



2 4 5

$$P(Y=c_k | X=x) \quad \text{if } x \in S_k$$

$$= \frac{P(Y=c_k \cap X=x)}{P(X=x)}$$

$$\cancel{P(X=x)} P(Y=c_k)$$

$$= \frac{P(X=x | Y=c_k) P(Y=c_k)}{P(X=x)}$$

$$P_e = \frac{\text{错误接收的码元数}}{\text{传输的总码元数}} = \frac{N_e}{N}$$

接收的比特数在传输总比特数中所占的比例，

$$P_b = \frac{\text{错误接收的比特数}}{\text{传输的总比特数}} = \frac{I_e}{I}$$

D. M 进制时, 有 $P_b = P_e \cdot \log_2 M$

$$P_b = \frac{\text{错误码元}}{\log_2 M} = \frac{1}{M}$$

↓
总

$$\log(p(y|x)) - w_0 - \sum w_i f_i(x_i)$$

$$= \exp \left(\frac{\sum_i w_i f_i(x, y)}{\sqrt{w_0 - 1}} \right)$$

$$= \exp \left(\frac{\sum w_i f_i(x, y)}{\sqrt{w_0 - 1}} \right)$$

$$1 = \frac{\sum e(\sum w_i f_i(x, y))}{e(1 - w_0)}$$

$$e(1 - w_0) = \sum e(\sum w_i f_i(x, y))$$

$$p_{w/y|x} = \frac{e(\sum w_i f_i(x, y))}{\sum e(\sum w_i f_i(x, y))}$$

$$L(P, w) = \sum_{i=1}^5 P(y_i) \log P(y_i) + w_1 \left(P(y_1) + P(y_2) - \frac{3}{10} \right) + w_0 \left(\sum_{i=1}^5 P(y_i) - 1 \right)$$

$-w_1 - w_0 - 1$

$-w_0 - 1$

$$2e + 3e$$

$$X_2(b) - 1 \geq 0$$

$$y_1 b \geq b$$

$$y_2 b \geq b$$

$$b \geq \frac{1}{y_1}$$

$$b \leq \frac{1}{y_2}$$

$$\min_{w,b} \frac{1}{2} \|w\|^2$$

$$\text{s.t. } y_i(w \cdot x_i + b) - 1 \geq 0, \quad i=1,2,\dots,N$$

$$\text{minimize } \max_{i=1,\dots,k} |a_i^T x - b_i|.$$

(1.6)

$$t = \max_{i=1,\dots,k} |a_i^T x - b_i|$$

$$\min t$$

$$t \geq |a_i^T x - b_i|$$

$$\begin{aligned} a_i^T x - b_i &\leq t \\ b_i - a_i^T x &\leq t \end{aligned}$$

$$\bar{a}_i^T x - t \leq b_i$$

$$t^* = 0$$

$$x^* = 0$$

$$(a_i^T x - b_i)$$

$$= 2 (a_i^T x - b_i) \cdot a_i$$

$$= (a_i^T) \geq 0$$

