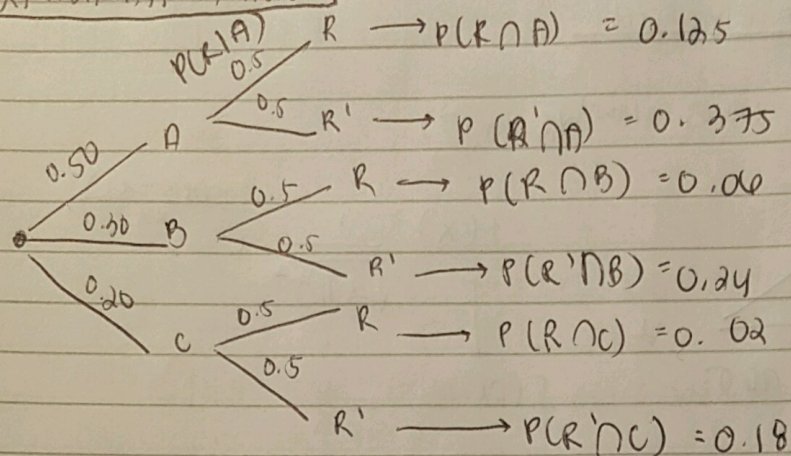


lecture 2 08/10/19
Sema Boraz

(1)

MULTIPLICATION RULE $\rightarrow P(A \cap R) = P(R|A) \cdot P(A)$



Questions:

1. $P(A|R)$
2. $P(R)$
3. $P(A|Q)$

Example: consumer brand play car
Repair Rate

$$P(A|R) = \frac{P(A \cap R)}{P(R)}$$

$$= \frac{0.125}{0.205} = 0.61$$

$$P(B|R) = \frac{0.06}{0.205} = 0.29$$

$$P(C|R) = \frac{0.02}{0.205} = 0.01$$

$$P(A|R) = \frac{P(R|A) \cdot P(A)}{P(R|A) \cdot P(A) + P(R|B) \cdot P(B) + P(R|C) \cdot P(C)}$$

$$P(R|A) \cdot P(A) + P(R|B) \cdot P(B) + P(R|C) \cdot P(C)$$

most of the time, we observe the data this way, thus we write it this way

INDEPENDENT

example: Blood types

$$A \times A = 0.4 \times 0.4 = 0.16$$

$$B \times B = 0.11 \times 0.11 = 0.0121$$

$$AB \times AB = 0.04 \times 0.04 = 0.0016$$

$$O \times O = 0.45 \times 0.45 = 0.2025$$

NORMAL DISTRIBUTION

→ hypothesis testing & decision making

$$\mu = 100$$

$$\sigma = 10$$

$$\alpha = 0.05$$

- Should we reject or retain the null?

→ type I or type II errors

↳ incorrectly rejecting the null
- z-scores; in the population
↳ incorrectly accepting the null