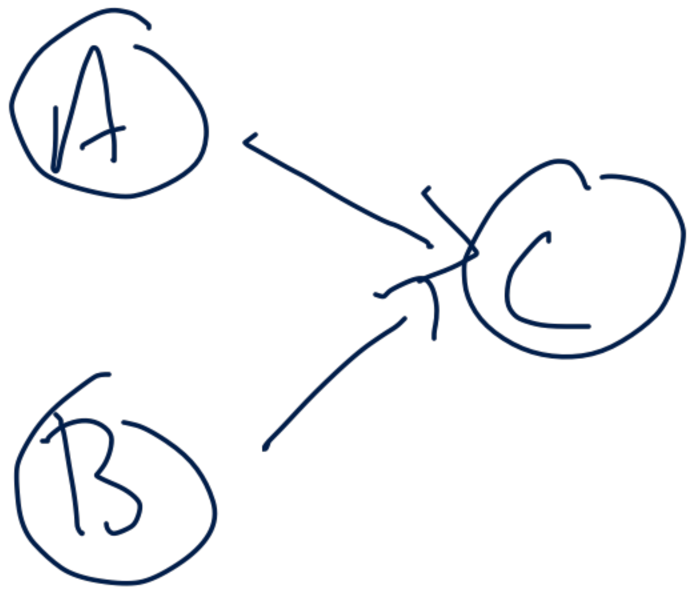
A, B, C

A, B uniform

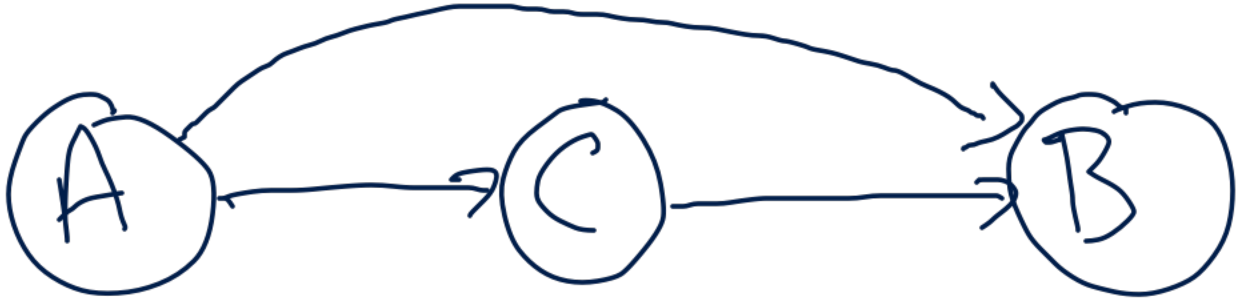
C = A AND B



$P(a) = 1/2$

$P(b) = 1/2$

a	b	c	P(c|ab)
0	0	0	1
1	0	0	1
0	1	0	1
1	1	0	0
0	0	1	0
1	0	1	0
0	1	1	0
1	1	1	1



Added A, C, B

$P(a) = 1/2 \quad P(\bar{a}) = 1/2$

$P(C|A)$:

A	C	P(C|A)
0	0	1
0	1	0
1	0	1/2
1	1	1/2

$P(B|C)$:

B	C	P(B|C)
0	0	2/3
0	1	0
1	0	1/3
1	1	1

A	B	C	P(abc)
0	0	0	1/4
0	0	1	0
0	1	0	1/4
0	1	1	0
1	0	0	1/4
1	0	1	0
1	1	0	0
1	1	1	1/4

C = A AND B

$$P(\bar{b} \mid \bar{c}) = \frac{P(\bar{b}\bar{c})}{P(\bar{c})}$$

$$P(\bar{b}\bar{c}) = P(a\bar{b}\bar{c}) + P(\bar{a}\bar{b}\bar{c})$$

$$= 1/4 + 1/4 = 1/2$$

$$P(\bar{c}) = 3/4$$

$$P(\bar{b} \mid \bar{c}) = \frac{1/2}{3/4} = 2/3$$

$P(B|AC)$

$$\begin{tikzcd} A \arrow[r] \arrow[rr, bend left, dashed] & C \arrow[r] & B \end{tikzcd}$$

No arc $\rightarrow$ $P(AB|C) = P(A|C)P(B|C)$

a	b	c	$P(ab\|c)$
0	0	0	4/9
0	0	1	0
0	1	0	2/9
0	1	1	0

a	b	c	$P(ab\|c)$
1	0	0	2/9
1	0	1	0
1	1	0	1/9
1	1	1	1

Compute $P(ab|\bar{c})$ from table

$$\frac{P(\bar{c}ab)}{P(\bar{c})} = 0$$