Probability

Measure of uncertainty of events

Axiomatic theory = Classical theory

Equally likely outcomes

Conditional Probability

?

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$P(A|B)$

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Conditional probability of A given B

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Given

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Given

Outcome satisfies **B** → How likely it will satisfy **A**?

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Chance of occurrence of **A** → **B** has already occurred

Cheteshwar Pujara → Scored 50 runs → Chance of scoring 100 runs?

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$$P(\text{scores 100 runs} \mid \text{scored 50 runs}) = ?$$

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50 runs → 31
100 runs → 16

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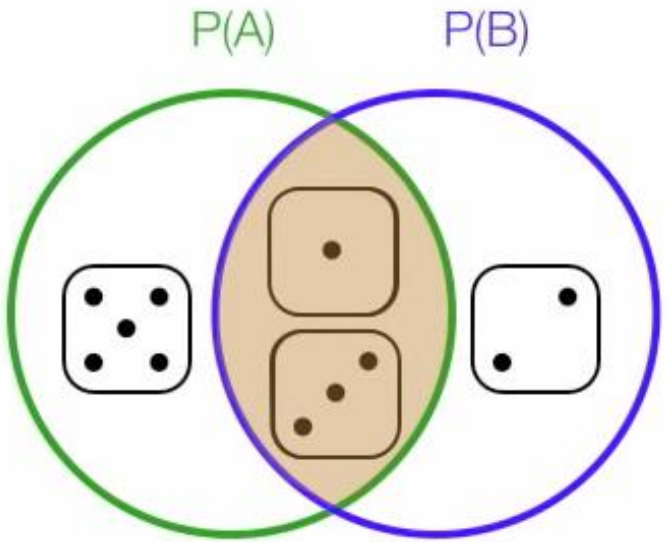
Conditional Probability

What is the Probability of

rolling a dice and it's value is less than 4

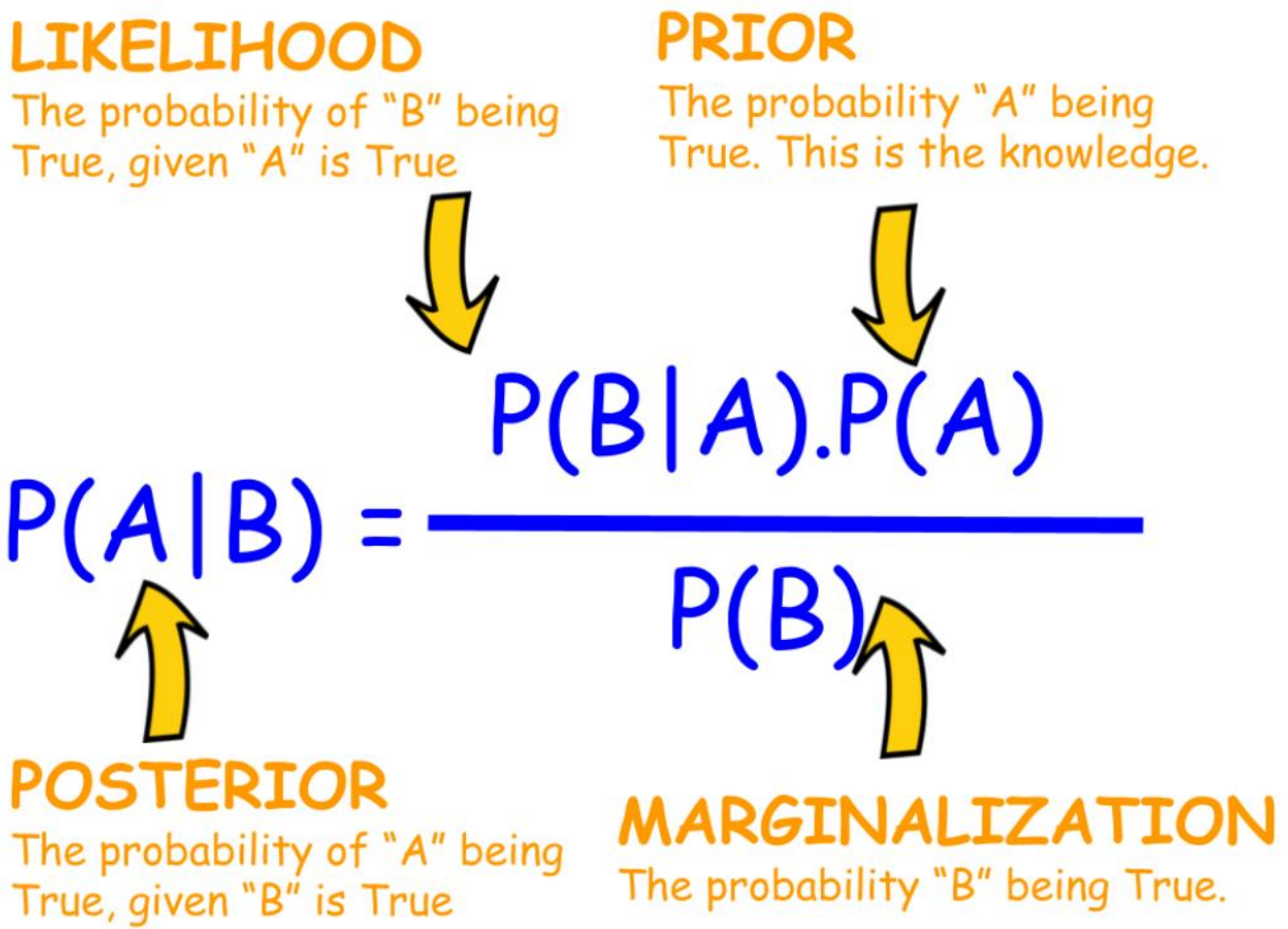
$$P(B \mid A) = \frac{P(A \cap B)}{P(A)}$$

knowing that the value is an odd number



Example-1: The % of adults who are men and alcoholics is 2.25 %. What is the probability of being an alcoholics, given being man ?

Bayes' theorem



Example-2: What is the probability of two girls given at least one girl?

Example-3: If we randomly draw a blue ball.
What is the probability of being in 1st bucket ?

B1: 3Yellow, 3 Blue

B2: 3Yellow, 2 Blue

Example-4:

B1: 3 Golds

B2: 2 Golds, 1 Silver

B3: 1 Golds, 2 Silver

A person chosen a box at random and takes out a coin. If the coin is Gold. What is the probability that it was drawn from box 3?