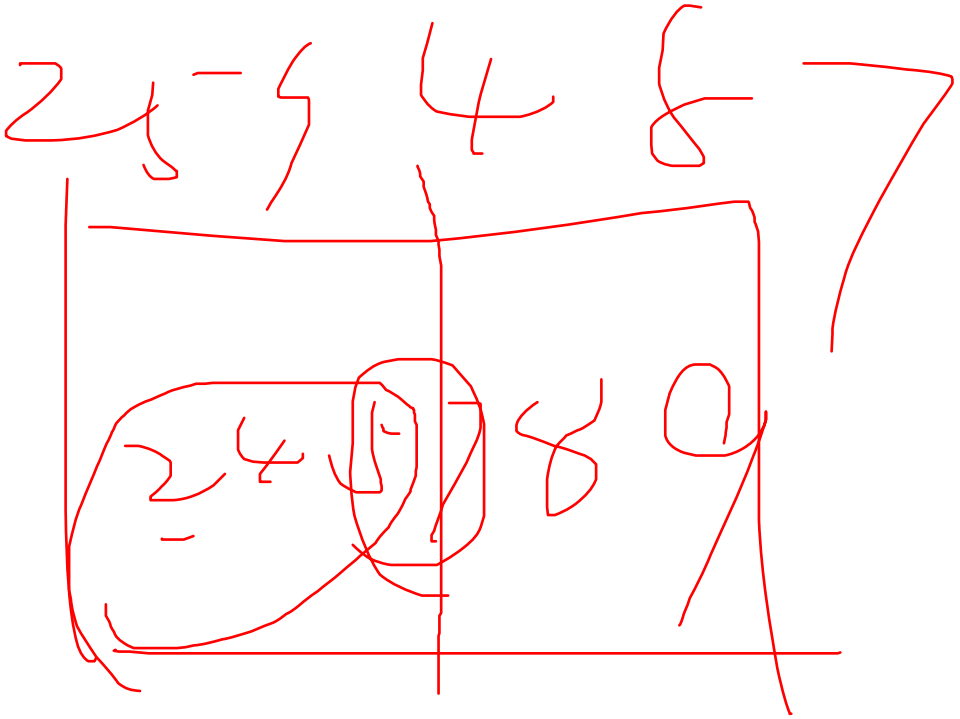

$P(Y=C_k \mid X=x)$ → 贝叶斯

$= \dfrac{P(Y=C_k \cap X=x)}{\sum_k P(X=x)}$

$= \dfrac{P(X=x \mid Y=C_k)\,P(Y=C_k)}{P(X=x)}$

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

接收的比特数在传输总比特数中所占的比例，

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

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

$\log_2 M$

$\log(P(y|x)) - w_0 - \sum w_i f_i(x,y)$

$$= \exp\left(\sum_i w_i \cdot f_i(x, y) + w_0 - 1\right)$$

$$= \exp\left(\sum_i w_i f_i(x, y)\right)$$

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

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

$$P(y|x) = \frac{e\left(\sum w_i f_i(x, y)\right)}{\sum e\left(\sum w_i f_i(x, y)\right)}$$

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

$2e^{-w_1-w_0-1}+3e^{-w_0-1}$

$x_2(b)-1\geq 0$

$y_1 b-1\geq b$

$y_2 b-1\geq 0$

$b\geq \frac{1}{y_1}$ $b\leq \frac{-1}{y_2}$