

$$= \mathbb{E}[m_0] \mathbb{E}[m] \mathbb{E}\left[\frac{1}{K} P(\{p_i \leq q_K \cap C_K^{(i)}\} | m, m_0)\right]$$

$$P(A_{v,s})$$

$$\mathbb{E}\left[\frac{V}{R}\right] = \mathbb{E}\left[\mathbb{E}\left[\frac{V}{R} \mid \text{reject true, s false}\right]\right]$$

$$= \sum_{s=0}^{m_1} \sum_{v=1}^{m_0} \mathbb{E}\left[\frac{V}{R} \mid \text{reject } v \text{ true, s false}\right] \times P(A_{v,s})$$

$\neq P(A_{v,s})$

$$1 = \sum_{s=0}^{m_1} \sum_{v=1}^{m_0} 1[A_{v,s}]$$

$$\Rightarrow \mathbb{E}\left[\frac{V}{R}\right] = \mathbb{E}\left[\frac{V}{R} \sum_{s=0}^{m_1} \sum_{v=1}^{m_0} 1[A_{v,s}]\right]$$

$$= \sum_{s=0}^{m_1} \sum_{v=1}^{m_0} \frac{V}{v+s} P(A_{v,s})$$