

The online Bayes Algorithm

- Total loss of expert i

$$L_i^t = - \sum_{s=1}^t \log p_i^s(c^s); \quad L_i^0 = 0$$

- Weight of expert i

$$w_i^t = w_i^1 e^{-L_i^{t-1}} = w_i^1 \prod_{s=1}^{t-1} p_i^s(c^s)$$

- Freedom to choose initial weights.

$$w_i^1 \geq 0, \sum_{i=1}^N w_i^1 = 1$$

- Prediction of algorithm A

$$\mathbf{p}_A^t = \frac{\sum_{i=1}^N w_i^t \mathbf{p}_i^t}{\sum_{i=1}^N w_i^t}$$