26 de Septiembre de 2016

+ Regla de la suma en Combinatorias

Comité con 3 miembros — 20 candidatos

al menos entre 2 de los 3. — 3 hermanos

$$C_2^3 C_3^{17} = 3 \times 680$$

$$C_3^3 C_2^{17} = 1 \times 136$$

$$C_k^n = \frac{n!}{k!(n-k)!}$$

$$C_F = (3 \times 680) + (1) \vee (136)$$

$$2176$$

$$C_2^3 = \frac{3!}{1!(2!)} = \frac{3 \times 2!}{1 \times 2!} \Rightarrow 3$$

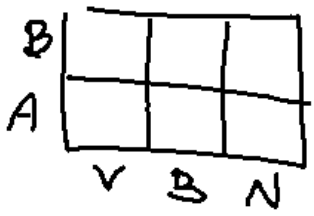
$$C_3^{17} = \frac{17!}{3!(14)!} = \frac{17 \times 16 \times 15}{3 \times 2 \times 1}$$

$n! = n \times (n-1)!$ $\quad 1! = 1 \quad 0! = 1$

$$C_3^{17} = \frac{17!}{3!(14!)} = \frac{17 \times 16 \times 15 \times 14!}{3! \cdot 14!} = \frac{17 \times 16 \times 15}{3 \times 2 \times 1}$$

$$= 680$$

PROBABILIDAD CONDICIONAL



$P(A/B)$

30% → VERDES
50% → BLANCAS
20% → NEGRAS

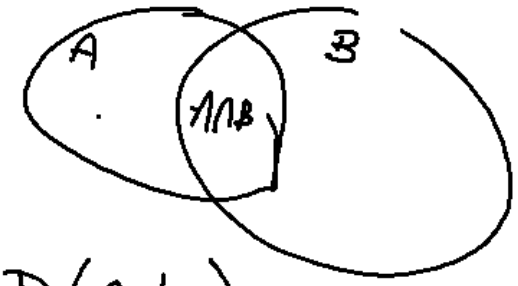
	A	B
	40%	60%
	50%	50%
	30%	70%

$P(A)$

$$P(A) = P(V)P(A/V) + P(B)P(A/B) + P(N)P(A/N)$$

$$= 0{,}3 \times 0{,}4 + 0.5 \times 0{,}5 + 0.2 \times 0.3 = 0{,}43$$

$$P(A/B) = k\,P(A \cap B)$$



$$P(A/A) = 1 \qquad P(B/B) = 1$$

$$P(A/B) = \frac{P(A \cap B)}{P(B)} \qquad P(B) > 0$$

$P(A) = 0.6 \quad P(B) = 0.4 \quad P(A \cap B) = 0.1$

$$P(A/B) = \frac{P(A \cap B)}{P(B)} = \frac{0.1}{0.4} = 0.25$$

$$P(B/A) = \frac{P(A \cap B)}{P(A)} = \frac{0.1}{0.6} = 0.16\hat{7}$$

PROBABILIDAD: REGLA DE LA MULTIPLICACIÓN

$$P(A \cap B) = P(B)\,P(A/B)$$

$$P(A \cap B) = P(A)\,P(B/A)$$

$$P(B)\,P(A/B) = P(A)\,P(B/A)$$

- 13 bolas 1...13 → 5 rojas & 8 blancas

Calcular probabilidad dos blancas -

$P(A) = \frac{8}{13}$ $P(B|A) = \frac{7}{12}$ $P(C) = \frac{5}{13}$.

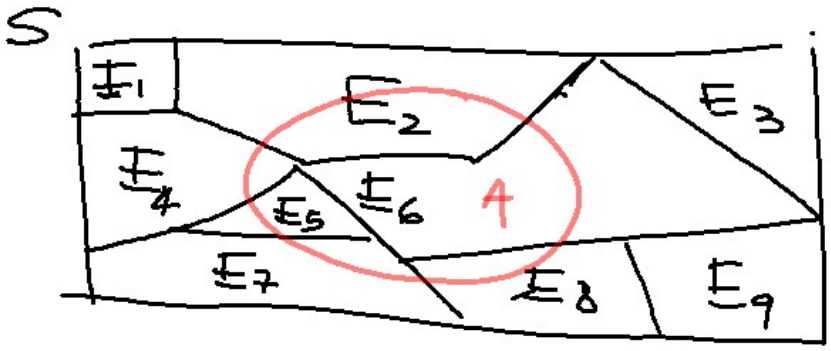
$P(A \cap B) = P(A) P(B|A)$

$= \frac{8}{13} \times \frac{7}{12} = \frac{56}{156} = 0,3590$

$P(C) = \frac{5}{13}$ $P(B|C) = \frac{8}{12}$

$P(B \cap C) = \frac{5}{13} \times \frac{8}{12} = \frac{40}{156} = 0,2564$

2 Reps = 0,128



$A \cap E_2 \neq 0$

$A \cap E_1 = 0$

ACS

$P(E_k) \neq 0$. $k_1 = 1, 2, 3, \ldots, n$

$S = \bigcup_{k=1}^{n} E_k$ E_i E_j $E_i \cap E_j = 0$

Particion $i \neq j$

✗ $P(V/A) = 0.4$ ✗ mal

$$P(V/A) = \frac{P(V \cap A)}{P(A)} = \frac{P(V)P(A/V)}{P(A)} = \frac{0,3 \times 0,4}{0,43} = 0,2791$$

$$\boxed{P(A \cap B) = P(A)P(B/A)}$$

REGLA DE ORO DE P. CONDICIONAL.