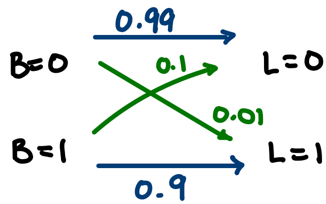
ICA 1:

blindspot = 0.02



Bayes Rule: $P(a|b) = \dfrac{P(b|a)\,P(a)}{P(b|a)\,P(a) + P(b|a)\,P(a)}$

$$P(B=1/L=0) = \frac{P(L=0/B=1)\,P(B=1)}{P(L=0/B=1)\,P(B=1) + P(L=0/B=0)\,P(B=0)}$$

$$P(B=1/L=0) = \frac{0.1\,(0.02)}{0.1(0.02) + 0.99\,(1-0.02)}$$

$$P(B=1/L=0) \approx 0.00206$$

ICA 2:

1) Prob of earthquake:

$P(e_1) = 0.05$

2) Given a thief in house, no earthquake, prob of alarm:

$P(T_1, e_0) = 0.60$

3) Is alarm better at detecting thieves or earthquakes?

$P(T_1, e_0) = 0.60$
$P(T_0, e_1) = 0.20$

alarm is better at detecting thieves

4) Which sound bothers the dog more? alarm / doorbell?

$P(a_0, d_1) = 0.80$
$P(a_1, d_0) = 0.50$

doorbell bothers the dog more

ICA 3:

1) Prob of Thief

$P(t_1) = 0.01$

2) Given alarm is going off, prob of thief:

$P(t_1 | a_1) > P(t_1)$

greater than prob above it

Based on the table, prob of alarm going off because of thief is greater than prob of alarm going off with no thief.

3) Given alarm is going off & dog is barking, prob of thief

$P(t_1 | a_1 b_1) = P(t_1 / a_1)$

equal than prob above it

Thief prob & dog barking prob are independent of each other.

The dog is more likely to bark at doorbell, then at the alarm.

4) Given alarm is going off & dog is barking & there is an earthquake, prob of thief:

$P(t_1 / a_1 b_1 e_1) < P(t_1 / a_1 b_1)$

less than prob above it

If an earthquake is occurring, the alarm will be going off because of the disastrous event.