Finger Exercises — Due Tuesday, March 9, 1998

Please prepare answers for these exercises, to be turned in. Your grade will be based on how many questions you made a reasonably strong effort to answer, **not** *how many questions you get right or partially right. There is no partial credit, but the grader may give you additional written feedback on each question you attempt.*

Feel free to discuss these exercises with each other and with me. You will get the most benefit from the grader's remarks, however, if the work you turn in is your own.

This hw, like most material for this course, is posted on the World Wide Web at URL `http://www.stat.cmu.edu/~brian/402/`; the data files are there too, or you can cut and paste data directly out of the TEX file if you wish. Look for the filenames listed in the problems below in the week8 subdirectory.

The following problems are taken from the book "The Analysis of Cross-Classified Categorical Data" by Fienberg.

1. Plackett presented the data below on a random sample of diabetic patients. Fit appropriate loglinear models to these data and comment on the influence of family history of diabetes on the other two variables, and on the relationship between the other two variables. Data in `t312.dat`.

Family History of Diabetes	Yes		No	
Dependence on Insulin Injections	Yes	No	Yes	No
Age at Onset < 45	6	1	16	2
≥ 45	6	36	8	48

2. In a survey of a large American city, respondents were asked the question: "Are the radio and TV networks doing a good job, just a fair job, or a poor job?" Data for the responses it this question were broken down by the color of the respondent, and the question was asked in two separate years. Data in `t316.dat`.

		Response		
Year	Color	Good	Fair	Poor
1959	Black	81	23	4
	White	325	253	54
1971	Black	224	144	24
	White	600	636	158

   (a) Which variables are explanatory?

   (b) Which loglinear models provide an acceptable fit to the data?

   (c) In your most parsimonious model that fits the data, look at the residuals and fitted values to decide if you like this model.

   (d) Interpret your results.