Loss function: The eror in making a decision regarding assigning a data x to a particular category is evaluated by means of an expected loss or risk:

$$\mathbf{R}(\alpha_i|x)\sum_{j}^{c} = 1\lambda(\alpha_i|\omega_j)P(\omega_j|x)$$

$$= \sum_{j\neg 1} P(\omega_j|x) = 1 = P(\omega_i|x)$$

where

- $\mathbf{R}(\alpha_i|x)$ is the conditional risk, $\lambda(\alpha_i|\omega_j)$ is the loss incurred by taking an action α_i for assigning a particular x to the class ω_j and $p(\omega_j|x)$ is the probability of x belonging to ω_j