

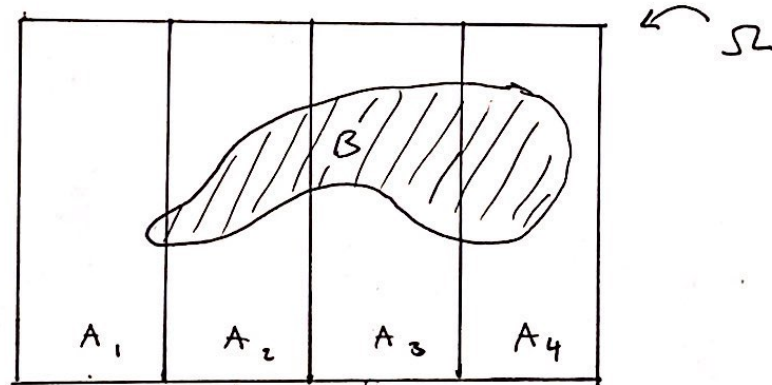
Quick Review

- Conditional Probability: How does knowledge of one event change our beliefs about another?
 - $P[A|B]$ is the probability that A occurs if you already know B occurred.
 - A, B are independent if $P[A|B] = P[A]$, and vice versa.

- Bayes' Theorem: For events A, B ,

$$P[A|B] = \frac{P[B|A] P[A]}{P[B]}.$$

- Most widely used theorem in applications.
- Total Probability: Pictorially, makes most sense:



- $P[B] = P[B \cap A_1] + P[B \cap A_2] + \dots$
- Can break up an event into disjoint pieces and sum.