

c) Directly from Table,

$$P(V=1 | A=0, K=1, L=0) = P(V=0 | A=0, K=1, L=0) = \frac{1}{2},$$

not the same value as in B. Because in the table the observed data points are too few.

d) No. We must satisfy $P(V=0) + P(V=1) = 1$ in the prior(V) column. The rest of entries we can fill in number from 0 ~ 1.

$$\begin{aligned} e) \frac{P(V=1 | A=0, K=1, L=0)}{P(V=0 | A=0, K=1, L=0)} &= \frac{P(V=1)P(A=0|V=1)P(K=1|V=1)P(L=0|V=1)}{P(V=0)P(A=0|V=0)P(K=1|V=0)P(L=0|V=0)} \\ &= \frac{\frac{5}{6} \cdot (1 - \frac{2}{6})}{\frac{3}{6} \cdot (1 - \frac{2}{6})} \cdot \frac{P(A=0|V=1)}{P(A=0|V=0)} = \frac{5}{3} \frac{P(A=0|V=1)}{P(A=0|V=0)} \end{aligned}$$

as long as we make $\frac{P(A=0|V=1)}{P(A=0|V=0)} > \frac{3}{5}$ by change the

tag of A, we make $\frac{P(A=0|V=1)}{P(A=0|V=0)} > 1 \Rightarrow$

(e.g. make $A=0$ for $V=1$
 & $A=1$ for $V=0$)

The email has virus \Rightarrow changed conclusion of b)