The Chi-Square Distribution: Lab II*

Susan Dean
Barbara Illowsky, Ph.D.

This work is produced by The Connexions Project and licensed under the
Creative Commons Attribution License †

Abstract

This module provides a lab on Chi-Square Distribution as a part of Collaborative Statistics collection (col10522) by Barbara Illowsky and Susan Dean.

Class Time:
Names:

1 Student Learning Outcome:

- The student will evaluate if there is a significant relationship between favorite type of snack and gender.

2 Collect the Data

1. Using your class as a sample, complete the following chart.

   NOTE: You may need to combine two food categories so that each cell has an expected value of at least 5

Favorite type of snack

	sweets (candy & baked goods)	**ice cream**	**chips & pretzels**	**fruits & vegetables**	**Total**
male					
female					
Total					

Table 1

2. Looking at the above chart, does it appear to you that there is dependence between gender and favorite type of snack food? Why or why not?

*Version 1.11: Jun 19, 2012 8:37 pm -0500
†http://creativecommons.org/licenses/by/3.0/

3 Hypothesis Test

Conduct a hypothesis test to determine if the factors are independent

1. H_o:
2. H_a:
3. What distribution should you use for a hypothesis test?
4. Why did you choose this distribution?
5. Calculate the test statistic.
6. Find the p-value.
7. Sketch a graph of the situation. Label and scale the x-axis. Shade the area corresponding to the p-value.

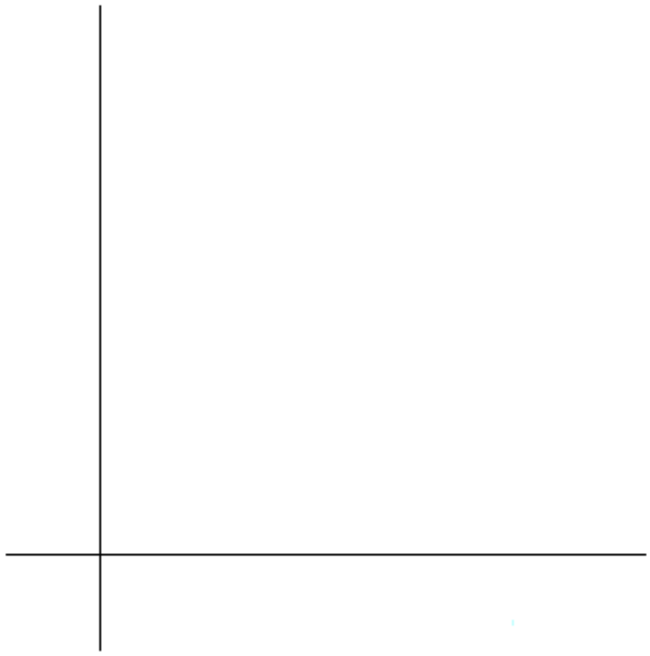

Figure 1

8. State your decision.
9. State your conclusion in a complete sentence.

4 Discussion Questions

1. Is the conclusion of your study the same as or different from your answer to (I2) above?

2. Why do you think that occurred?