Final Term Review

Zhihan Fang

Bayesian Reasoning

$$P(A \mid B) = \frac{P(B \mid A)P(A)}{P(B)}$$

Convert the probability of event B happens given event A happens to probability of event A happens given event B happens.

Bayesian Reasoning example

Based sample investigation, 10% people in the United States are teenagers. 60% of them like playing computer games. For those who are not teenages, only 1% of them play games. If someone is a computer game player, how much probability is he or she a teenager?

Bayesian Reasoning example

20% students in Rutgers are international students. 70% of them are Asian. Among native students, 10% are Asian. If you meet an Asian student today, how much probability he or she is an international student?

Simpson Paradox

Stephen Curry is a famous young basketball player for Golden State Warriors.
Kobe Bryant is a basketball legend player for Los Angeles Lakers.

The following is two games statistics for the two great basketball players.

	Curry Field goals	Curry Field goals percentage	Kobe field goals	Kobe
Game 1	18/30	60%	16/32	50%
Game 2	10/40	25%	2/10	20%
Total	28/70	40%	18/42	42.85%