

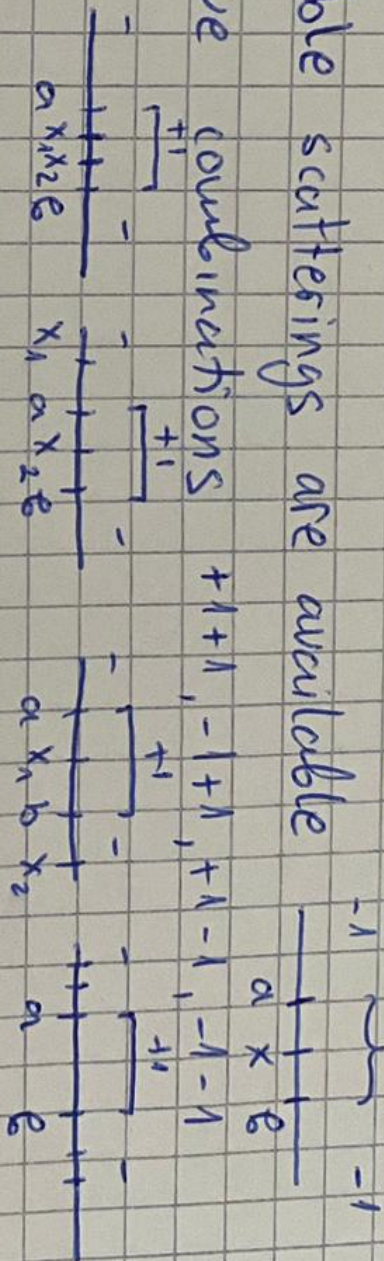
\* Find VC dimension for hypothesis space  $H$  that contains  $f$  on

$h(x) = 1$  for  $a \leq x \leq b$  and  $h(x) = -1$  otherwise

for  $VC(H) \geq 1$  all possible scatterings are available

for  $VC(H) \geq 2$  we have combinations

and all are possible



for  $VC(H) \geq 3$  we have  $+1+1+1, +1+1-1, +1-1-1, -1-1-1, -1+1-1$

$-1+1+1, -1+1+1, (+1-1+1)$

If we tried to put them on the graph, this one wouldn't be

possible because:  $a \leq x_1 \leq b$   $a \leq x_3 \leq b$  ~~there~~ there doesn't exist  $x_2$

$x_1 < x_2 > x_3 \Rightarrow$  but also  $x_1 \leq x_2 \leq x_3 \Rightarrow$  contradiction!

So VC dimension is

$VC(H) = 2$