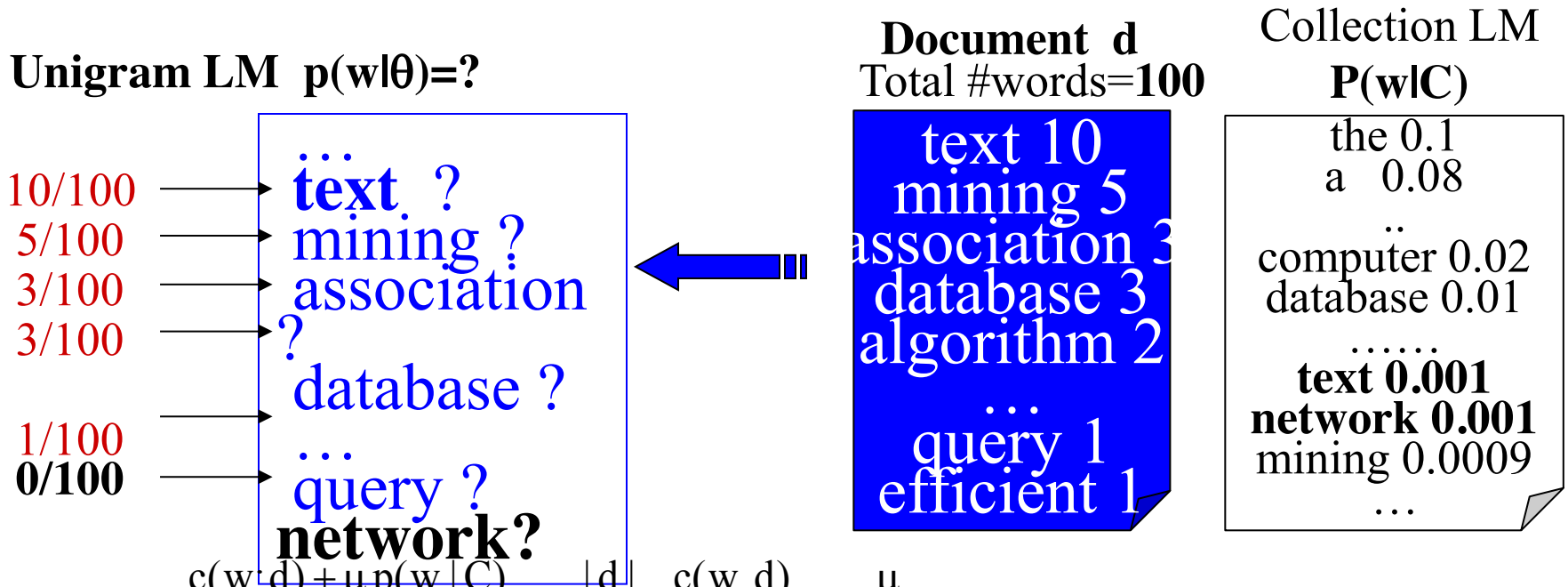
Dirichlet Prior (Bayesian) Smoothing



$$p(w|d) = \frac{c(w,d) + \mu p(w|C)}{|d| + \mu} = \frac{|d|}{|d| + \mu} \frac{c(w,d)}{|d|} + \frac{\mu}{|d| + \mu} p(w|C)$$

$$\mu \in [0, +\infty)$$

$$p("\text{text}"|d) = \frac{10 + \mu * 0.001}{100 + \mu}$$

$$p("\text{network}"|d) = \frac{\mu}{100 + \mu} * 0.001$$