EdPsych/Soc/Psych 589
Applied Categorical Data Analysis
C.J. Anderson

Homework 3
Due Thursday September 26, 2019

1. Problem 2.30, p 62–63 of Agresti (2007).

2. Problem 2.33, p 63 of Agresti (2007).

3. Problem 2.36, p 64 of Agresti (2007).
   The example from homework 2 doesn't count.

4. Problem 2.39, p 64 of Agresti (2007). Besides stating True or False, explain why.

5. This problem is from the previous edition of Agresti (i.e., Problem 3.8, p 68 of Agresti (1996)) and is given below:
   The table below refers to the effects of passive smoking on lung cancer. It summarizes results of case-control studies from three countries among nonsmoking women married to smokers. Test the hypothesis that having lung cancer is independent of passive smoking, controlling for country. Report the p-value, and interpret.

   Note: Weak associations in observational studies are suspect. With relatively small changes in the data, perhaps representing effects of misclassification or other bias, the association could disappear. See, for instance, R.L. Tweedie et al., Garbage in, garbage out, *Chance, 7*, 20–27 (1994).

Country	Spouse Smoked	Cases	Controls
Japan	No	21	82
	Yes	73	188
Great Britain	No	5	16
	Yes	19	38
United States	No	71	249
	Yes	137	363

6. This problem is from the previous edition of Agresti (i.e., Problem 3.9, p 68 of Agresti (1996)).

   Refer to the previous problem of this homework assignment (i.e., #5). Assume that the true odds ratio between passive smoking and lung cancer is the same for each

study (i.e., country). Estimate its value, and use software to find a 95% confidence interval. Analyze whether the odds ratios truly are identical.