

$$\begin{aligned}
 p(a, b, c, d) &= p(a \mid b, c, d)p(b, c, d) \\
 &= p(a \mid b, c, d)p(b \mid c, d)p(c, d) \\
 &= p(a \mid b, c, d)p(b \mid c, d)p(c \mid d)p(d)
 \end{aligned}$$