

$$2, 4 \quad \left(\frac{3}{10}\right)^k \left(\frac{7}{10}\right)^{20-k}$$

$$\frac{7}{10} \frac{7}{10} \frac{7}{10} \frac{7}{10} \frac{7}{10}$$

$$k = 2$$

$$\frac{1}{4, 6} \left(\frac{3}{10}\right)^k \left(\frac{7}{10}\right)^{20-k}$$

$$\frac{1}{4, 6} \frac{1}{4, 6}$$

$$P_n[A] = \frac{|A|}{|\Omega|} = \frac{\binom{30}{k} \binom{70}{20-k}}{\binom{100}{20}}$$

# of successes  
# of total possibilities

$$\begin{matrix} 10 \\ x_1 \\ x_2 \\ x_3 \\ \vdots \\ x_n \end{matrix} \begin{matrix} 0 \\ 0 \\ 1 \\ \vdots \\ 1 \end{matrix}$$

$$P_n[H] = p$$

$$L(p; x_1, x_2, \dots, x_n)$$

MAP  $p \sim \text{Unif}[0, 1]$

$$\begin{matrix} \text{Unif}[0, 1] \\ \text{Beta}(2, 1) \\ \text{Beta}(2, 2) \end{matrix}$$

$$P_n(p | x_1, \dots, x_n) = \frac{P_n(H | p) P(p)}{P_n(H)}$$
