

Year 2 Applied Chapter 2 - Conditional Probability

- Conditional Probability

$P(B|A)$ Probability that B occurs given A has already occurred.

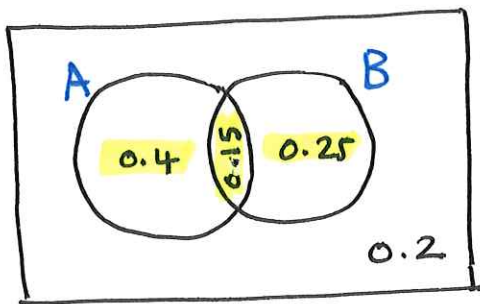
SAMPLE SPACE

	Pizza	Curry	total
male	11	18	29
Female	14	17	31
total	25	35	60

$$P(\text{Curry} | \text{male})$$

$$P = \frac{18}{29}$$

VENN DIAGRAM



$$P(B | A \cup B)$$

$$P = \frac{0.15 + 0.25}{0.4 + 0.15 + 0.25} = \frac{1}{2}$$

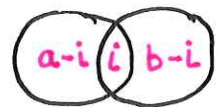
- Laws

$$P(A \cap B) = P(A) \times P(B) \quad \text{if events are INDEPENDENT}$$

$$P(A \cup B) = P(A) + P(B) \quad \text{if events are MUTUALLY EXCLUSIVE}$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)} \quad \text{conditional Probability}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$



- Probability Tree

