MAST30027: Modern Applied Statistics

Assignment 1, 2015

Due: 1:00pm Friday 14 August (week 3)

This assignment is worth 3 1/3% of your total mark. Fill in a plagiarism declaration form and hand it in together with this assignment.

Fit a binomial regression model to the O-rings data from the Challenger disaster, using a *probit* link. You must use R but may not use the `glm` function; I want you to work from first principles. Your solution should include the following:

1. parameter estimates;

2. 95% CIs for the parameter estimates;

3. a likelihood ratio test for the significance of the temperature coefficient;

4. an estimate of the probability of damage when the temperature equals 31 Fahrenheit (your estimate should come with a 95% CI, as all good estimates do);

5. a plot comparing the fitted probit model to the fitted logit model.

Show your working, that is, the R code you use.

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