

# StatXact® 10

## The Most Popular Exact Inference Statistics Software

StatXact® 10 has over 150 tests and procedures for exact inference statistical data and power analysis, more than any other statistical software package. Worldwide, statisticians from across industries, academic centers, and government agencies turn to StatXact to help solve their most challenging research questions.

What sets StatXact apart? Other statistical software relies on large-scale assumptions for inferences, risking incorrect conclusions from data sets that are not normally distributed. Instead, StatXact makes exact inferences by permuting data actually observed, eliminating the need for distributional assumptions.

Statisticians and researchers find exact and nonparametric inference methods particularly useful with smaller sample size problems.

### New in Version 10

- Correlated data analysis: Exact tests for ordered and unordered multinomial data
- Genetics data analysis: Exact Family Based Association Tests
- Increased power for 2x2 tables: Boschloo's test, power and sample size calculations
- Improved confidence intervals: Mid-p correction
- Detection of shift and dispersion in comparing two populations: Lepage Test
- Stratified data analysis of two independent samples: Aligned Mid-rank Score Test

### Only in StatXact

Exact tests for equivalence and non-inferiority of paired and independent binomial data

Exact tests on unordered, singly ordered and doubly ordered RxC tables, with Cochran-Mantel-Haenszel (CMH) tests, for correlated data

Exact tests of trend in C correlated binomial populations

Exact tests for correlated two samples data: Wilcoxon Mann-Whitney, Normal scores, Savage scores, and Permutation

Exact inference on one-sample Poisson rates and Homogeneity and CI on common relative risks and trend in C ordered rates for Poisson data

Exact power and sample size calculations for binomial and multinomial tests

*"It is especially good to see that StatXact now includes confidence intervals based on tests using the mid P-value. These methods perform well and do not seem available in other software."*

— Professor Alan Agresti  
Distinguished Professor Emeritus, University of Florida

## StatXact® PROCs for SAS Users

Did you know you can use Cytel's nonparametric and exact inference methods within SAS? StatXact® PROCs plug into SAS, providing immediate access to:

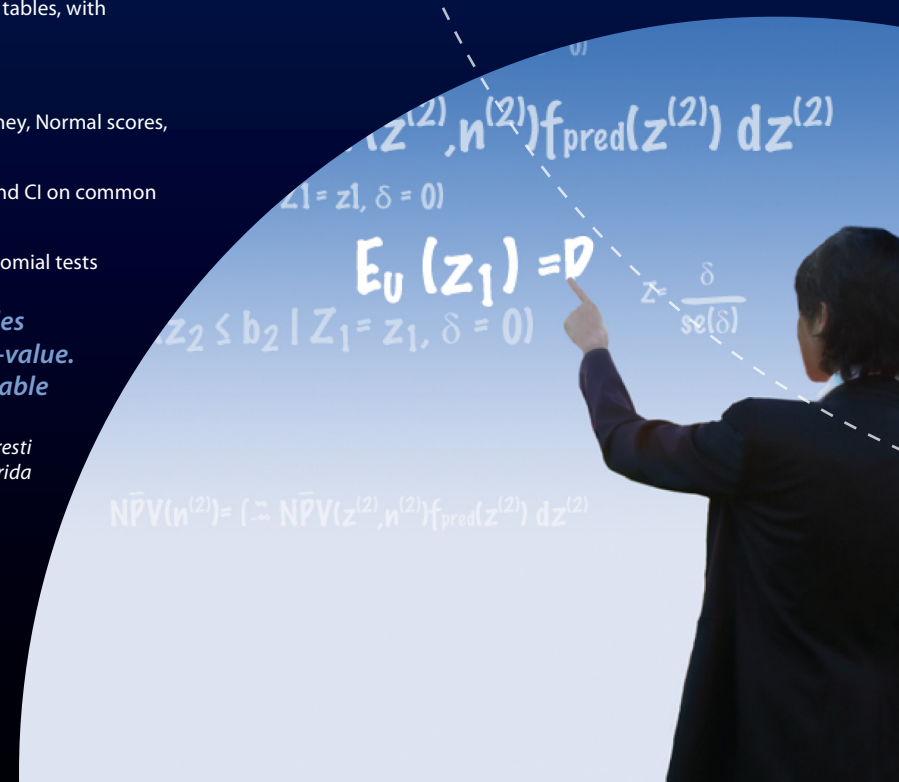
Over 150 additional tests and procedures—all fully referenced and validated

More nonparametric inference exact statistics—see back page

Automation of batch jobs and documentation for submittals

All within SAS.

Cytel



$$E_U(z_1) = P(z_2 \leq b_2 | Z_1 = z_1, \delta = 0)$$
$$Z = \frac{\delta}{se(\delta)}$$
$$\bar{N}PV(n^{(2)}) = \int \bar{N}PV(z^{(2)}, n^{(2)}) f_{pred}(z^{(2)}) dz^{(2)}$$

# StatXact 10 compared to SAS

The most nonparametric and exact inference methods.  
Now with R integration and expanded OS support.



	StatXact	SAS
<b>One-sample Goodness-of-Fit</b>		
Chi-Square	YES	YES
Kolmogorov	YES	
Lilliefors	YES	
Runs	YES	
<b>Paired Samples</b>		
Sign	YES	YES
Wilcoxon Signed-Rank	YES	YES
Hodges Lehman Estimates	YES	
Permutation	YES	
McNemar - Conditional	YES	YES
McNemar - Unconditional	YES	
Marginal Homogeneity	YES	
<b>Two Independent Samples</b>		
Wilcoxon-Mann-Whitney	YES	YES*
Hodges Lehman estimates	YES	YES
Normal Scores	YES	YES*
Savage Scores	YES	YES*
Siegel-Tukey	YES	YES
Lepage	YES	
Aligned Midrank Score (stratified)	YES	
Ansari-Bradley	YES	YES
Klotz	YES	YES
Mood	YES	YES
Conover	YES	
Permutation	YES	YES*
Logrank	YES	
Wilcoxon-Gehan	YES	
Kolmogorov-Smirnov	YES	YES
Wald-Wolfowitz Runs	YES	
<b>K Related Samples</b>		
Friedman	YES	
Kendall's W	YES	
Cochran's Q	YES	
Quade	YES	
Page	YES	
<b>K Independent Samples</b>		
Median	YES	YES
Kruskall-Wallis	YES	YES
Normal Scores	YES	YES
Savage	YES	YES
ANOVA with General Scores	YES	YES
Jonckheere-Terpstra	YES	YES
Linear by Linear	YES	YES
Logrank	YES	
Wilcoxon-Gehan	YES	
Tarone and Ware Trend	YES	

	StatXact	SAS
<b>One-Sample Rates and Proportions</b>		
Binomial	YES	YES
Multinomial	YES	
Poisson	YES	
<b>Poisson Rates</b>		
Homogeneity of Relative Risks	YES	
CI on Common Relative Risk	YES	
Trend in C Ordered Poisson Rates	YES	
<b>Two Independent Binomials</b>		
Boschloo	YES	
Fisher's Exact	YES	YES
Pearson's Chi-square	YES	YES
Likelihood Ratio	YES	YES
CI on Odds Ratio	YES	YES
Barnard's Test for Superiority	YES	YES
Tests of Non-inferiority	YES	
Tests of Equivalence	YES	
CI on Difference of Proportions	YES	YES
CI on Ratio of Proportions	YES	YES
<b>Two Related Binomials</b>		
McNemar	YES	YES
CI on odds Ratio	YES	
Test for Superiority	YES	
Tests of Non-inferiority	YES	
Tests of Equivalence	YES	
CI on Dilence of Proportions	YES	
<b>Stratified 2x2 Tables</b>		
Homogeneity of Odds Ratios	YES	YES
CI on Common Odds Ratios	YES	YES
<b>C Ordered Binomials (with or without strata)</b>		
Cochran-Armitage Trend	YES	YES*
Permutation with General Scores	YES	YES*
Trend Test for Clustered Data	YES	
Test for Interaction Across Strata	YES	
<b>Two Ordered Multinomials (with or without strata)</b>		
Wilcoxon-Mann-Whitney	YES	YES*
Savage Scores	YES	YES*
Normal Scores	YES	YES*
Permutation with General Scores	YES	YES*
Test for Interaction Across Strata	YES	
<b>Unordered RxC Table</b>		
Pearson's ChiSquare	YES	YES
Likelihood Ratio	YES	YES
Fisher-Freeman-Halton	YES	YES
<b>Genetic Data</b>		
Family Based Association Test	YES	

\* StatXact 10 can handle stratified or unstratified data  
SAS can handle only unstratified data

	StatXact	SAS
<b>Single Ordered RxC Table</b>		
Kruskal-Wallis	YES	YES
Normal Scores	YES	YES
Savage	YES	YES
ANOVA with Arbitrary Scores	YES	YES
<b>Doubly Ordered RxC Table</b>		
Jonckheere-Terpstra	YES	YES
Linear by Linear Association	YES	YES
<b>Stratified RxC Tables</b>		
Unordered RxC Table	YES	
Single Ordered RxC Table	YES	
Doubly Ordered RxC Table	YES	
<b>Correlated Categorical Data</b>		
C Binomial Population		
Test of Correlation	YES	
Test for Trend	YES	
Multiple Binary Outcomes		
Test for Trend	YES	
<b>Two Ordered Multinomials</b>		
Wilcoxon Ranksum	YES	
Savage Scores	YES	
Normal Scores	YES	
Permutation with General Score	YES	
Tests for RxC Tables	YES	
<b>Measures of Association (nominal)</b>		
Contingency Coefficients	YES	
Goodman-Kruskal-Tau	YES	
Uncertainty Coefficient	YES	
<b>Measures of Association (ordinal)</b>		
Pearson's Correlation	YES	YES
Spearman's Correlation	YES	YES
Kendall's Concordance	YES	
Kendall's Tau and Somers' D	YES	YES
Gamma Coefficient	YES	
<b>Measures of Agreement</b>		
Cohen's Kappa	YES	YES
Weighted Kappa	YES	YES
<b>Power &amp; Sample Size</b>		
One Binomial	YES	YES
Paired Binomials: Difference	YES	
Two Binomials: Difference		
Superiority (conditional)	YES	YES
Superiority (unconditional)	YES	
Non-inferiority	YES	
Equivalence	YES	
Two Binomials: Ratio		
Superiority (unconditional)	YES	
Non-inferiority	YES	
Equivalence		
K ordered Binomials	YES	
Two Ordered Multinomials (power)	YES	