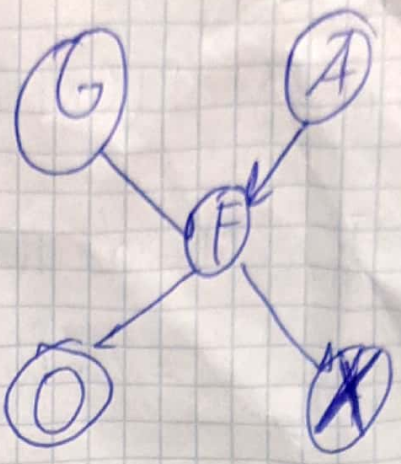
Tema A1



a) $P(G=T \mid O=1, A=1)$

~~$P(G_A \mid O$~~

$P(G_A = T \mid O=T, A=T) =$

$= \alpha \sum_{f \in \{F_A, F_D\}} \sum_{x \in \{X_A, X_D\}} P(G_A=T, A=T, f, O=T, x) =$

α

$= \alpha \cdot P(G_A=T) \cdot P(A=$

$= \alpha \sum_f \sum_x P(G_A) \cdot P(A_D) \cdot P(f \mid G_D, A_D) \cdot P(O_D \mid f) \cdot P(x \mid f)$

$= \alpha \cdot P(G_D) \cdot P(A_D) \sum_f \sum_x P(f \mid G_D, A_D) \cdot P(O_D \mid f) \cdot P(x \mid f)$

$\hookrightarrow temp_2$

D D
D F
F D
F F

C_1

$temp_2 = P(F_D \mid G_D, A_D) \cdot P(O_D \mid F_D) \cdot P(X_D \mid F_D) +$

$+ P(F_D \mid G_D, A_D) \cdot P(O_D \mid F_D) \cdot P(X_F \mid F_D) +$

C_2

$+ P(F_F \mid G_D, A_D) \cdot P(O_D \mid F_F) \cdot P(X_D \mid F_F) +$

$+ P(F_F \mid G_D, A_D) \cdot P(O_D \mid F_F) \cdot P(X_F \mid F_F) =$

0.5 0.5

$= C_1 (P(X_D \mid F_D) + P(X_F \mid F_D) +$

0.1 $+ C_2 (P(X_D \mid F_F) + P(X_F \mid F_F) = \quad = C_1 + C_2$

$\rightarrow 0.9$

$P(X_D \mid F_D) = \frac{P(X_D \cap F_D)}{P(F_D)} = \frac{\cancel{0.25}}{} = 0.5$

$C_1 = P(F_0 | G_0, A_0) \cdot P(O_0 | F_0) = 0.8 * 0.6 = 0.48$

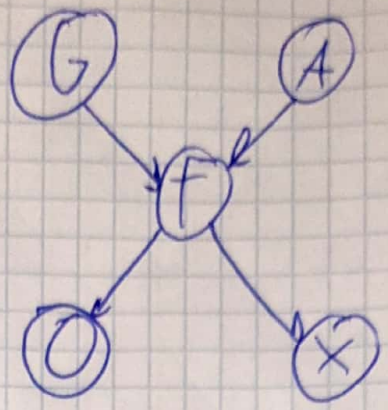
$C_2 = P(F_F | G_0, A_0) \cdot P(O_0 | F_F) = 0.2 * 0.2 = 0.04$

$P(G_F = T | O = T, A = T) = \alpha \cdot P(G_0) \cdot P(A_0) \cdot temp =$

$= \alpha \cdot 0,1 * 0,05 * 0.52 = \alpha * 0,0026$

$P(G_F | O_0,$

Tema Ai



2) De calc

$P(G_D | O_D, A_D)$ și $P(G_N | O_D, A_D)$

I) $P(G_D | O_D, A_D) = \alpha \sum_{F \in \{F_D, F_N\}} \sum P(G_D) \cdot P(A_D) \cdot P(F | G_D, A_D) \cdot P(O_D | F) \cdot P$

$P(G_N | O_D, A_D) =$

$= \alpha \cdot P(G_N) \cdot P(A_D) \cdot temp$

~~$temp = C_1 + C_2 + C_3$~~

$temp = P(F_D | G_N, A_D) \cdot P(O_D | F_D) \cdot (P(X_D | F_D) + P(X_F | F_D)) +$

$+ P(F_F | G_N, A_D) \cdot P(O_D | F_D) \cdot (P(X_D | F_F) + P(X_F | F_F))$

($P(X_D | F_D)$ și $P(X_F | F_D)$: 0.5 + 0.5; $P(X_D | F_F)$: 0.1; $P(X_F | F_F)$: 0.7)

$= 0.25 * 0.6 + 0.75 * 0.2 = 0.15 + 0.15 = 0.3$

$P(G_N | O_D, A_D) = \alpha \cdot 0.9 \cdot 0.05 \cdot 0.3 = \alpha \cdot 0.0135$

$\alpha \cdot 0.0026 + \alpha \cdot 0.0135 = 1$

$\alpha = \frac{1}{0.0161} = 62,11$

$P(G_A | O_D, A_D) = 0.161 \simeq 16\%$

$P(G_N | O_D, A_D) = 0.839 \simeq 83\%$