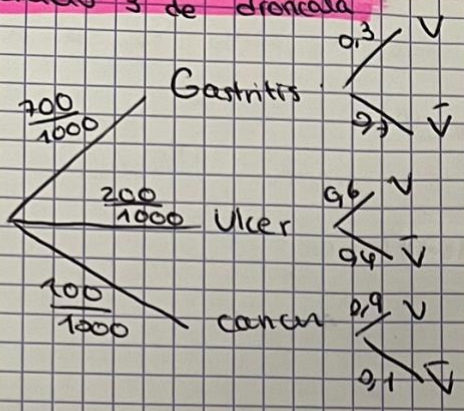
PROBABILITY

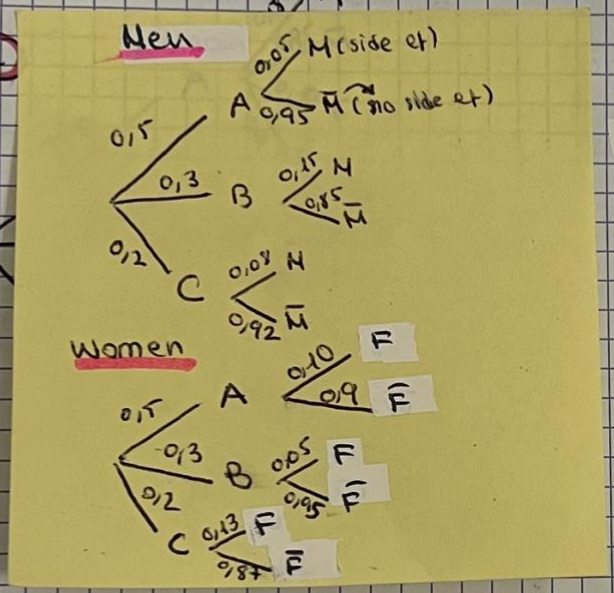
ejercicio 3 de droncola

① V = vomiting
$\bar{V}$ = not vomiting



$$P(V) = P(G \cap V) + P(U \cap V) + P(C \cap V)$$
$$0,7 \cdot 0,3 + 0,2 \cdot 0,6 + 0,1 \cdot 0,9 = 0,42 \text{ //}$$

② M = side effects in males
F = side effects in females
$\bar{M}$ = no side eff in males
$\bar{F}$ = no side eff in females.



a) side effects in females = $P(F) = 0,5 \cdot 0,10 + 0,3 \cdot 0,05 + 0,2 \cdot 0,13 = 0,091 \Rightarrow 9,1\%$

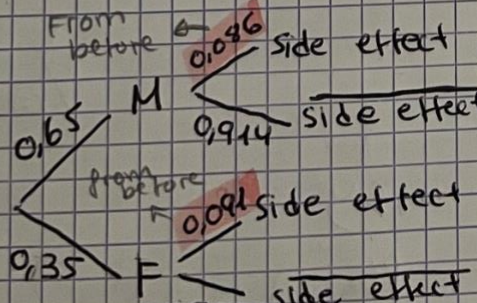
side effects in males = $P(M) = 0,5 \cdot 0,05 + 0,3 \cdot 0,15 + 0,2 \cdot 0,08 = 0,086$

Therefore, answering a), females are more prone to have side effects since $P(F) > P(M)$. $= 0,091 > 0,086$

b) $$P(C/M) = \frac{P(C \cap M)}{P(M)} = \frac{0,2 \cdot 0,08}{0,086} = 0,186$$

$$P(A/\bar{F}) = \frac{P(A \cap \bar{F})}{P(\bar{F})} = \frac{P(A \cap \bar{F})}{1 - P(F)} = \frac{0,5 \cdot 0,9}{1 - 0,091} = 0,4950$$

c)



$$P(F/\overline{side}) = \frac{P(F \cap \overline{side})}{P(\overline{side})} = \frac{0,35 \cdot 0,909}{0,9123} = 0,349$$

$$P(\overline{side}) = 0,65 \cdot 0,914 + 0,35 \cdot 0,909 = 0,9123$$