Lab 6: GAME THEORY

Due date: Wednesday October 9

1. Write a script to do a n-person duel using the strategy that one shoots at the opponent with the highest accuracy. Perform simulations for n = 3 and compute the average length (number of shots) and the probability of each player. Document your code with comment statements so it is readable.

   (a) Fix the accuracy of Players B and C to be 1/2 and 3/4 and vary the accuracy of A from 1/10 to 9/10 (in increments of 1/10) and plot the probabilities of each player winning as a function of Player As accuracy. Assume that the order of shooting is alphabetical. For each set of probabilities simulate 1000 duels. In general, would you rather be Player B or Player C? Why? Plot the average length of the duel as a function of Player As probability.

   (b) Assume Players A and B are equally accurate and Player C has an accuracy of 90%. What accuracy would Players A and B have to have in order for Player C to win roughly 50% of the time?