STA 2201S 2001 Assignment 6

Quiz on Thursday March 8th. Bring printouts to the quiz.

1. The file `heart.txt` is self-explanatory. Use S to perform a logistic regression in which the dependent variable is whether the person is alive ten years after the study. All the models you fit will be proportional odds models with no product terms.

   (a) Fit a reduced model with independent variables age, presence of coronary heart disease and family history of coronary heart disease.

   (b) Fit a full model that contains all the independent variables of the reduced model, and in addition, diastolic blood pressure, weight/height and whether the person is a smoker (yes-no).

   (c) Test the difference between the two models using a large-sample likelihood ratio test.

2. Let $X_1, X_2, \ldots, X_n$ be a random sample from a distribution with expected value μ and variance σ^2. Let $T_n = \frac{\sum_{i=1}^n X_i}{n-237.6}$. Show $\sqrt{n}(T_n - \mu)$ has a limiting normal distribution. What is the variance of the limiting distribution?