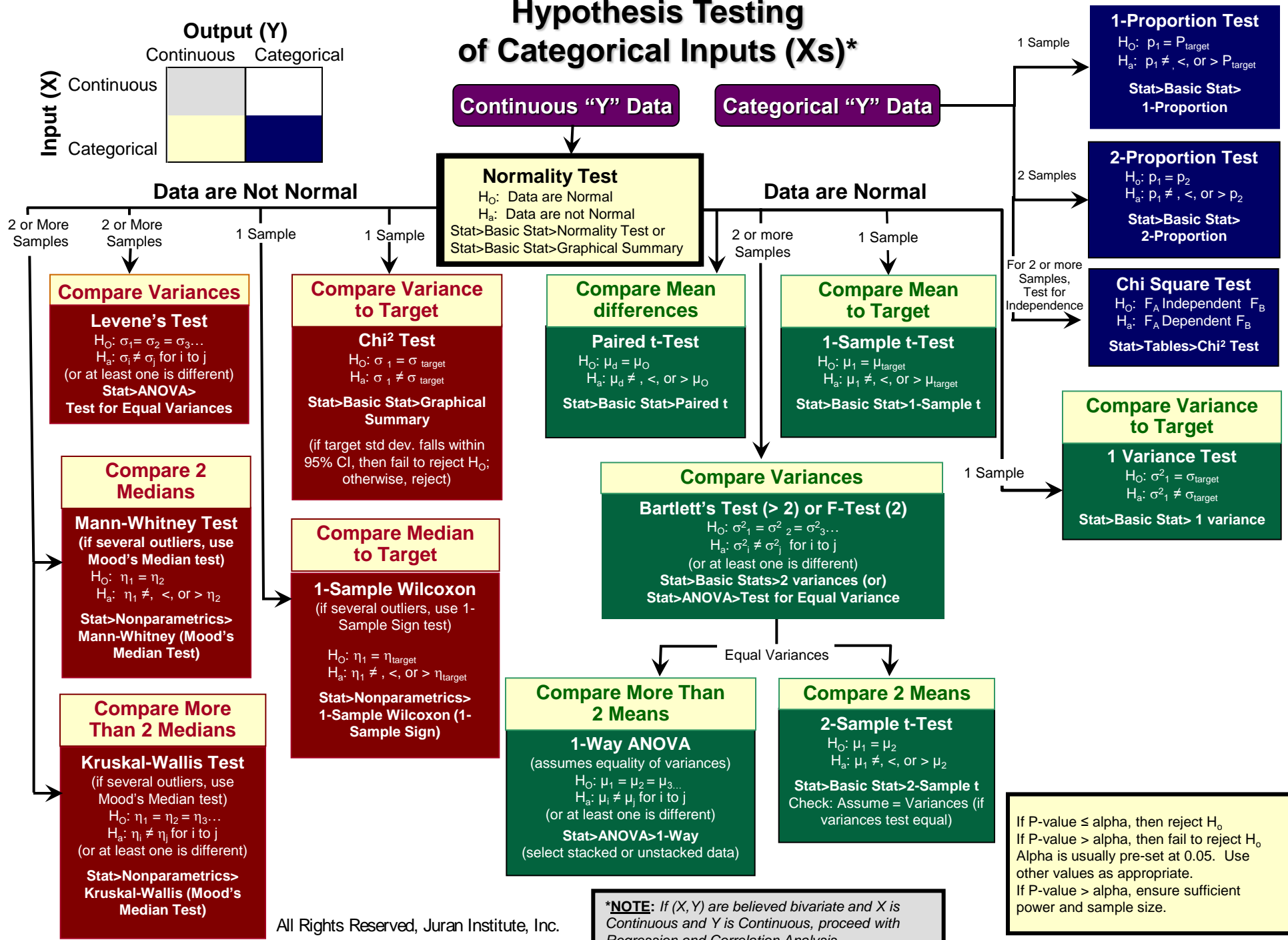


Hypothesis Testing of Categorical Inputs (Xs)*



Hypothesis Testing Protocol

Practical Problem or Theory: State problem or state theory to be proven.

Statistical Problem: State H_0 and H_a (with the correct test in mind)

Statistical Analysis: Test to be used, alpha and power. Run test, show printout, results and p-value

Statistical Conclusion: Based on p-value, Reject H_0 or Fail to Reject H_0 . (“If the p is low, the null must go”)

Practical Conclusion: Answer to your practical problem. Theory is proven true or not.

Hypothesis Tests by Data Type

		Y	
		Continuous	Categorical
X	Continuous	<p><i>How does change in X affect change in Y?</i></p> <p>Statistical: Regression</p> <p>Graphical: Scatter Diagrams</p>	<p>Logistic Regression (out of scope)</p>
	Categorical	<p><i>Means or Medians Different?</i></p> <p>Statistical:</p> <p>If Normal: t-tests; ANOVA</p> <p>If Non-Normal: Wilcoxon, Mann-Whitney, Kruskal-Wallis</p> <p>Graphical: Histograms; Box Plots</p> <p><i>Variance Different?</i></p> <p>Statistical: Test for Equal Variances (Bartlett's, Levene's)</p> <p>Graphical: Histograms; Box Plots</p>	<p><i>Are the outputs different?</i></p> <p>Statistical: Chi Square, Proportions tests</p> <p>Graphical: Pareto Diagrams; Stratification</p>