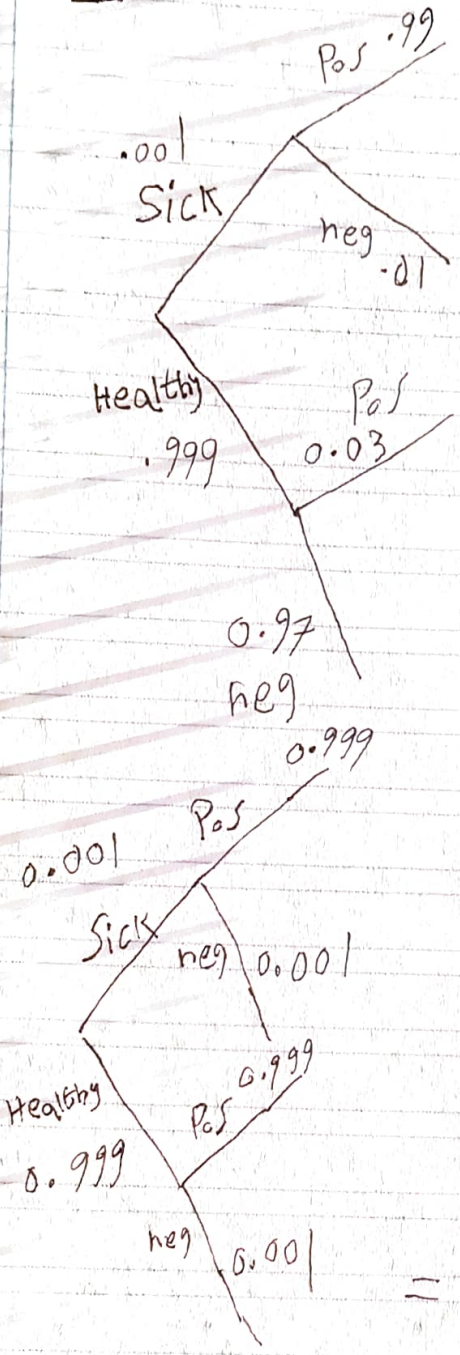
Recitation 18

1



$$Pr\{E\} = Pr\{E|D\} \cdot Pr\{D\} + Pr\{E|\bar{D}\} \cdot Pr\{\bar{D}\}$$

$$= 0.001 \times 0.001 + 0.03 \cdot 0.999$$

$$= 0.02998$$

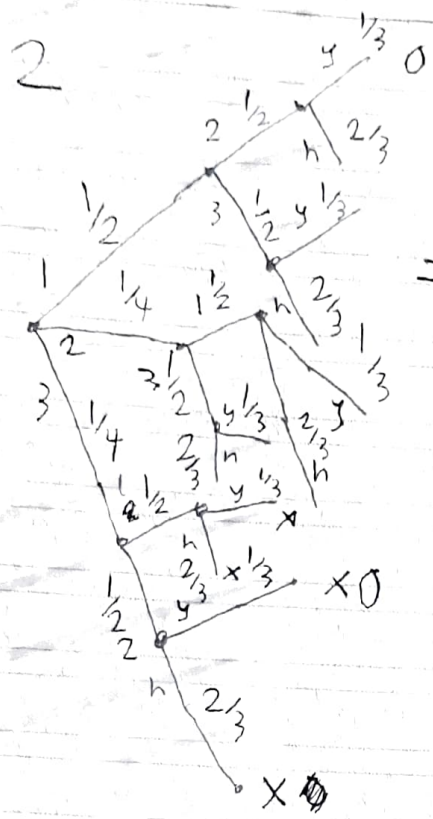
$$Pr\{F\} = Pr\{F|D\} \cdot Pr\{D\} + Pr\{F|\bar{D}\} \cdot Pr\{\bar{D}\}$$

$$= 0.001 \times 0.999 + 0.001 \times 0.999$$

$$= 0.001998$$

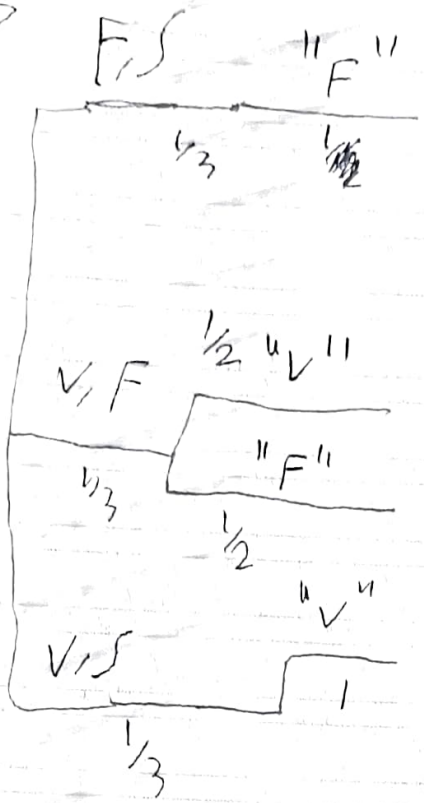
Doctor Y is more reliable!

2



$$= \frac{P(B_3 \mid \bar{T}_2)}{1 - \frac{1}{12} - \frac{1}{24}} = \frac{\frac{1}{24} + \frac{1}{12} + \frac{1}{12}}{1 - \frac{1}{12} - \frac{1}{24}} = \frac{5}{21}$$

3



$Pr(S) = 2/3$

$Pr(F) = 1/3 + 1/6 + 1/6 = 2/3$

$Pr(S \cap F) = 1/3$ $\quad P(S|F) = 1/2$

$Pr\{"F"\} = 1/3 + 1/6 = 1/2$

$Pr\{S \mid "F"\} = \dfrac{Pr(S \cap "F")}{Pr("F")}$

$= \dfrac{1/3}{1/2} = 2/3$