Are Three Lands the Best to Keep?
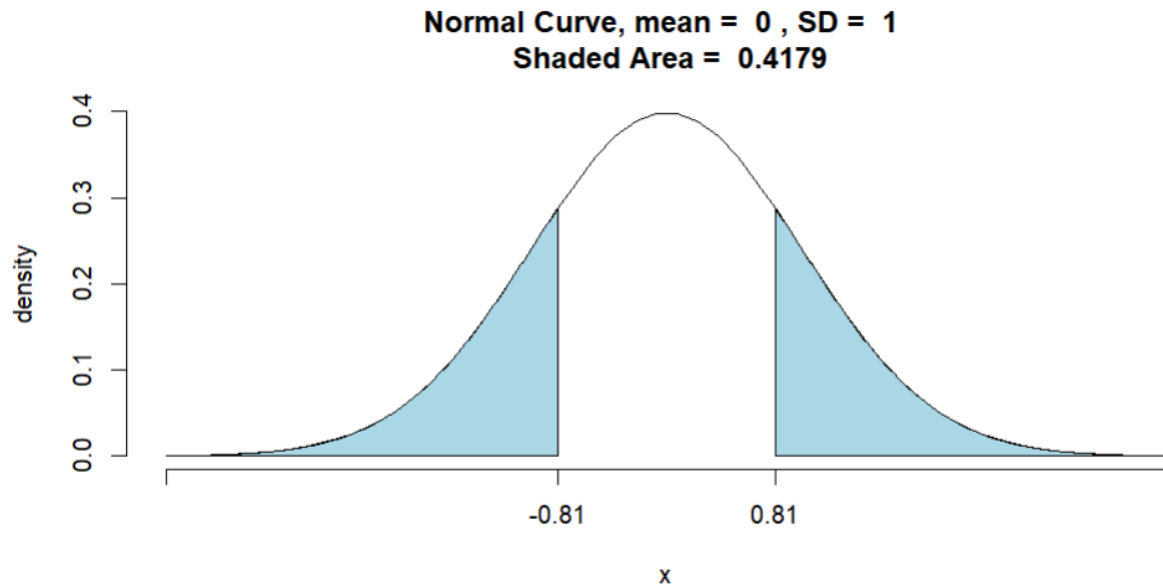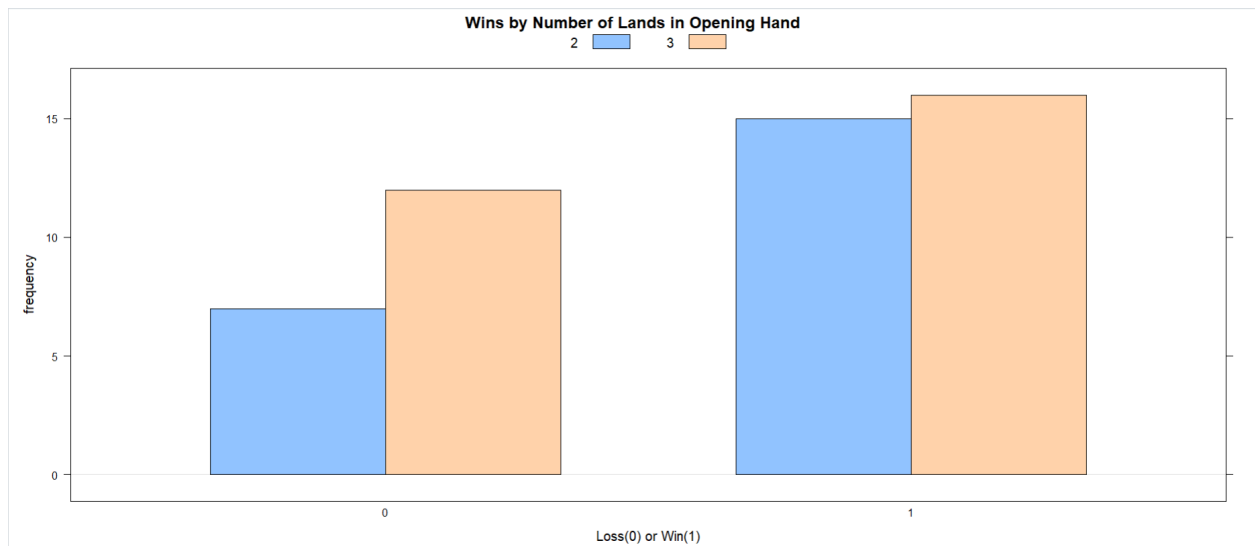
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Research Question

I will be determining whether a two-land hand or a three-land hand to keep in the opening hand of a Magic the Gathering game will give the same win percentage. The population is all games of Magic the Gathering that I have played.

Methods

I recorded games that I played on Magic The Gathering: Arena. MTGA is an online video game that mirrors the physical card game with the same name. I believe that having a three-land hand leads to a better chance of winning than a two-land hand. I used the cluster sampling method and used all of the games I played with my Rakdos Rats deck. I used the difference of two proportions test to show whether the three land hand or two land hand has the same or different win percentage. From there I can determine if one is better than the other. All the test assumptions are met including a random sample, categorical variables, and a large enough sample size.

Results

The chances of winning with a two-land hand are different from a three-land hand. I used the proptestGC from Tigerstats to check if the two groups were different. Because the p-value for this test, 0.42, is higher than 0.05 the null hypothesis is failed to reject. The probability that the difference between them is zero is not small enough to conclude. This indicates that a person is equally likely to win with a three-land hand as a two-land hand.

Discussion

I have tried to record the data ethically by referring to the games by number and not recording the opponent's name. The opponents that I am going up against are randomly selected from a pool of people who are searching for a match at the same time as me. They can have any deck that fits the criteria of the format. With this variance, I believe that this provides a very randomized sample. I was unable to collect a larger sample size due to time constraints but I believe that the sample size is large enough to analyze.