphs). With STATGRAPHICS PLUS you can handle problems with data sets whose size is only limited by the amount of RAM in your computer, it means unlimited data sets. And this up to five times faster than the 'normal' STATGRAPHICS. STATGRAPHICS PLUS only runs on a 386/486 PC with at least 4 MB RAM. STATGRAPHICS / STATGRAPHICS PLUS new release 5.5D is available now. It is a complete German version of the program.

Reference: Bleymueller and Gehlert (1992): Statistische Formeln, Tabellen und Programme. Verlag Franz Vahlen, Munich.

StatXact: Exact Nonparametric Inference, release 2.

Cytel Software Corporation, 675 Massachusetts Avenue, 02139 Cambridge, Massachusetts, USA, tel. 617-661-2011, fax 617-661-4405, e-mail -.

Type: statistical analysis system. Specification: S.

Hardware platform: W, P. Shareware: No.

The most important feature of StatXact, distinguishing it from all other statistical software, is that it computes EXACT p-values and EXACT confidence intervals for nonparametric and contingency table data. The usual asymptotic methods of analysis are unreliable for such data, but the exact methods of StatXact, based on permuting the observed data in all possible ways that they could have arisen, provide absolute reliability, no matter how small, sparse or imbalanced the data are. StatXact is based on over ten years of research in the field of computational statistics by Dr. Cyrus Mehta and his colleagues at Harvard University. Their algorithms are published in journals like: J. Amer. Statist. Assn., Biometrika, Biometrics, and J. Comp. Graph. Stat. The software is installed at several thousand sites including the Food and Drug Administration, the Centers for Disease Control, the National Institutes of Health, and numerous leading Universities all over the world. Statistical procedures include: one sample tests, two sample tests, rxc contingency tables, stratified 2x2 and stratified 2xc contingency tables, and exact confidence intervals for odds ratios. The exact results in StatXact are validated in an article by Strawderman and Mehta, Comp. Stat. and Data Analysis, 14, 2, 263-266, 1992.

Reference: Lynch, J.C. and Landis, J.R. (1991): StatXact. The American Statistician (45), p. 151-154.

StatZ and SurveyZ, release 2.0.

WESTAT Associates Pty. Ltd., 60 Bruce St, POBox 833, 6009 Nedlands, Western Australia, tel. 380 4647, e-mail bmurphy@ecel.uwa.edu.au.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P, A. Shareware: No.

StatZ provides: very easy standard tests, descriptions, plots; combines with spreadsheet database and graphics, macros and scripts; regression; powerful multistrata AOV; powerful cross tabulation. SurveyZ provides: powerful cross tabulation for survey data; very easy standard tests, descriptions, plots; combines with spreadsheet database and graphics, macros and scripts.

Reference: Hall, R. (1991): Australian MACWorld, p. 86-89. IDG Communications.

STEXOM, release 4.1.

M. Olagnon, IFREMER - Centre de Brest, POBox B.P. 70, F - 29280 Plouzane, France, tel. +33 98 22 41 44, fax +33 98 22 41 35, e-mail Michel.Olagnon@ifremer.fr.

Type: special purpose program. Specification: L, S.

Hardware platform: W. Shareware: No.

STEXOM is a package devoted to the prediction of extreme values of phenomena for which only a shorter amount of data is observed and available. A typical application is the determination of the maximum (100-year) wave height to be taken into account for the design of an offshore structure using only a few years of measurements database. The main steps of the processing comprise fit of the dynamics of large observed values using parametric models, domain of attraction (Fisher-Tippett) choice for the distribution of the maximum, and extrapolation to the prescribed extent. The parametric models may be chosen from a large variety, and the (weighted) fitting method from

maximum likelihood or least squares. Statistical uncertainties are computed along all of the procedure. Graphical (screen, Postscript) and plain text results can be displayed at each intermediate step, allowing for visual control of the goodness of fit and of the whole process. Brief on-line information is available for all commands and variables, as well as a general sketch of the analysis procedure

Reference: Labeyrie, J. (1991): Time Scales and Statistical Uncertainties in the Prediction of Extreme Environmental Conditions. Reliability Engineering and System Safety (32), p. 243-266.

SUDAAN:Survey Data ANalysis, multi-stage sample designs, release 6.0.

Research Triangle Institute, Ms. Sandy Paschall, Statistical Software Center, POBox P. O. Box 12194, 27709-2194 Research Triangle Park, NC, USA, tel. (919)541-6602, fax (919)541-6178, e-mail -.

Type: statistical analysis system. Specification: S.

Hardware platform: M, W, P. Shareware: No.

SUDAAN enables a user to obtain estimates using proper sample design parameters and, most importantly, to compute appropriate standard errors (SE's) of these estimates that incorporate the design info. Nos. of observations, variables, tables limited only by your storage. Sample designs (a) can have any number of sampling stages, (b) can be with/without stratification, and (c) can switch between with/without replacement and between equal/unequal probabilities when going from stage to stage. Release 6.0 consists of eight procedures: DESGCHK - Checks specified sample parameters against data file. CROSSTAB - Frequencies, percents, & their SE's; chi-square, covar. RATIO - Estimates & SE's of generalized ratios; standardized, post-stratified, contrasts among domain estimates. DESCRIPT - Means, totals, proportions, geometric means, quantiles, contrasts, and their SE's; stand'zd, post- strat., cntrst REGRESS - Fit linear models, test hypotheses; continuous dependent variable, discrete or continuous independent variables. LOGISTIC - Fit log-linear models, Boolean independent variable. SURVIVAL - Analyze survival data w. Cox's proportional hazard model CATAN - Analysis of categorical data, linear/log-linear/logistic (For 286 or AT-type PC's, SUDAAN 5.50 is available; no SURVIVAL/CATAN)

SURVO 84C, release 4.

Survo Systems Ltd, Kuninkaantammentie 7, 00430 Helsinki, Finland, fax 358 0 5668146, e-mail -.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P. Shareware: No.

SURVO 84C (Survo) is an integrated interactive environment for statistical analysis and computing. It also includes tools for general data management, graphics, spreadsheet computing, matrix operations, text processing, report generating, and desktop publishing. Survo has its own macro language for making of expert applications and teaching programs. All functions are combined by a unique editorial interface where the actions are based on working with a general text editor. The main features of Survo are described in a new book 'Survo, Integrated Environment for Statistical Computing and Related Areas' by S. Mustonen (1992, 494 pp.)

SYSTAT, release 5.x.

SYSTAT, Inc., 1800 Sherman Avenue, 60201 Evanston, IL., USA, tel. (708) 864-5670, fax (708) 492-3567, e-mail -.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: P, A. Shareware: No.

SYSTAT is one of the most powerful statistics and graphics software packages on the market. It allows you to perform a number of statistical analyses (basic statistics, cluster analyses, correlations, factor analyses, ANOVA, regression, nonparametric tests, time series analyses, and more) and generate a wide range of graphical representations of analyses (histograms, box plots, 3-D data and function plots, scatterplot matrices, and more). SYSTAT can be used for many research and business applications, including biomedical, environmental and social science research, market research and forecasting, and quality control. SYSTAT 5.2 for the Macintosh is the first statistical package to offer support of Apple's new QuickTime(TM) system software extension. Use QuickTime to run a series of SYSTAT 3-D or 2-D plots or graphs as an animated visualization.

Reference: Stern, M. (1990): Statistics Programs. NSTL Software Digest Ratings Report (8), p. 3-67.

S-PLUS, release 3.1.

Statistical Sciences, Inc., 1700 Westlake Av. N. Suite 500, 98109 Seattle, tel. 206-283-8802, fax 206-283-8691, e-mail mktg@statsci.com.

Type: statistical analysis system. Specification: D, S, G, R.

Hardware platform: W, P. Shareware: No.

S-PLUS from Statistical Sciences (StatSci) is a flexible, interactive data analysis system coupled with an object-oriented data language. S-PLUS is used by thousands of statisticians, data analysts, researchers, and scientists world-wide. S-PLUS features a unique combination of over 1200 built-in functions for exploratory data analysis, data visualization, classical and advanced statistics, mathematical computing, and graphics. In addition, S-PLUS provides the capacity to create custom functions and build-up dedicated analysis applications. For a Free Video, 'An Introduction to Intelligent Data Analysis', describing S-PLUS, or a Free 30 Day Trial of the complete package, contact StatSci Sales or call 1-800-569- 0123 (USA only).

Reference: Newton, H.J. (1991): S-PLUS for UNIX and DOS November, 1991. Chemometrics and Intelligent Laboratory Systems, p. 255-261.

TARGET-N, release 2.1.

Szonyi Associates, 177 Cedar Street, 02173 Lexington, MA, USA, tel. (617) 862-8385, fax -, e-mail -.

Type: statistical analysis system. Specification: S.

Hardware platform: P. Shareware: No.

TARGET-N sets up the designed experiments, based on the user's selection of independent and response variables. From the results of these experiments TARGET-N

constructs a response surface for each response which contributes to the operations at hand. A response surface is a polynomial describing a response in terms of the inputs. A designed experiment is a series of individual experiments chosen so as to permit definition of the response surfaces. A target is the best value of the response. From the response surfaces and targets, TARGET-N constructs a loss function. The loss function describes how departure from target values reduces the overall quality of the operation. Minima of the loss function represent combination of inputs where quality is locally maximized, or where quality is constant for small variations of inputs. To find the values of the inputs where the set of responses most nearly matches the selected targets, TARGET-N minimizes the loss function with respect to the inputs. No other software package allows simultaneous optimization of multiple non-linear responses.

Testimate, release 5.1.

idv-Datenanalyse und Versuchsplanung, Wessobrunnerstrasse 6, D-8035 Gauting/Munich, Germany, tel. 089.8508001, fax 089.8503666, e-mail -.

Type: statistical analysis system. *Specification*: D, S, G, R.

Hardware platform: P. *Shareware*: No.

TESTIMATE is the first program to offer a diversity of different permutational algorithms, e.g. backtracking (optimized network) or shift (continuous data). Scope of procedures: P-values (exact and asymptotic, correct with and without ties, corrected for continuity) effect size measures and confidence intervals two-sided and one-sided tests, tests for difference and equivalence. Exact one- sample procedures (median CI, binomial CI, sign-test, Wilcoxon signed rank test, Pratt-Wilcoxon test). Exact two-conditions procedures (symmetry (2x2), sign-test, Wilcoxon signed rank test, Pratt-Wilcoxon test). Exact two-sample procedures (Fisher-test 2x2, CI interval odds ratio, Fisher- test 2xC, Hodges-Lehmann estimator, Mann-Whitney estimator, Kolmogorov-Smirnov, median-test, Fisher-Pitman, Wilcoxon- Mann-Whitney, Mantel-Haenszel test, Cochran-Armitage, arbitrary scores, all possible tests (Streitberg-Röhmel). Approx. 60 asymptotic procedures of the highest quality and another 30 classical procedures incl. descriptive statistics, scattergram, AN(CO)VA, two-period crossover with optional bioequivalence testing.

Reference: Rahlfs, V.W. (1992): TESTIMATE: A statistical package with special reference to nonparametric methods. *Computational Statistics & Data Analysis* (14), p. 125-126.

The SAS System, release 6.07.

SAS Institute GmbH, European Headquarters, Neuenheimer Landstr. 28-30, POBox 10 53 40, 6900 Heidelberg, Germany, tel. +49-6221-4160, fax +49-6221-474850, e-mail -.

Type: statistical analysis system. *Specification*: L, O, S, D, G, R.

Hardware platform: M, W, P. *Shareware*: No.

The SAS System provides the most efficient way of getting from data to information. Data and applications on different hardware platforms can be integrated into a single software environment that delivers relevant and up- to-date information to its users. As

an information delivery system, SAS software provides comprehensive transparent data access to virtually any data source including flat files, special files and all major dbms's. It also includes its own information database to store and manage data. A broad range of applications are supported. Of concern in the statistical area: statistical analysis, guided data analysis, quality improvement, experimental design, linear programming, report writing, graphics, interactive graphical data analysis, etc. All levels of users are supported through a variety of intuitive and easy to use interfaces, such as a menu-based interface for experimental design. Hardware independence ensures the same look and feel of applications across platforms, while exploiting features like vector processing. Connectivity provides complete flexibility for cooperative processing.

TimeLand, release 1.0.

I. Enyukov, StatPoint Ltd., 11 Tverskaya , Innofund, 103950 Moscow, Russia, tel. (7)(095)291 27 38, fax 2926511, box 003222, e-mail igen@compnet.npimsu.msk.su.

Type: statistical analysis system. Specification: S, G, R.

Hardware platform: P. Shareware: No.

TimeLand is a system for analyzing the structure of various time processes and forecasting the dynamic of values connected with them. Examples of such processes are various time series in economics demography, meteorology e.t.c. and signals arisen from technical devices and from nature processes. TimeLand incorporates various types of tools for smoothing, for detecting structural changes, spectral analysis and filtration. Conventional models of time series are also incorporated in TimeLand. The important features of TimeLand are the following: - the use of new approach based on the multivariate unfolding of the analyzed time process; after unfolding we have a type of multivariate data matrix for analysis instead of the initial one- dimensional time process and can use methods of multivariate data analysis for statistical inferences about the time process; - the use of methods based on chaos theory and nonparametric approach; - the use of statistics connected with nonlinearity (BDS statistic correlation integral, correlation dimension, Tsay test e.t.c.); - the use of interactive graphics including several new types of plots; for example, recurrence plot, 'scaling' plots and so on.

TSA 1.77, release Version 2.0.

Data Analysis Australia Pty Ltd, 8/154 Hampden Road, POBox 630, 6004 Nedlands, Australia, tel. +61 9 3863304, fax +61 9 3863202, e-mail -.

Type: statistical analysis system. Specification: S, G.

Hardware platform: P. Shareware: No.

TSA 1.77 equally supports time domain and frequency domain analysis of time series data with an emphasis on graphical display. Features include Box Jenkins model fitting with transfer function inputs, regression with autocorrelated errors, filtering, filter design, spectral analysis, cross spectral analysis, computation with Fourier transforms, correlation analysis, gain functions. The inbuilt programming language allows the definition of user defined macros. Graphical output is supported on a variety of devices. Screen graphics are interactive.

TSP, release 4.2A.

TSP International, POBox 61015, 94306 Palo Alto, CA, USA, tel. (415)-326-1927, fax (415)-328-4163, e-mail clint@leland.stanford.edu.

Type: statistical analysis system. Specification: D, S, G.
Hardware platform: M, W, P, A. Shareware: No.

TSP is a complete language for the estimation and simulation of econometric models. It features easy-to-use free format command and data input, all the standard econometric estimation methods, such as OLS, AR1, instrumental variables, nonlinear systems estimation (SUR, 2SLS, 3SLS, GMM, FIML), LIML, maximum likelihood estimation of qualitative dependent variable models (Probit, Tobit, Sample selection, Multinomial Logit, or user-supplied likelihood function), unbalanced panel data (fixed + random effects). Extensive (optional) diagnostic tests for linear regression. Simulation includes several types of random deviates and multi-equation solution using Gauss-Seidel and Gauss-Newton methods. Nonlinear estimation is very powerful due to the use of internally generated analytic first and second derivatives. Time series techniques include univariate ARIMA, Kalman filter, GARCH-M, VAR (with impulse response and variance decomposition), PDLs and Shiller lags. The program has flexible data transformation with many built-in functions and matrix algebra. 200- and 300- page manuals. PC/386/Mac versions include graphics and reading/writing spreadsheet files (Lotus + Excel).

Reference: Van Nes, F. and Ten Cate, A. (1989): Software for econometric research with a personal computer. International Journal of Forecasting (5), p. 263-278.

TwoD - a mixed linear model with 2D spatial adjustment, release 3.3.

General Manager Biometrics Unit, NSW Agriculture, , 161 Kite St POBox Locked Bag 21, 2800 Orange, Australia, tel. < 61 > (0)63 913800, fax < 61 > (0)63 913899, e-mail

Type: statistical analysis system. Specification: S.
Hardware platform: W, P. Shareware: No.

TwoD was developed for the analysis of cereal trials including early generation trials. It fits an underlying two dimensional trend in the plots as a separable autoregressive or moving average process with variance parameters estimated by REML. It handles simple factorial/ covariance models for fixed effects and one random design factor. The random factor is used for the test lines in the analysis of early generation trials where test lines have only one replicate but control lines are interspersed among them. An evaluation copy is available on request.

UNESCO IDAMS Statistical software package, release 3.0.

UNESCO - CII/PGI, IDAMS Development Group, 1, rue Miollis, 75732 Paris CEDEX 15, France, tel. (33-1)45.68.37.89, fax (33-1)43.06.16.40, e-mail SCIDA@FRUNES21.

Type: statistical analysis system. Specification: D, S, G, R.
Hardware platform: M, P. Shareware: Yes.

IDAMS is a collection of programs developed by UNESCO for validation, manipulation and analysis of data. It can be used without programming skills or knowledge. Statistical programs cover classical techniques such as univariate and bivariate distributions, statistics and tests, analysis of variance, multiple linear regression with stepwise option, multiple classification analysis, discriminant analysis, multidimensional scaling, and also some more advanced techniques such as rank-ordering of alternatives, typology with ascending classification, partial order scoring, factor analyses including analysis of correspondence. Standard IDAMS features allow for case and variable selection, missing data handling and data transformation. Micro IDAMS is equipped with powerful and user-friendly editors, graphic facilities and on-line help messages. The documentation is now available in English; Spanish and French versions are under preparation. Linked through an interface with the UNESCO CDS/ISIS software for handling of data bases, it allows for the processing in a unified way of data gathered for administrative as well as for scientific purposes. In 1993-94 it is foreseen to adapt IDAMS to UNIX and to include other techniques such as: segmentation analysis, time-series analysis, etc.

Unistat for Windows, release 1.13.

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Type: statistical analysis system. *Specification*: L, O, D, S, G, R.

Hardware platform: P. *Shareware*: No.

UNISTAT for Windows - a true Windows Statistical distribution, curve and surface fitting box and whisker, normal plots, 2D and 3D histograms, function plots. Full resolution support for all printers and plotters supported by Windows drawing packages. Descriptive statistics, histograms, frequency tables, distribution functions, parametric / non parametric tests, goodness of fit tests, correlations, contingency tables, cross-tabulation and break-down, OLS and stepwise regression, ANOVA, ANCOVA, cluster, discriminant, principal components, factor analyses, multi-dimensional scaling, canonical correlation.