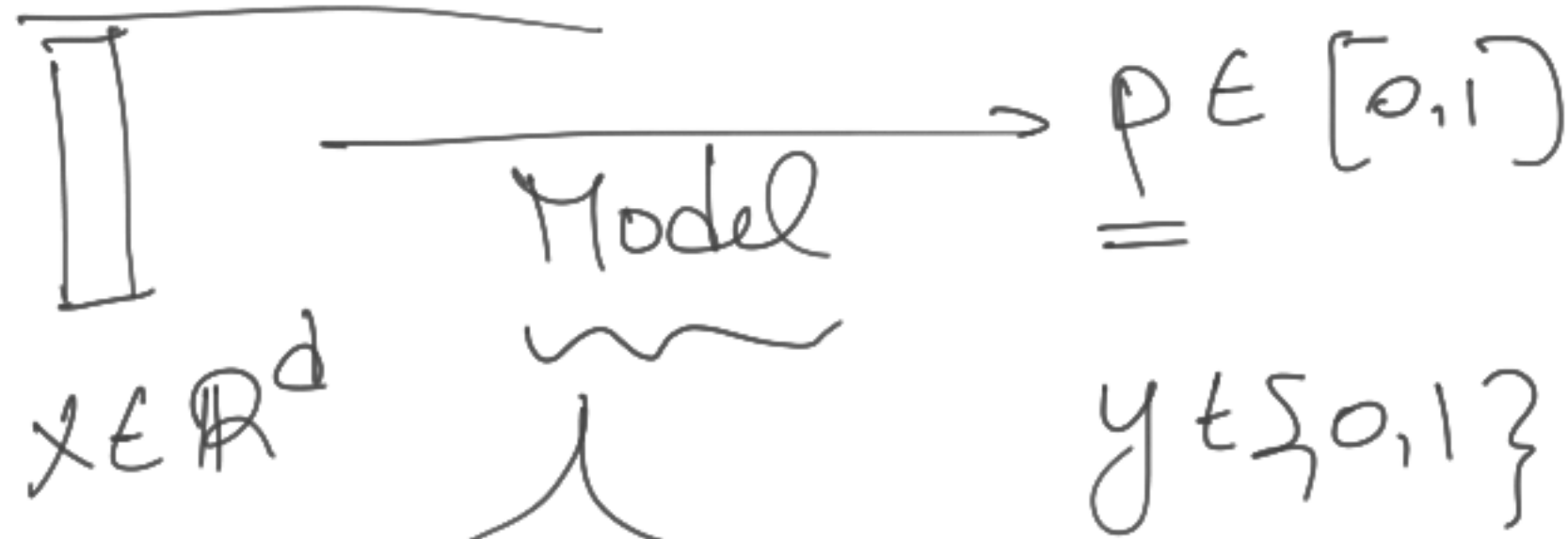


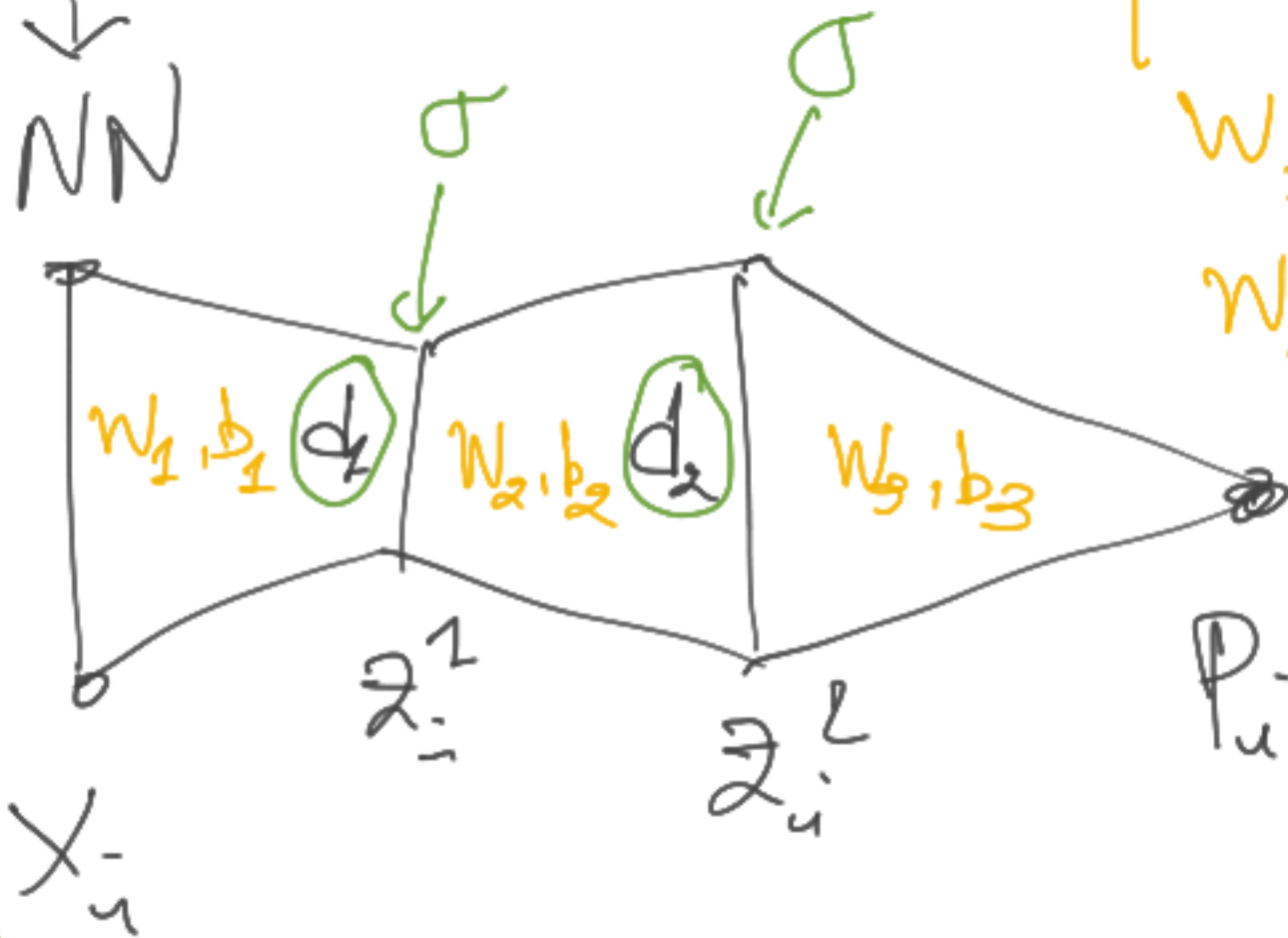
Optimization of HP

Sections 1 \rightarrow 3:



RF

NN



Range

Parameters

- $w_1 \in \mathbb{R}^{d \times d_1}$
- $w_2 \in \mathbb{R}^{d_1 \times d_2}$
- $w_3 \in \mathbb{R}^{d_2 \times 1}$
- $b_1 \in \mathbb{R}^d$
- $b_2 \in \mathbb{R}^{d_2}$
- $b_3 \in \mathbb{R}$

- HP
- # trees
 - # depth of each tree
 - # impurity measure
 - # attributes that we select at each split
- Train the model
maximize



HP

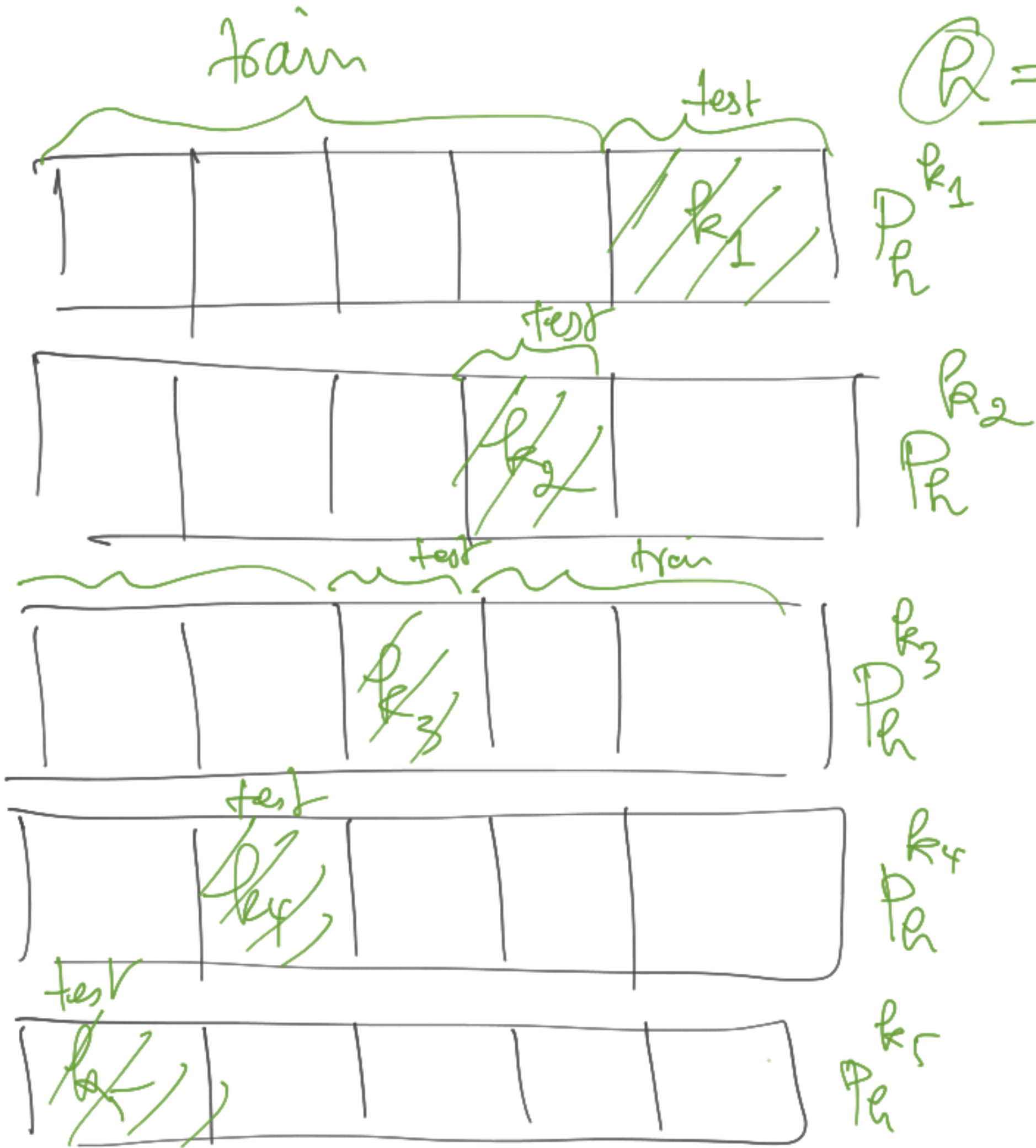
- # trees - 5
- depth - 3
- inputs - 2
- # attributes / split - 2

h

$$h^* = \arg \max_{\text{All possible } h} P_{\text{val}}(h)$$

HP: $5 \times 3 \times 2 \times 2$

possibilities [# trees, depth inputs, # attr / split]



$$P = [\# \text{ trees, depth, impurity, \# \text{ atts}}]$$

$$\text{mean}_{1 \leq i \leq 5} (P_{h_i}^{D_{tr}}) = P_{h^*}$$

$$h^* = \text{argmax}_{\text{All poss}} P_h$$