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End Matter

JMASM Editors

DataMineIt℠

announces

PermuteIt™ v2.0

The fastest, most comprehensive and robust permutation test software on the market today.

Permutation tests increasingly are the statistical method of choice for addressing business questions and research hypotheses across a broad range of industries. Their distribution-free nature maintains test validity where many parametric tests (and even other nonparametric tests), encumbered by restrictive and often inappropriate data assumptions, fail miserably. The computational demands of permutation tests, however, have severely limited other vendors' attempts at providing useable permutation test software for anything but highly stylized situations or small datasets and few tests. PermuteIt™ addresses this unmet need by utilizing a combination of algorithms to perform two-sample, non-parametric permutation tests very quickly – often more than an order of magnitude faster than widely available commercial alternatives when one sample is large and many tests and/or multiple comparisons are being performed (which is when runtimes matter most). PermuteIt™ can make the difference between making deadlines, or missing them, since data inputs often need to be revised, resent, or recleaned, and one hour of runtime quickly can become 10, 20, or 30 hours.

In addition to its speed even when one sample is large, some of the unique and powerful features of PermuteIt™ include:

- **the availability to the user of a wide range of test statistics for performing permutation tests on continuous, count, & binary data, including: pooled-variance t-test; separate-variance Behrens-Fisher t-test; joint tests for scale and location coefficients; Brownie et al. "modified" t-test; exact inference; Poisson normal-approximate test; Fisher's exact test**

- **extremely fast exact inference (no confidence intervals – just exact p-values) for most count data and high-frequency continuous data**

- **the availability to the user of a wide range of multiple testing procedures, including: Bonferroni, Sidak, Stepdown Bonferroni, Stepdown Sidak, Stepdown Bonferroni and Stepdown Sidak for discrete distributions, Hochberg Stepup, FDR, Dunnett's one-step (for MCC under ANOVA assumptions), Stepdown Permutation (for FWE, FDR, and FDP), Permutation-style adjustment of permutation p-values**

- **fast, efficient, and automatic generation of all pairwise comparisons**

- **efficient variance-reduction under conventional Monte Carlo via self-adjusting permutation sampling when confidence intervals contain the user-specified critical value of the test**

- **maximum power under conventional Monte Carlo via a new sampling optimization technique (see Opdyke, JMASM, Vol. 2, No. 1: forthcoming, May, 2003)**

- **fast permutation-style p-value adjustments for multiple comparisons (the code is designed to provide an additional speed premium for these resampling-based multiple testing procedures)**

- **simultaneous permutation testing and permutation-style p-value adjustment, although for relatively few tests at a time (this capability is not even provided as a preprogrammed option with any other software currently on the market)**

For Telecommunications, Pharmaceuticals, *f*MRI data, Financial Services, Clinical Trials, Insurance, Bioinformatics, and just about any data rich industry where large numbers of distributional null hypotheses need to be tested on samples that are not extremely small and parametric assumptions are either uncertain or inappropriate, PermuteIt™ is the optimal, and only, solution.

To learn more about how PermuteIt™ can be used for your enterprise, and to obtain a demo version in early 2003, please contact its author, J.D. Opdyke, President, DataMineIt℠, at jdopdyke@datamineit.com or www.datamineit.com.

DataMineIt℠ is a technical consultancy providing statistical data mining, econometric analysis, and data warehousing services and expertise to the industry, consulting, and research sectors. PermuteIt™ is its flagship product.

Announcing StatXact 5!

StatXact 5, with over 100 procedures and a 1500 page manual that is really a textbook on exact methods, provides the world's most comprehensive collection of exact procedures for significance tests and confidence intervals. Among its new features, StatXact 5 now gives you a host of new procedures for the commonly-encountered two-binomial situation. Based on recent research (Agresti and Min, *Biometrics* 2000; Chan and Zang, *Biometrics* 1999), these procedures will give you more powerful exact p-values, and shorter exact confidence intervals.

New In StatXact 5

Unconditional exact tests for 2 binomials:

- Superiority
- Non-inferiority
- Equivalence

More powerful exact unconditional tests and shorter exact confidence intervals for differences and ratios of proportions

Unconditional exact McNemar's test

Exact interaction tests in stratified 2xC tables

- comparison of C ordered binomials
- comparison two ordered multinomials

Exact test of trend for correlated binary data

Exact tests and confidence intervals for stratified Poisson data

While some standard software programs have a few exact tests, none has anywhere near the coverage of StatXact 5. StatXact 5, with over 100 tests and procedures, gives you exact p-values and confidence intervals for one-, two- and k-sample problems, R x C contingency tables, stratified 2 x 2 and 2 x C contingency tables, goodness-of-fit tests, measures of association, binomial data, multinomial data, and censored survival data. Plus, StatXact 5 gives you exact power and sample size capabilities.

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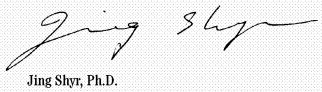
As a clear leader in statistical software, SPSS has what you need for analysis — and the complete analytical process.

SPSS is a modular, tightly integrated, full-featured product line. It's available for Windows and Macintosh desktops. Alternatively, it's available for many high-performance server platforms. The SPSS product line covers the full analytical process. SPSS' offering includes products for database access, data cleaning and management, as well as a broad range of analytical capabilities, and high-quality tabular and graphical output. You can even publish your SPSS results to the Web. This enables people who don't have SPSS installed on their machines to interact with results using their Web browsers. SPSS products are available through a variety of pricing and licensing programs, including student, graduate student and campus-wide licenses.

Take a look at some highlights in SPSS' line-up for predicting numerical outcomes and learn about just one aspect of SPSS' many offerings for the analytical process.

Sincerely,



Jing Shyr, Ph.D.
Vice President and Chief Statistician
SPSS Inc.

Kyle A. Weeks, Ph.D.
Senior Product Manager
SPSS Inc.

Linear Mixed Models procedure
Do you have data that display correlation and non-constant variability, such as data that represent students nested within classrooms or consumers nested within families? You can model not only means but also variances and covariances in your data using the powerful Linear Mixed Models procedure. Its flexibility means you can formulate a wide variety of models, such as multilevel models with fixed-effects covariances, hierarchical-linear models, random-effects models, random-coefficient models and linear-growth models. In addition, you can work with repeated measure designs, including incomplete repeated measurements in which the number of observations varies across subjects.

General Linear Models (GLM) procedure — multivariate
Do you need a flexible procedure that works simultaneously with related multiple dependent variables? SPSS' GLM multivariate procedure does just that — providing flexible design and contrast options to estimate means and variances and to test and predict means. Mix and match categorical and continuous data to build models. Because GLM multivariate doesn't limit you to one data type, you have options giving you a wealth of model-building possibilities. Also, you can easily visualize relationships using profile plots (interaction plots) resulting from estimated predicted mean values.

General Linear Models (GLM) procedure — repeated measures
Do you need to measure the same people over time, for example, to measure how overall employee satisfaction increases or descreases? Using SPSS' GLM repeated measures procedure you can analyze variances when you make the same measurement a fixed number of times on individual subjects or cases. Get the flexibility to mix and match categorical and continuous-level predictors — including interactions. As with the GLM multivariate procedure, you can see relationships in your data using profile plots.

Nonlinear Regression (NLR) and Constrained Nonlinear Regression (CNLR) procedures
Are you working with models that have nonlinear relationships, such as predicting coupon redemption as a function of time and number of coupons distributed? Estimate nonlinear equations using one of two SPSS procedures: NLR for unconstrained problems and CNLR for both constrained and unconstrained problems. CNLR empowers you to write your own algorithms. CNLR also gives you the flexibility to:

- Use linear and nonlinear constraints on any combination of parameters
- Estimate parameters by minimizing any smooth loss function (objective function)
- Compute bootstrap estimates of parameter standard errors and correlations

Everything you need for predicting numerical outcomes
SPSS' procedures for predicting numerical outcomes aren't limited to the ones we just described. The following procedures help give SPSS 11.0 what you need for prediction:

- Linear Regression
- Weighted Least Squares Regression
- Two-Stage Least Squares
- Survival Analysis procedures
  - Cox Regression with time-dependent covariates
  - Kaplan-Meier
  - Life Tables

Want to know what other statistics — including stats for identifying groups and time-series analysis — and software SPSS offers for the complete analytical process? Visit **www.spss.com/statisticalmethods** to download a white paper, "Complete end-to-end analysis with SPSS 11.0." Do you like what you see? You can buy SPSS 11.0 online at **www.spss.com/store** or call **(800) 543-9247.**

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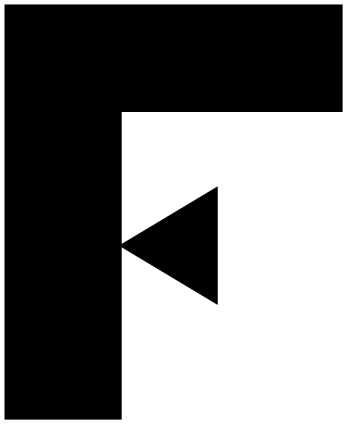
A9314

"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away."

- Antoine de Saint Exupery



F is a carefully crafted subset of the most recent version of Fortran, the world's most powerful numeric language.

Using F has some very significant advantages:

- Programs written in F will compile with any Fortran compiler
- F is easier to use than other popular programming languages
- ***F compilers are free*** and available for Linux, Windows, and Solaris
- Several books on F are available
- F programs may be linked with C, Fortran 95, or older Fortran 77 programs

F retains the modern features of Fortran—modules and data abstraction, for example—but discards older error-prone facilities of Fortran.

It is a safe and portable programming language.

F encourages Module-Oriented Programming.

It is ideal for teaching a programming language in science, engineering, mathematics, and finance.

It is ideal for new numerically intensive programs.

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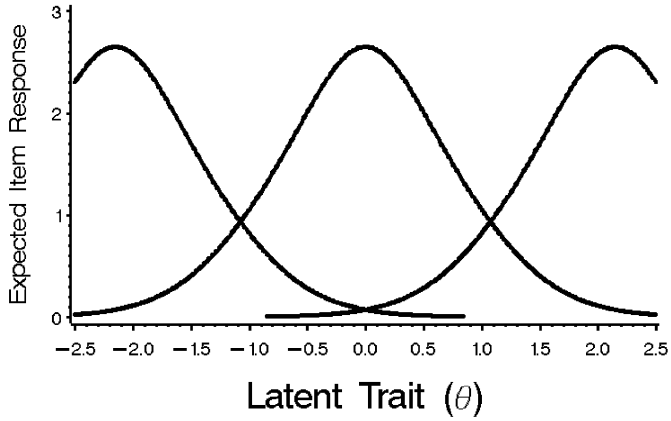
GGUM2000

Item Response Theory Models for Unfolding



The GGUM2000 software system estimates parameters in a family of item response theory (IRT) models that unfold polytomous responses to questionnaire items. These models assume that persons and items can be jointly represented as locations on a latent unidimensional continuum. A single-peaked, nonmonotonic response function is the key feature that distinguishes unfolding IRT models from traditional, "cumulative" IRT models. This response function suggests that a higher item score is more likely to the extent that an individual is located close to a given item on the underlying continuum. Such single-peaked functions are appropriate in many situations including attitude measurement with Likert or Thurstone scales, and preference measurement with stimulus rating scales. This family of models can also be used to determine the locations of respondents in particular developmental processes that occur in stages.

The GGUM2000 system estimates item parameters using marginal maximum likelihood, and person parameters are estimated using an expected a posteriori (EAP) technique. The program allows for up to 100 items with 2-10 response categories per item, and up to 2000 respondents. The software is accompanied by a detailed user's manual. **GGUM2000 is free** and can be downloaded from:

http://www.education.umd.edu/EDMS/tutorials

Start putting the power of unfolding IRT models to work in your attitude and preference measurement endeavors. Download your free copy of GGUM2000 today!

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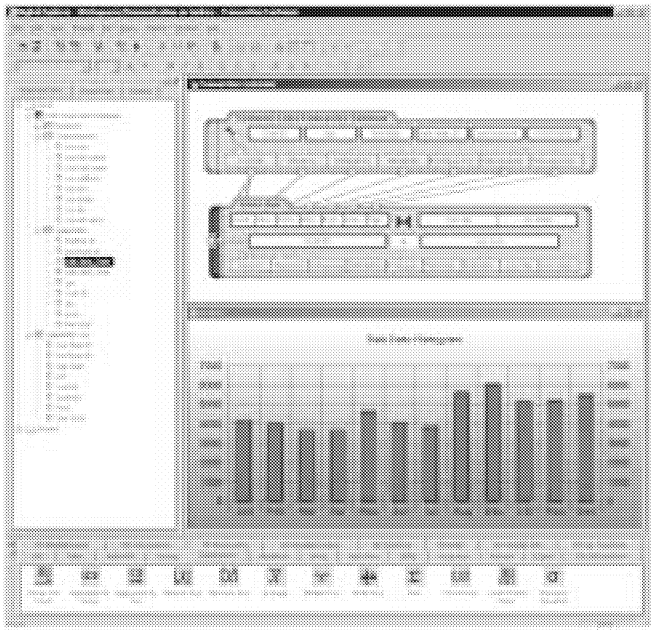
- Lag functions
- Decimal Scaling
- Rank and Sample Variables
- Recency, Frequency, Monetary Analysis
- N-Tile Distributions
- Gains Charts
- Many others



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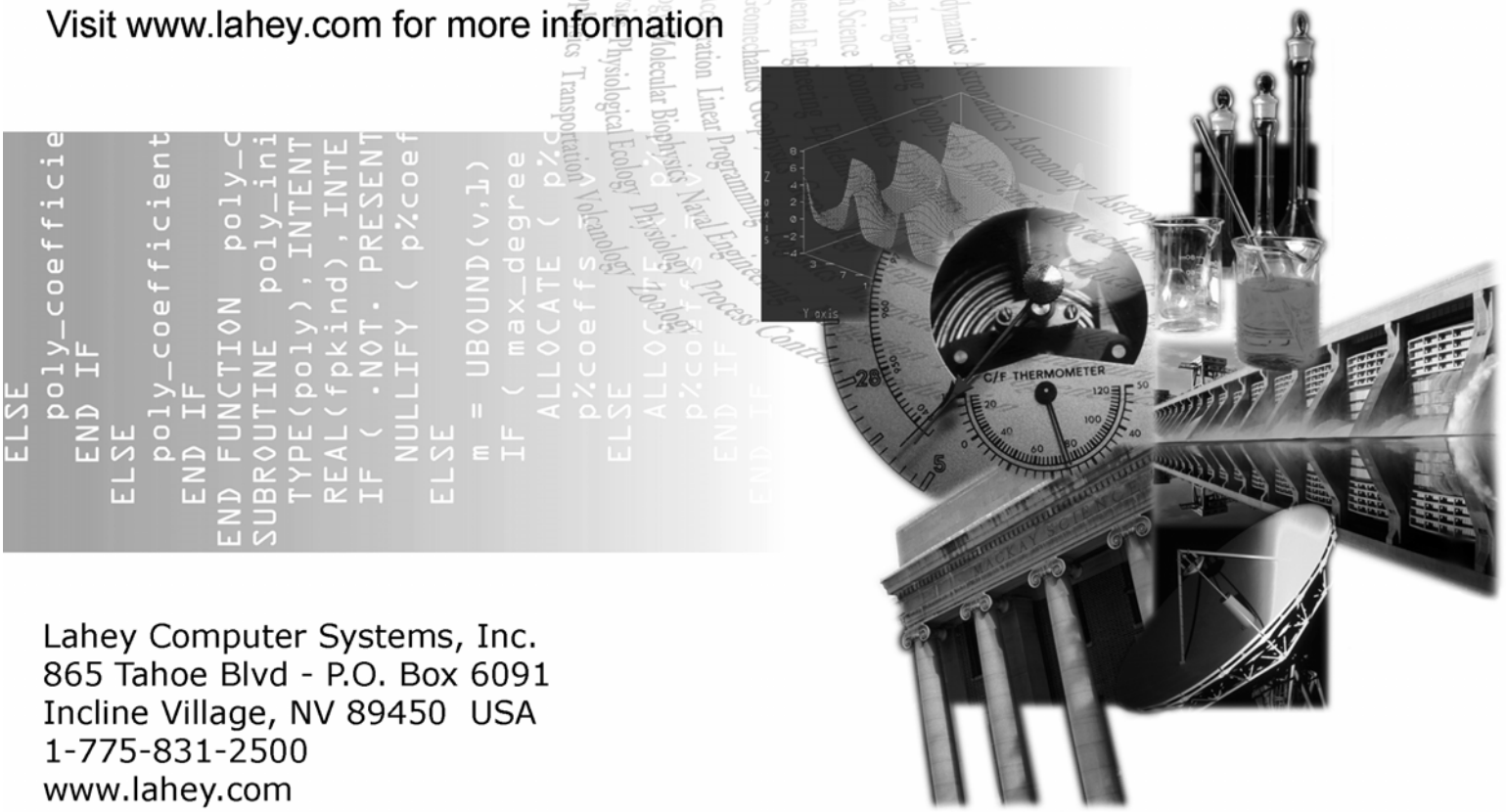

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