Group 1: Tennis

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The Game of Tennis

- ▶ Point: Smallest unit of measurement (Love-15-30-40-game)
- ▶ Game: A game is one when a player reaches 4 points with at least a 2 point advantage
- ▶ Set: A set consists of 6 games and is won by the player who reaches 6 games first
- ▶ Advantage Set: If a game score of 6-6 is reached and advantage set rules are used, a player can only win a set with a 2 game lead
- ▶ Matches: Best of 3 set (for women) or 5 sets (for men)
- ▶ Tie-break game: If a game score of 6-6 is reached and tie-break set rules are used. In a tie-break game, a player/team must reach 7 points with a two point advantage to win

Values

Things we need to know:

- ▶ Empirical probability of winning a rally on serve
- ▶ Empirical probability of winning a game on serve

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Things we need to calculate:

- ▶ Theoretical probability of winning a game on serve
- ▶ Theoretical probability of winning a set
- ▶ Theoretical probability of winning a match
- ▶ Theoretical probability of winning the tie-breaker

Slide with R Output

P(Win a Rally)	Empirical P(Win a Game)	Paper P(Win a Game)	Our P(Win a Game)
0.69	0.71	0.89	0.89
0.63	0.80	0.79	0.79
0.65	0.85	0.83	0.83
0.63	0.77	0.79	0.79

Slide with Plot

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