DD MM AA

Ejercicio: Para $P(B=r) = 0.4$ y $P(B=b) = 0.6$

$P(B=r) + P(B=b) = 1$

a = apple - verdes
O = Orange
B = Box
F = Fruit

#F = 12

Segun la figura Encontrar %

1. $P(F=a) = ?$ 55
2. $P(F=O) = ?$ 45
3. $P(B=r \mid F=O)$? 66.6
4. $P(B=b \mid F=O)$? 33.3
5. $P(B=r \mid F=a)$? 18
6. $P(B=b \mid F=a)$? 82

- $P(F=a) = 55\%$

$P(F=O) = P(F=a \mid B=r)P(B=r) + P(F=a \mid B=b)P(B=b)$

$\frac{2}{8} \cdot \frac{4}{10} + \frac{3}{4} \cdot \frac{6}{10} \Rightarrow \frac{8}{40} + \frac{18}{40} \Rightarrow \frac{2}{20} + \frac{9}{20} = \frac{11}{20} = 0.55$

- $P(F=O) = 45\%$

$= P(F=O, B=r) + P(F=O, B=b)$

$= P(F=O \mid B=r)P(B=r) + P(F=O \mid B=b)P(B=b)$

$\frac{6}{8} \cdot \frac{4}{10} \Rightarrow \frac{24}{80} = \frac{3}{10} + \frac{1}{4} \cdot \frac{6}{10} \Rightarrow \frac{6}{40} = \frac{3}{20} \Rightarrow \frac{3}{10} + \frac{6}{40} \Rightarrow 0.45 \Rightarrow \frac{9}{20}$

- $P(B=r \mid F=O) = 66.6\%$

Bayes: $P(B=r \mid F=O) = \frac{P(F=O \mid B=r)P(B=r)}{P(F=O)}$

$= \frac{(6/8)\cdot(4/10)}{(4.5/10)} = \frac{240}{360} \Rightarrow \frac{2}{3} = 0.666$

- $P(B=b \mid F=O) = 33.3\%$

$= \frac{P(F=O \mid B=b)P(B=b)}{P(F=O)} = \left(\frac{\frac{1}{4} \cdot \frac{6}{10}}{\frac{45}{100}} = \frac{600}{1800} = 0.333\right.$

- $P(B=r \mid F=a) = 18\%$

$= \frac{P(F=a \mid B=r)P(B=r)}{P(F=a)} = \left(\frac{\frac{2}{8} \cdot \frac{4}{10}}{\frac{55}{100}} = \frac{800}{4400} = 0.181\right.$

- $P(B=b \mid F=a) = 82\%$

$1 - 0.181 = 0.819$