

Plan

1. Definition of conditional probability
 - Example. Probability of getting at least 8 points as a result of throwing two dices given the number on the first dice is 4.
 - $\Pr[A | B] = \frac{\Pr[AB]}{\Pr[B]}$
 - Probability is a ratio of (mass of) good outcomes to (mass of) all outcomes.
 - Conditional probability $\Pr[A | B]$ is a probability of A after contraction of the sample space to B .
2. Examples of Trump election.
3. Bayes' Rule
4. Definition of independent events. Example: n -coins throwing. Events i -th coin's side is Head and j -th coin's side is Head are independent ($i \neq j$).
5. Law of Total Probability.
 - Example with cards: the probability of the event «Getting Ace and a King in Texas Holdem on the preflop»

References

The books are listed on the wiki-page.

[4]: Section 10.4

[8]: Chapters 15, 16

[7]: Sections 7.1, 7.2

[2]: Sections 5.3

[3]: Section 8.10