$$P(open \mid Y_1) = \frac{P(X_1 \mid open)\, P(open)}{P(X_1)}$$

$$= \frac{P(Y_1 \mid open)\, P(open)}{P(Y_1 \mid open)\, P(open) + P(Y_1 \mid \sim open)\, P(\sim open)}$$

$$P(Y_1 \mid open) = 0.6$$
$$P(Y_1 \mid \sim open) = 0.3$$
$$P(open) = P(\sim open) = \tfrac{1}{2}$$

$$P(open \mid Y_1, Y_2) = \frac{P(Y_2 \mid open, Y_1)\, P(open \mid Y_1)}{P(Y_2 \mid open, Y_1)\, P(open \mid Y_1) + P(Y_2 \mid \sim open, Y_1)\, P(\sim open \mid Y_1)}$$

$$X : \binom{25}{}$$

$$X_1 \quad X_2 \quad \text{---} \quad X_{25}$$

$$Y:$$