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

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

A

$P(A) > P(B)$

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

5. a. $p = 0.05$

b. $p = 0.07 + 0.05 = 0.12$

c. short-sleeved : 0.56

long-sleeved : 0.44

d. $P(me) = 0.49$

$P(pr) = 0.25$

e. $P(M_1|S) = \frac{P(M_1 \cap S)}{P(S)}$

$= 0.53$

f. $P(S|M_p) = \frac{P(S \cap M_p)}{P(M_p)}$

$= \frac{0.08}{0.08 + 0.10} = 0.44$

f. $P(S|M_p) = \frac{P(S \cap M_p)}{P(M_p)}$

$= \frac{0.08}{0.08+0.10} = 0.44$

g. $P(A \cup B|C) = \frac{P(A \cup B \cap C)}{P(C)}$

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

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

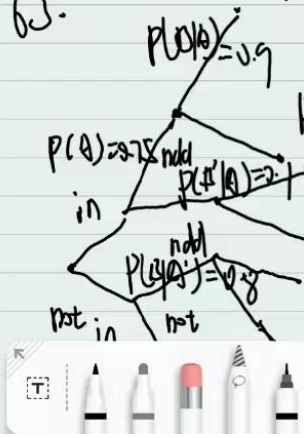
$\frac{P((A \cap C) \cup (B \cap C))}{P(C)} = \frac{P((A \cup B) \cap C)}{P(C)}$

$= \frac{(P(A) + P(B) - P(A \cap B) \cap C)}{P(C)}$

$= \frac{P(A \cap C) + P(B \cap C) - P(A \cap B \cap C)}{P(C)}$

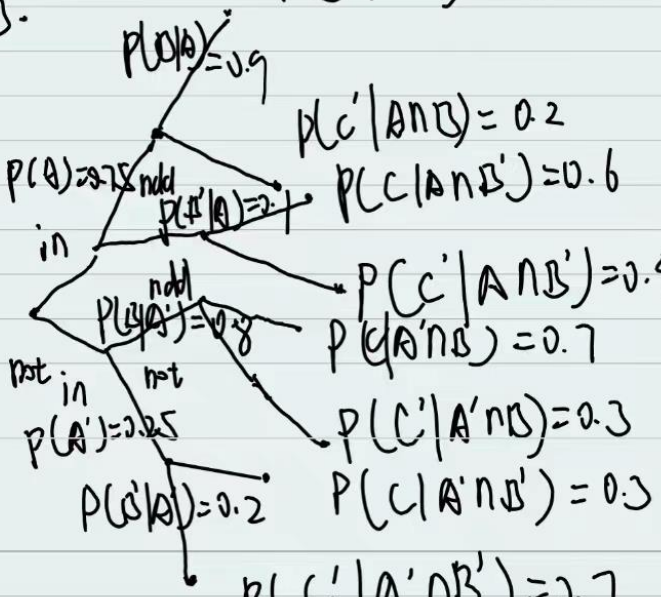
$P(C|A \cap B) = 0.8$

h.



$P(C|A\cap B)=0.8$

6.



b $P(A\cap B\cap C)=P(C|A\cap B)\cdot P(A\cap B)$

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

$=0.54$

c. $P(B\cap C)=P(A\cap B\cap C)+P(A'\cap B\cap C)$

$=0.54+(0.25)\cdot(0.8)\cdot(0.7)$

$=0.68$

d. $P(C)=P(A\cap B\cap C)+P(A'\cap B\cap C)+$

$= 0.68$

d. $P(C) = P(A \cap B \cap C) + P(A' \cap B \cap C) + P(A \cap B' \cap C') + P(A' \cap B' \cap C')$

$= 0.54 + 0.45 + 0.14 + 0.045$

$= 0.74$

e. $P(A \mid B \cap C') = \frac{P(A \cap B \cap C')}{P(B \cap C')}$

$= \frac{0.54}{0.68}$

$= 0.7941$

Assignments for fourth week

Finish the homework:

Section 2.5 71, 72, 80, 84

Section 3.1 4, 5, 8, 10

Section 3.2 12, 23, 25