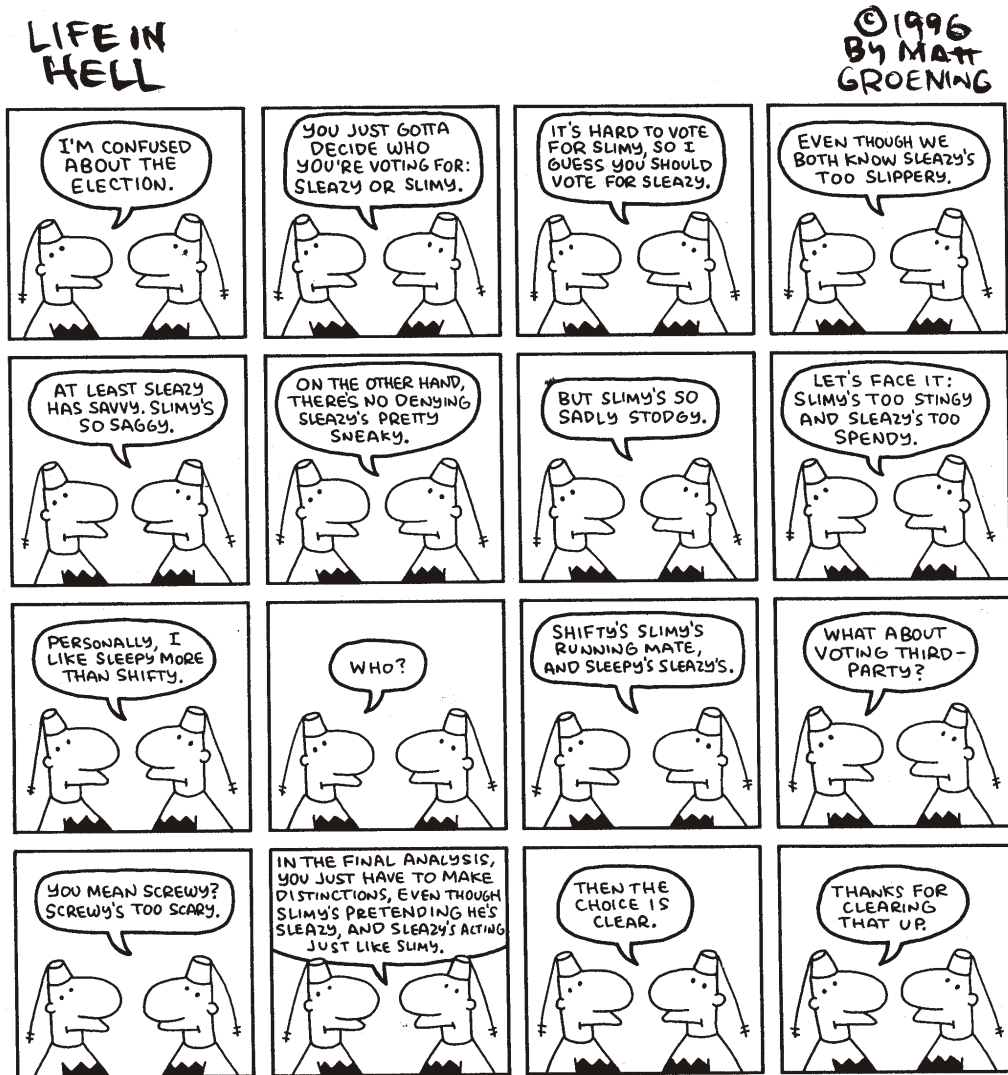


Homework 4  
Chi-Square

Due: 10/24, Monday



1. Assume that we are interested in the outcome of the election described above. 97 people were polled about who they were voting for. 41 said they were voting for Sleazy and 55 said they were voting for Slimy. Assuming that the group sizes are expected to be equal, use the goodness of fit test to determine whether the voting pattern significantly differs from chance.
  - A. Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
  - B. In your own words, explain what these result indicate.
2. If we double the sample size of problem 1 and find the same pattern of responding (82 for Sleazy and 110 for Slimy), what happens to the Chi-Square statistic?
  - A. Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
  - B. What does this suggest about the relationship between Sample Size and Significance?

3. In a different sample we found that 35 people supported Sleazy and 61 people supported Slimy. Again Assuming that the group sizes are expected to be equal, use the goodness of fit test to determine whether the voting pattern significantly differs from chance.
- A. Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
- B. In your own words, explain what these results indicate.
4. Based on extensive sampling of the population, we are quite sure that 40% of the population supports Sleazy and 60% of the population supports Slimy. Use the goodness of fit chi-square to test the hypothesis that the sample collected in problem 3 (35 Sleazy; 61 Slimy) significantly differs from the general population.
- A. Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
- B. In your own words, explain what these results indicate.
5. One critic, of the election research we have conducted thus far, notes that we only ask participants to chose between one of two candidates. To address this, with a new sample we have included the opportunity to support Screwy, the third party candidate, or to report that they are undecided. We find that 45 people support Sleazy, 48 support Slimy, 44 support Screwy, and 15 were undecided. Assuming that the group sizes are expected to be equal, use the goodness of fit test to determine whether the voting pattern significantly differs from chance.
- A. Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
- B. In your own words explain what these result indicate.
6. With respect to the McDonald's cartoon, let's say we are now interested in the gender of the cow for the Angus breed in terms of visiting McDonald's. Our findings are reported in Table 1.
- A. Using the Chi-square test of independence (Pearson's Chi-Square), does gender have a significant effect on visits to McDonald's? Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
- B. Find Cramer's V (or phi). What % of the variance in trips to McDonald's is predicted/explained by gender of the cow? Is this a small, medium or large effect (according to Cohen's standards)?
- C. In your own words explain what these result indicate.

Table 1 Visited McDonald's by Gender of Angus Cow

	<i>Gender</i>	
	<i>Male</i>	<i>Female</i>
Visited		
McDonald's		
Yes	28	25
No	32	31

7. With respect to the McDonald's cartoon, let's say we are now interested in the gender of the cow for a different breed (Holstein) in terms of visiting McDonald's. Our findings are reported in Table 2.
- A. Using the Chi-square test of independence (Pearson's Chi-Square), does gender have a significant effect on visits to McDonald's? Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.
- B. Find Cramer's V (or phi). What % of the variance in trips to McDonald's is predicted/explained by gender of the cow? Is this a small, medium or large effect (according to Cohen's standards)?
- C. In your own words explain what these result indicate.

Table 2 Visited McDonald's by Gender of Holstein Cow

		<i>Gender</i>	
		<i>Male</i>	<i>Female</i>
Visited McDonald's	Yes	29	10
	No	11	30

8. 7. With respect to the McDonald's cartoon, let's say we are now interested in the breed of cow in terms of visiting McDonald's. Our findings are reported in Table 3.

A. Using the Chi-square test of independence (Pearson's Chi-Square), does breed have a significant effect on visits to McDonald's? Report your answer in APA format, report the highest level of significance achieved, and report whether the Null and Research Hypotheses should be rejected or not.

B. Find Cramer's V (or phi). What % of the variance in trips to McDonald's is predicted/explained by gender of the cow? Is this a small, medium or large effect (according to Cohen's standards)?

C. In your own words explain what these result indicate.

Table 3 Visited McDonald's by Breed of Cow

		<i>Gender</i>		
		<i>Angus</i>	<i>Holstein</i>	<i>Guernsey</i>
Visited McDonald's	Yes	5	8	5
	No	7	4	6