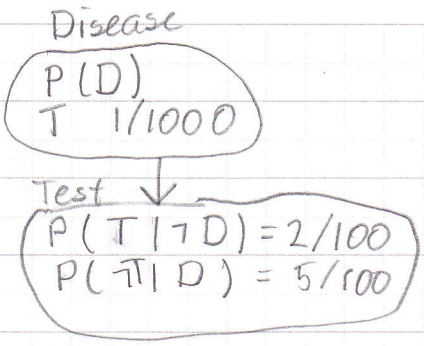
$$P(\alpha|\beta) = \frac{P(\beta|\alpha)\,P(\alpha)}{P(\beta)}$$

D: has disease
T: positive test
Söks: $P(D|T)$

$P(D) = 1/1000$
$P(T|\neg D) = 2/100$ false positive
$P(\neg T|D) = 5/100$ false negative



$$P(T) = P(T|D)\,P(D) + P(T|\neg D)\,P(\neg D)$$

$$= \frac{95}{100}\cdot\frac{1}{1000} + \frac{2}{100}\cdot\frac{999}{1000} = \frac{2093}{100\,000}$$

$$P(D|T) = \frac{P(T|D)\,P(D)}{P(T)} = \frac{95}{100}\cdot\frac{1}{1000}\,\frac{100\,000}{2093} = \frac{95}{2093}$$

$$P(PFW) = P(PFW|PF)\,P(PF) + P(PFW|\neg PF)\,P(\neg PF) =$$

$$= 0.9\cdot 0.1 + 0{,}05\cdot 0.9 = 0.135$$

$$P(PF|PFW) = \frac{P(PFW|PF)\,P(PF)}{P(PFW)} =$$

$$= \frac{0.9\cdot 0.1}{0.135} = \frac{0.09}{0.135} = 0.666$$

$$P(\neg PFW) = P(\neg PFW|PF)\,P(PF) + P(\neg PFW|\neg PF)\,P(\neg PF) =$$

$$= 0{,}1\cdot 0.1 + 0.95\cdot 0.9 = 0.865$$

$$P(PF|\neg PFW) = \frac{P(\neg PFW)\,P(PF)}{P(\neg PFW)} = \frac{0{,}1\cdot 0{,}1}{0.865} = 0.011560694$$

$$P(M|\neg WL) = P(M|PF,\neg WL)\,P(PF) + P(M|\neg PF,\neg WL)\,P(\neg PF) =$$

$$= 0.15\cdot 0.01156 + 0.001\cdot(1-0.01156) = 0.002722$$