A Probability Analysis of Tennis Scores

Have you ever wondered why tennis scores are so lopsided? Why a player who is slightly better than his or her opponent nearly always holds serve? A mathematically inclined AlmondWeb writer, who plays tennis, performed a probability analysis to find the answer.

The analysis assumes that when you play a particular opponent, on either your serve or your opponent's serve, you have a constant probability p(point) of winning each point. We then ask, what is your probability p(game) of winning the game? For example, suppose that on your serve, you have a 70% probability of winning each point (p(point) = 0.7). What is the probability of holding your serve and winning the game? The analysis shows that you will win 90% of the games (p(game) = 0.9).

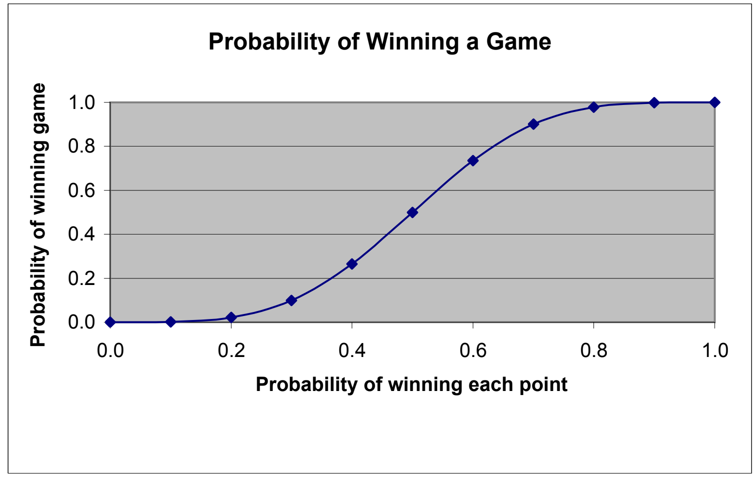
In a finer grained analysis, we ask, what is your probability of winning the game when your opponent has a particular final score? For example, what is the probability of a final score of "Game to 30" (which we symbolize as "G - 30") or after going to deuce?

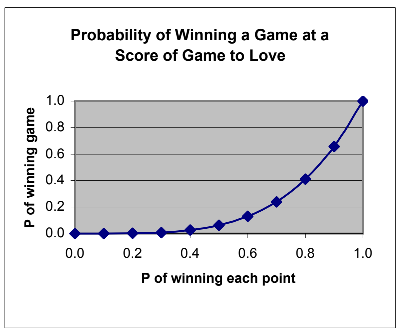
On this page, we summarize the analysis results. If you would like a copy of the probability equations, or if you would like to comment on the analysis, please contact AlmondWeb.

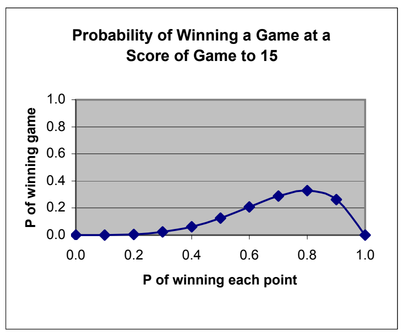
p(point)	p(game) at a score of:				
	G - Love	G - 15	G - 30	After deuce	Any score
0.0	0.00	0.00	0.00	0.00	**0.00**
0.1	0.00	0.00	0.00	0.00	**0.00**
0.2	0.00	0.01	0.01	0.00	**0.02**
0.3	0.01	0.02	0.04	0.03	**0.10**
0.4	0.03	0.06	0.09	0.09	**0.26**
0.5	0.06	0.13	0.16	0.16	**0.50**
0.6	0.13	0.21	0.21	0.19	**0.74**
0.7	0.24	0.29	0.22	0.16	**0.90**
0.8	0.41	0.33	0.16	0.08	**0.98**
0.9	0.66	0.26	0.07	0.01	**1.00**
1.0	1.00	0.00	0.00	0.00	**1.00**

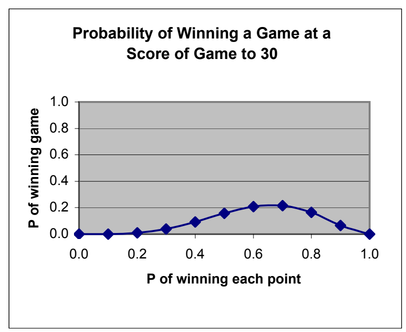
Q: If you win 70% of the points, how many of the games will you win?
A: 90% of the games.

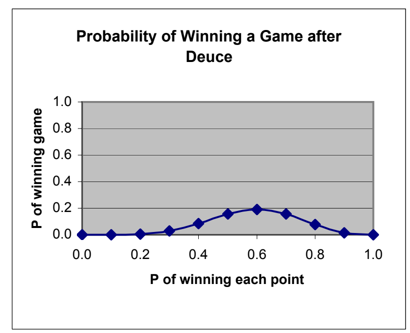
Q. How many of the games will you win after going to deuce?
A. 16% of the games.











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