

Lecture 4

$$* VC(\mathcal{H}) = \max_{S \subseteq X} |S| \text{ ; } S \text{ is shattered by } \mathcal{H}$$

in this exercise \mathcal{H} is intervals in \mathbb{R} :

$$\mathcal{H} = \left\{ f \mid f_{a,b}(x) = \text{sgn} \left(\left| x - \frac{a+b}{2} \right| \right), a, b \in \mathbb{R} \right\}$$

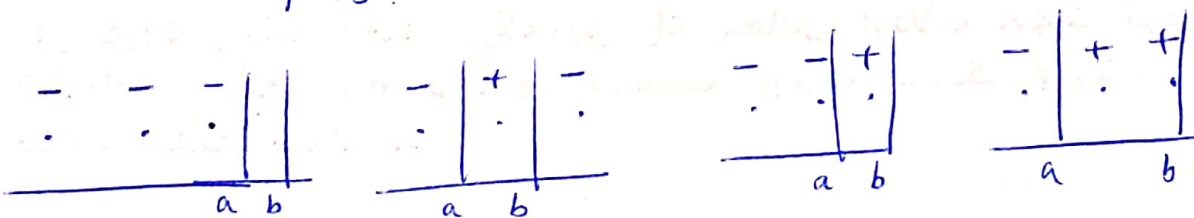
- case 1 data point: obvious ✓

- case 2 data points:

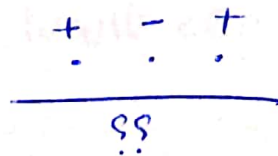


S can be shattered by \mathcal{H} . ✓

- case 3 data points:



But:



this one cannot be shattered by \mathcal{H} .

⇒ So, we have $VC(\mathcal{H}) = 2$