6.804 Project Proposal

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Humans acquire intuition for motions in a straight line much better than when there exists bounces and reflection. In this final project, I will create a simple game that is similar to what is presented in lecture to test for dynamics in intuitive physics and further model a Bayesian model that can simulate similar results.

The steps for completing this project will be as follows:

1) Create simple game involving dynamics in intuitive physics. Specifically, it will be a game where humans will choose which of the two blocks the target ball will most likely hit next. A switch of option is allowed and the timing in which the click happens will be captured.

3) A total of 5-10 levels with various uncertainty level will be created.

2) Experiment the game on $\sim$20 participants of college-level age.

3) Develop a Bayesian model that simulates human intuition behind this game.

4) Analyze how Bayesian model works in various settings of the game.

I aim to collect results from $\sim$20 people and take an average. The target participants will be college students to limit variances between age. Timing results will be recorded. If time permits, the experiment may include the number of collisions the participants believe the target ball will hit before reaching the final goal.

Analyze the variance between each participant and why the Bayesian model captures some scenarios better than others. Additionally, discuss about how the model can change to better capture human intuition.