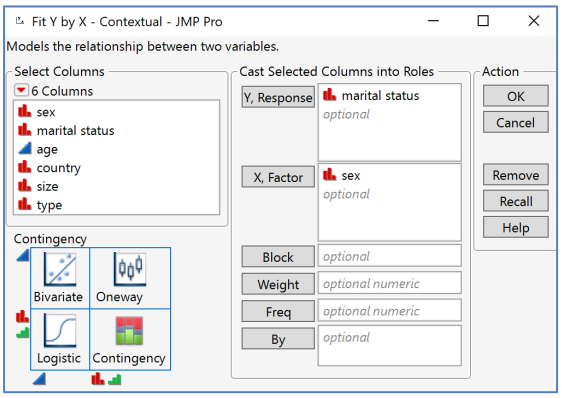
Two Proportions Test and Confidence Interval

Use to Estimate via a confidence interval and perform a hypothesis test for the difference between two population proportions. If comparing more than two proportions, refer to the **Chi Square Tests for a Two-Way Table** guide.

Two Proportions Test

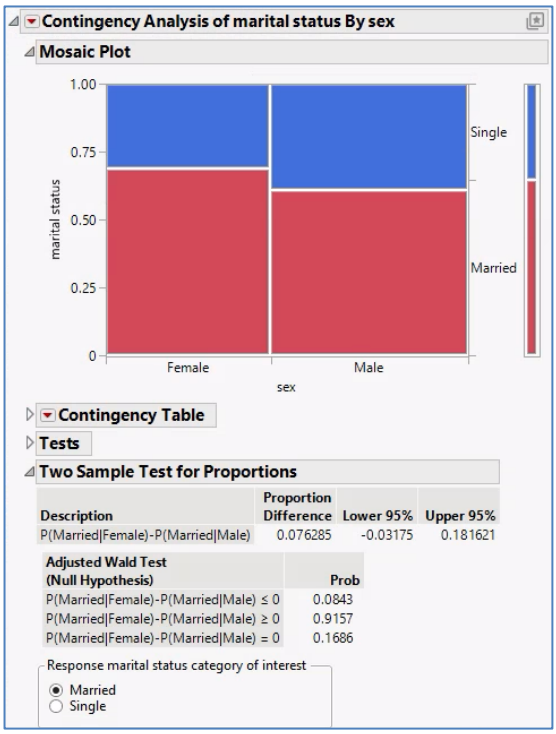
1. From an open JMP® data table, select **Analyze > Fit Y by X**.
2. Choose the binary response variable for the **Y, Response**.
3. Choose the 2 levels variable that defines the groups for the **X, Factor**. Click **OK**.
4. Select **Two Sample Test for Proportions** under the top **Red Triangle**.

Car Poll.jmp (Help > Sample Data Folder)



Two Sample Test for Proportions

JMP displays a Mosic Plot, Contigency Table (not shown) as well as a ChiSquare and Fisher's Exact Tests (not shown). These tests can be used when comparing two groups and also when there are more than two groups to compare. Choosing the **Two Sample Test for Proportions** adds a Confidence Interval and Adjusted Wald's Test for comparing two proportions.



Here we would estimate the difference between the two population proportions ($p_{married|female} - p_{married|male}$) to be 0.076 with a 95% Confidence Interval of (-0.032 , 0.182).

Here we are testing the two-sided hypothesis:

H_0: $p_{married|female} = p_{married|male}$

H_A: $p_{married|female} \neq p_{married|male}$

Interpretation (using a significance level of 0.05):
The p-value for this test is 0.1686 indicating there is not statistically significant evidence to conclude a difference in proportion of females vs. males in the population that are married.

Note the p-value for the Wald's Test is very similar to the Likelihood Ratio and Pearson's ChiSquare tests.

Notes: **Relative Risk** and **Odds Ratio**, two analyses useful when comparing two proportions, are available under the **Red Triangle**.

The Z-Test approach for comparing two proportions can be peformed using the **Hypothesis Test for Two Proportions** and **Confidence Intervals for Two Proportions Calculators** under **Help > Sample Index > Calculators** or **Student > Calculators** in JMP Student Subscription.

Visit **Basic Analysis > Contingency Analysis** in **JMP Help** to learn more.