Quantitative Methods II
Assignment 9
October 23, 2011

The purpose of this assignment is to introduce you to models with binary dependent variables and to analyze their results. All modeling will be done using GLMs because the CLM no longer can be used with the data. Last week, we discovered that the CLM is a special case of the GLM. The two paradigms give the same results when using a Gaussian distribution and an identity link. In short, anything done in CLM can be done in GLM, but not vice-versa.

This assignment has you predict the fair coin and predict the probability of an SSM ballot passing, using a method different from Monte Carlo. You will have problems with Problem 9.2. Take a deep breath and think about what is happening and why. You will want to go back over your notes for the course, especially when we were discussing assumptions of linear regression.

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When you turn in this assignment, you will email to me the usual two files: your write-up and your `R` script.

As always, the email needs to include the subject line:

```
POLS6123:  Assignment 9
```

Also as always, if you have problems, let me know. I am happy helping.

Note. *As some of you will be traveling this week to Stillwater, I am willing to let you send this in later than Sunday. Just realize I may not be able to get the corrected problems back to you before class next week.*

Problem: Which Coin is Fair? [[10]]

This first problem will be very straight-forward (and easy). Carefully read Section 7.4 in Forsberg. That will give you the background to the data set used here, which is the `coinflips` data file.

Use that data to predict which coin is the fair coin. You are not limited to using just the logit link function. You can use any appropriate link function you can imagine. Chapter 7 provides some other options and how to implement them.

In your write-up, explain what you did and why you did it. Make sure you model correctly, predict correctly, and back-transform correctly (in your mind, explain what you just predicted and why your process actually predicted what you think it predicted).

Problem: It Probably will Pass, Right? ⟦15⟧

This question revisits an old question: What is the probability that an SSM ballot measure will pass in Washington State. Instead of using the `ssm` data file, I want you to use the `ssm3` data file. Familiarize yourself with it. Determine how the two data files differ. What is that new variable and how was it determined?

Now, using whichever variables in whichever combination is best, predict the probability that the ballot measure will pass in Washington in 2009. You may get your parameters for Washington from Assignment 5.

The writeup for this problem is just one number: The probability you predicted for the ballot measure passing in Washington in 2009. All other grading will be done in your script. Thus, comment profusely.

Note. *This method differs from that in Assignment 5 in that it does not use Monte Carlo. However, all is not that simple. You will have problems. Think about what is causing those problems. When you email me asking, I will email back hints and additional questions.*