Sample final project outline

7 November 2007

Here are some sample final project outlines for this class:

1. Reaction times don’t really satisfy all the properties of a good linear model. Perhaps most notably, the error is not normally distributed. There are more outliers well above the mean than well below the mean; and the variance in RT grows with the mean. One popular proposal for dealing with these problems has been to use log-RT rather than RT as the dependent variable. Another possibility is to use generalized linear models with a non-normal error function (read the documentation to \texttt{glm()}) instead of linear models. Investigate some of the possibilities using a dataset in \texttt{languageR}, a dataset of your own or a colleague’s, and/or simulated data. Focus on both achieving good predictive power (i.e., good log-likelihoods in your models) and carrying out reliable and powerful hypothesis tests.

2. Use logistic regression (possibly with mixed-effects) to figure out what the differences between adult and child case-marking behavior really are in the \texttt{warlpiri} dataset.

3. Take an experiment/corpus study of your own or a colleague’s and conduct a careful statistical analysis. Start with exploratory data analysis, define the hypotheses you wish to test, and formulate a model that will allow you to test the hypotheses.