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Practice: Conducting an Unequal Variances Test

In this practice, you compare the variances of the first two trials in Michelson's speed of light experiment. The data are in the file **Michelson 1879 Trials 1 and 2.jmp**.

1. Conduct an unequal variances test for Trials 1 and 2.

   Hint: Use **Analyze**, **Fit Y by X**, with **Velocity** for **Y, Response** and **Trial** for **X, Factor**. Then select **Unequal Variances** from the red triangle for the analysis.

2. What can you conclude?

   Three of the tests have *p*-values less than 0.05. This provides evidence that the variances for the two trials are not the same.

3. A hypothesis test to compare the means for the two groups, the Welch's ANOVA test, is reported. What can you conclude from this test?

   Welch's ANOVA is an unpooled test, which allows for unequal variances. The *p*-value is 0.0602. Although this is not significant at the 0.05 level, it is pretty close to the cutoff. This gives some evidence that the means for the two trials might not be equal.

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