Homework 6 Electronic

July 1st, 2020 at 11:59pm

1 Probability

a i Not possible

ii $\dfrac{P(A)P(B|A)P(C|A,B)}{\sum_b P(A)P(B|A)P(C|A,B)}$

iii $\sum_a P(A|B)P(C|A)$

iv Not possible

b i $A \perp\!\!\!\perp C$, $A \perp\!\!\!\perp B$

ii $B \perp\!\!\!\perp C|A$

iii No independence assumptions needed.

iv No independence assumptions needed.

c (i) (ii) (iii)

- ☐ $\sum_c P(A \mid B, c)$
- ☑ $\sum_c P(A, c \mid B)$
- ☐ $\frac{P(B|A)\ P(A|C)}{\sum_c P(B,c)}$
- ☑ $\frac{\sum_c P(A,B,c)}{\sum_c P(B,c)}$

- ☐ $\frac{P(A,C|B)}{P(C|B)}$
- ☐ $\frac{P(A|C,B)\ P(C|A,B)}{P(C|B)}$
- ☐ None of the provided options.

- ☐ $P(A \mid C)\ P(C \mid B)\ P(B)$
- ☑ $P(A)\ P(B)\ P(C \mid A, B)$
- ☐ $P(C)\ P(A \mid C)\ P(B \mid C)$
- ☐ $P(A)\ P(C \mid A)\ P(B \mid C)$

- ☑ $P(A)\ P(B \mid A)\ P(C \mid A, B)$
- ☑ $P(A, C)\ P(B \mid A, C)$
- ☐ None of the provided options.

- ☑ $P(A \mid C)\ P(B \mid C)$
- ☐ $\frac{P(A)\ P(B|A)\ P(C|A,B)}{\sum_c P(A,B,c)}$
- ☐ $P(A \mid B)\ P(B \mid C)$
- ☐ $\frac{P(C)\ P(B|C)\ P(A|C)}{P(C|A,B)}$

- ☐ $\frac{\sum_c P(A,B,c)}{P(C)}$
- ☑ $\frac{P(C,A|B)\ P(B)}{P(C)}$
- ☐ None of the provided options.