7. $B_1, B_2, \dots, B_n$ tq. $\bigcup_{i=1}^{n} B_i = \Omega$

$$P(B|A) = \frac{P(A|B)P(B)}{P(A)}$$

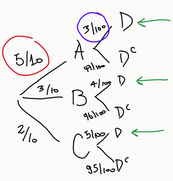
$$P(B_j|A) = \frac{P(A|B_j)P(B_j)}{\sum_{i=1}^{n} P(A|B_i)P(B_i)} \quad \sum_{i=1}^{n} P(A|B_i)P(B_i) = P(A|B_1)P(B_1) + P(A|B_2)P(B_2) + \dots + P(A|B_n)P(B_n) = P(A)$$

dem.

$$P(B_j|A) = \frac{P(B_j \cap A)}{P(A)} = \frac{P(A|B_j)P(B_j)}{P(A)} = \frac{P(A|B_j)P(B_j)}{\sum_{i=1}^{n} P(A|B_i)P(B_i)}$$ ∎

	producion	defectuoso P(D)
A	50% P(A)	3%
B	30% P(B)	4%
C	20% P(C)	5%

prob. total



$$P(A|D) = \frac{P(A \cap D)}{P(D)} = \frac{P(D|A)P(A)}{P(D|A)P(A) + P(D|B)P(B) + P(D|C)P(C)}$$

8. A_1 = el resultado de la primer submuestra es positivo

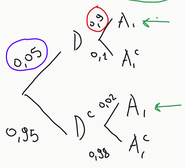
A_2 = " " segunda "

B = el jugador es sancionado $\quad P(D) = 0{,}05$

D = el jugador consumio

$$P(A_1 \cap A_2 | D) = P(A_1|D)P(A_2|D) \qquad P(A_i|D) = 0{,}90 \quad i = 1,2$$
$$P(A_1 \cap A_2 | D^c) = P(A_1|D^c)P(A_2|D^c) \qquad P(A_i|D^c) = 0{,}02$$

a. $$P(D|A_1) = \frac{P(A_1|D)P(D)}{P(A_1)} = \frac{P(A_1|D)P(D)}{P(A_1|D)P(D) + P(A_1|D^c)P(D^c)}$$



b. $$P(B) = P(A_1 \cap A_2) = P(A_1 \cap A_2|D)P(D) + P(A_1 \cap A_2|D^c)P(D^c) =$$
$$= P(A_1|D)P(A_2|D)P(D) + P(A_1|D^c)P(A_2|D^c)P(D^c)$$
(0,90 · 0,90 · 0,05 + 0,02 · 0,02 · 0,95)

$P(A_1 \cap A_2) \neq P(A_1)P(A_2)$ NO SON INDEP.

$$P(A_1)P(A_2) = \left[P(A_1|D)P(D) + P(A_1|D^c)P(D^c)\right]\left[P(A_2|D)P(D) + P(A_2|D^c)P(D^c)\right]$$
(0,90 · 0,05 + 0,02 · 0,95)

c. $$P(D|B) = \frac{P(B|D)P(D)}{P(B)} = \frac{P(A_1|D)P(A_2|D)P(D)}{P(A_1|D)P(A_2|D)P(D) + P(A_1|D^c)P(A_2|D^c)P(D^c)}$$

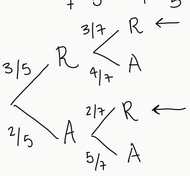
$$P(B|D) = P(A_1 \cap A_2|D) = P(A_1|D)P(A_2|D)$$

9. C1 { 3R, 2A } C2 { 4A, 2R }

A = extraer la misma bola

$$P(A) = \frac{CF}{CP} = \frac{1}{7}$$

$$P(R) = \frac{3}{7}\cdot\frac{3}{5} + \frac{2}{7}\cdot\frac{2}{5} = \frac{13}{35}$$



$$P(A|R) = \frac{P(R|A)P(A)}{P(R)} = \frac{3/35}{13/35} = \frac{3}{13}$$ (1/7 sobre $P(A)$; $P(R) = \frac{13}{35}$)

P(roja en la primer caja) = $\frac{3}{5}$