$$F(x) = \text{Sign}\left(\sum_{i=1}^{n} \alpha_i y_i K(x_i, x)\right)$$

n = no of training examples (5 in our case)

$\alpha_1, \alpha_2, \ldots \alpha_n$ = dual weights

$K(x_i, x)$ = kernel function between inputs x_i and x

x = input example for which we want to make prediction

good = +1
bad = −1

≥ 0	+1
< 0	−1

$\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$

$F(x_1) = \text{Sign}(0) = +1$

correct prediction ✓

no need to change dual weights

$F(x_2) = \text{Sign}(0) = +1$

incorrect ✗

$\alpha_2 = \alpha_2 + y_2 = -1$ ($\alpha_1, \alpha_2, \alpha_3, \alpha_4$ remain uncharged

$F(x_3) = \text{Sign}(\alpha_2 y_2 K(x_2, x_3))$ for linear kern

$= \text{Sign}(-1 * -1 * 2) = +1$ Correct