

Multiclass SVM

- **Optimization problem:**

$$\min_{w,b} \frac{1}{2} \sum_c \|w_c\|^2 + C \sum_{i=1}^n \xi_i \quad \forall c \neq y_i, \forall i$$
$$w_{y_i} \cdot x_i + b_{y_i} \geq w_c \cdot x_i + b_c + 1 - \xi_i \quad \xi_i \geq 0, \forall i$$

- To obtain parameters w_c, b_c (for each class c) we can use similar techniques as for 2 class **SVM**

- **SVM is widely perceived a very powerful learning algorithm**