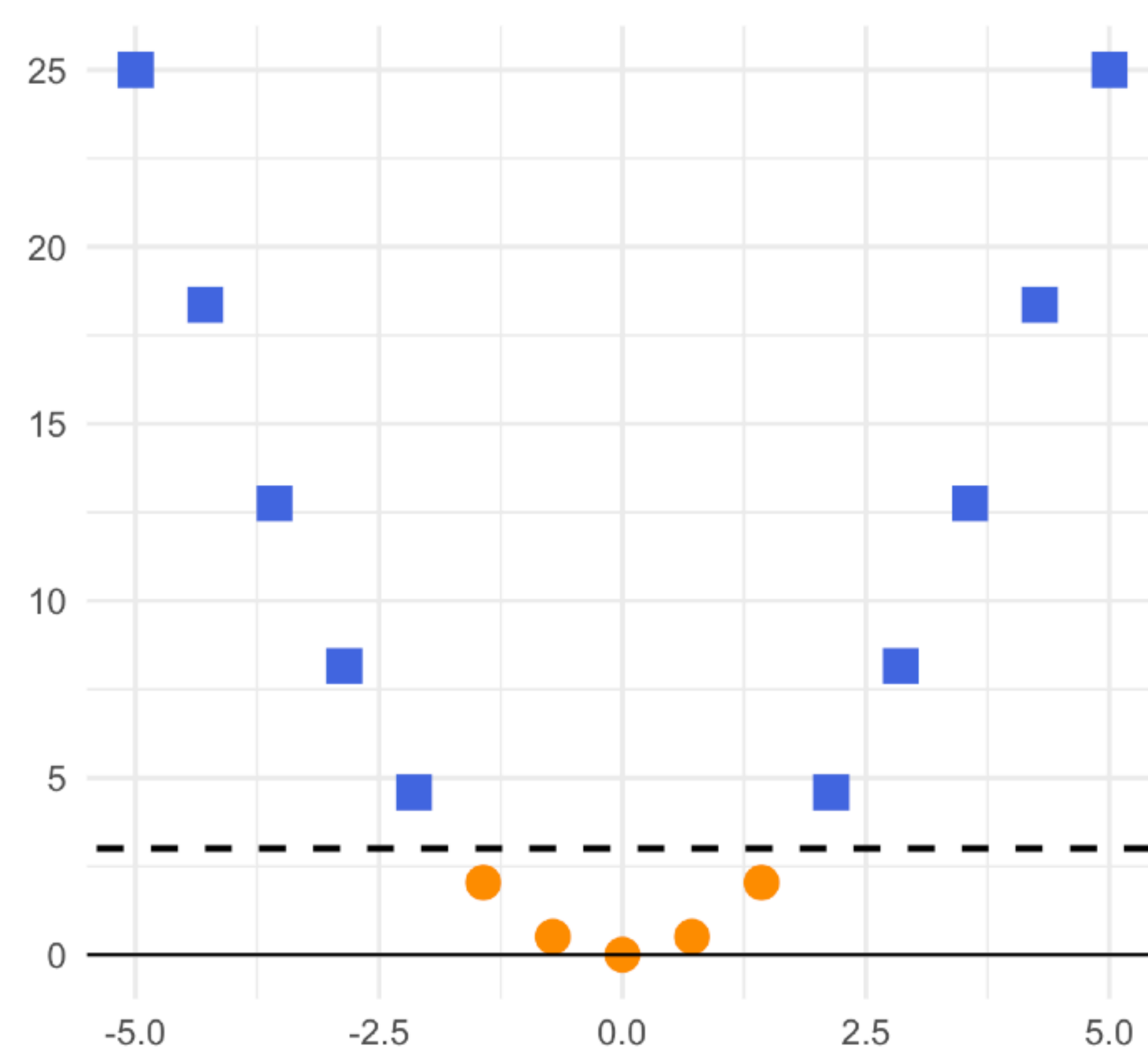
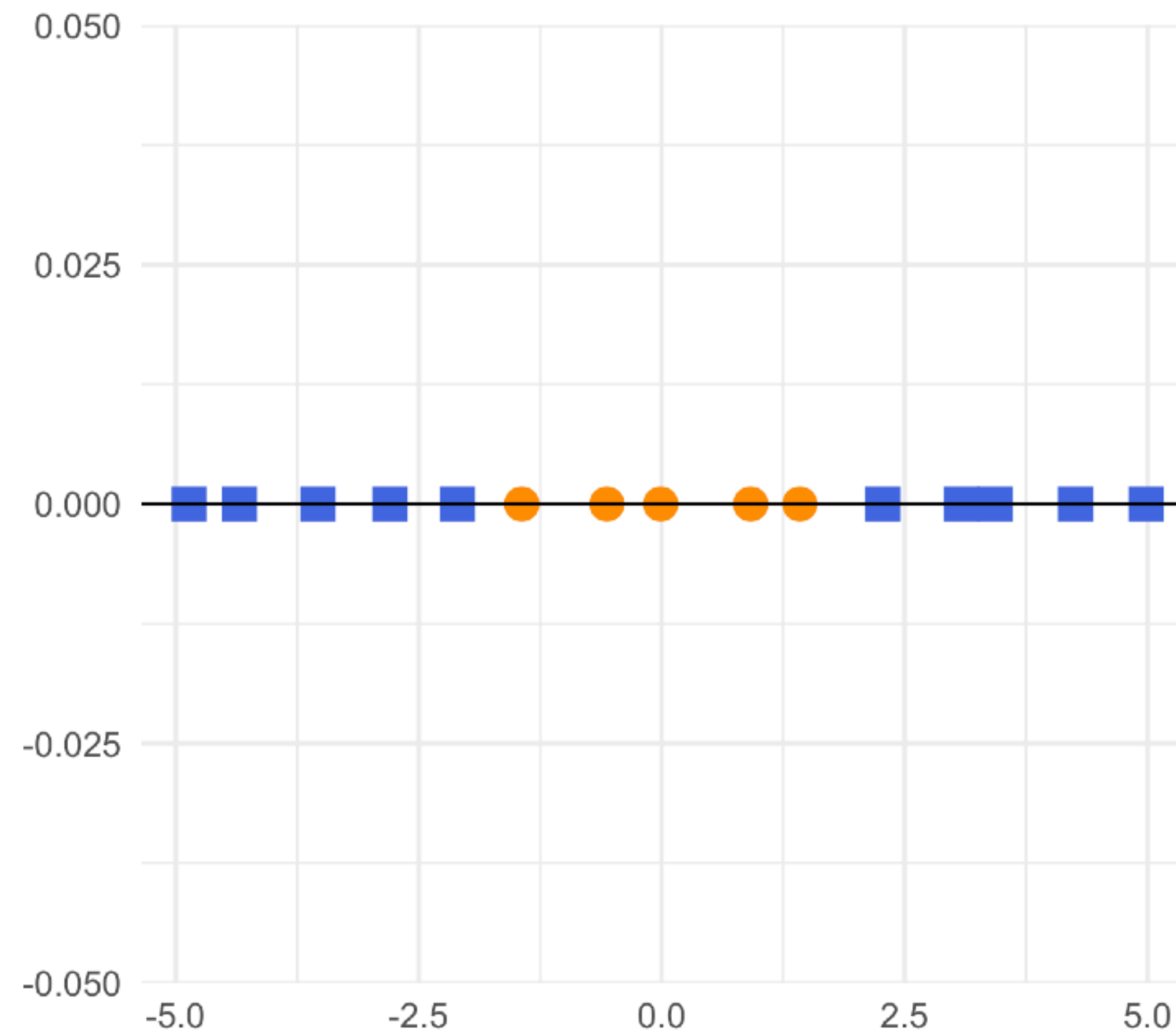


# The Kernel Trick

## what is an SVM Kernel?

A function that computes the relationship between vectors in multiple dimensions (without actually having to calculate the coordinates for those dimensions)

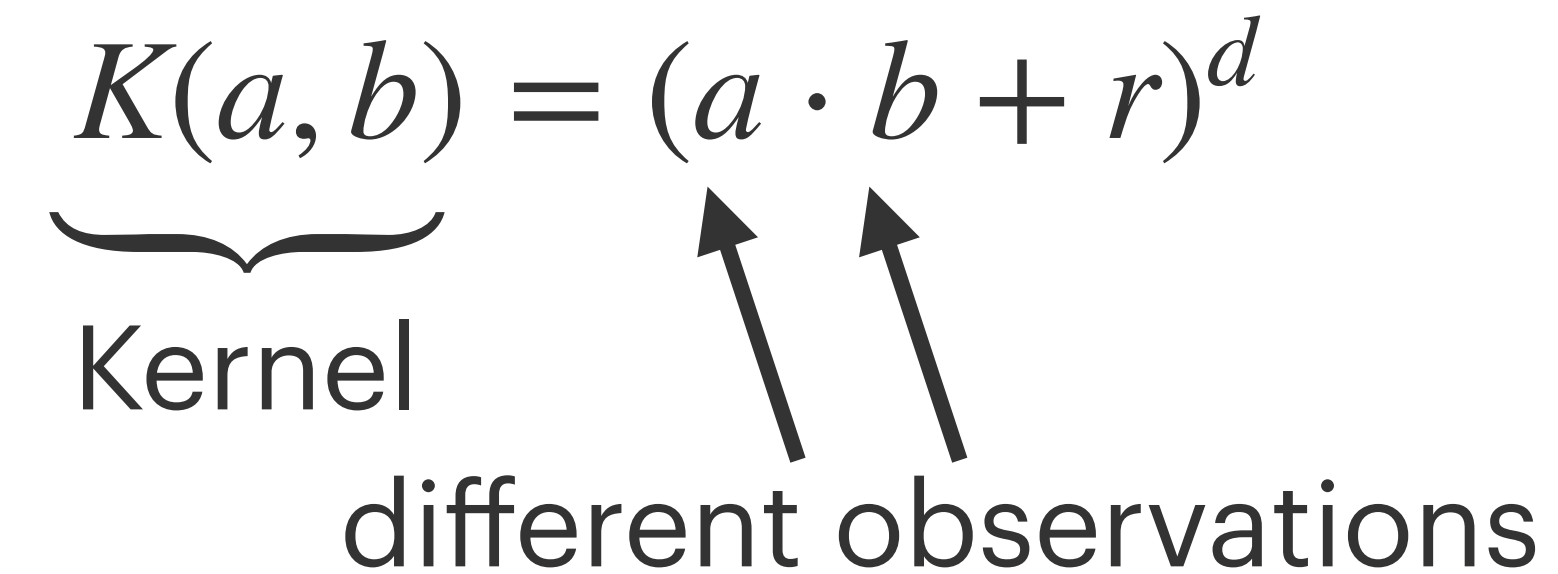


# The Polynomial Kernel

The **Polynomial Kernel** in the previous sleep vs. happiness example

$$\underbrace{K(a, b)}_{\text{Kernel}} = (a \cdot b + r)^d$$

different observations



where  $r$  is the coefficients and  $d$  the degree  
(determined by **cross validation**)