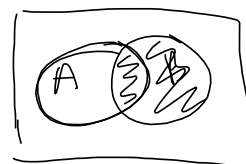


Remember that for an event A , A' is the complement of A . Let B be another event. What is



$$P(\underline{B \cap A}) + P(B \cap A') = P(B)$$

$$P(A) = \frac{2}{1000}$$

$$P(B|A) = 0.99$$

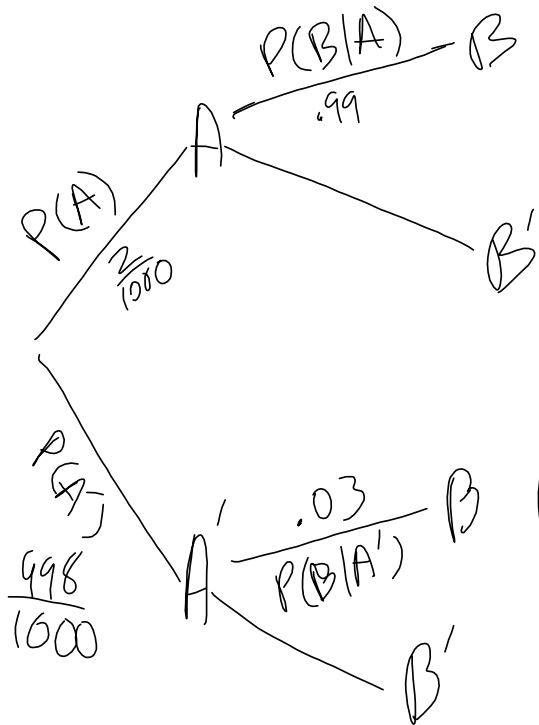
$$P(B|A') = 0.03$$

A is has the disease

B is tests positive

We want

$$P(A|B)$$



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

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$= \frac{.99 \left(\frac{2}{1000} \right)}{.99 \left(\frac{2}{1000} \right) + .03 \left(\frac{998}{1000} \right)}$$

$$= 0.062$$

$$P(A' \cap B)$$

$$P(A|B) = \frac{P(A)P(B|A)}{P(A)P(B|A) + P(A')P(B|A')}$$

Baye's Theorem

