The Radial Kernel (RBF)

The **Radial Kernel**

$$K(a, b) = e^{-\gamma(a - b)^2}$$

projects to **infinite dimensional** space
works similar to nearest neighbors classifier
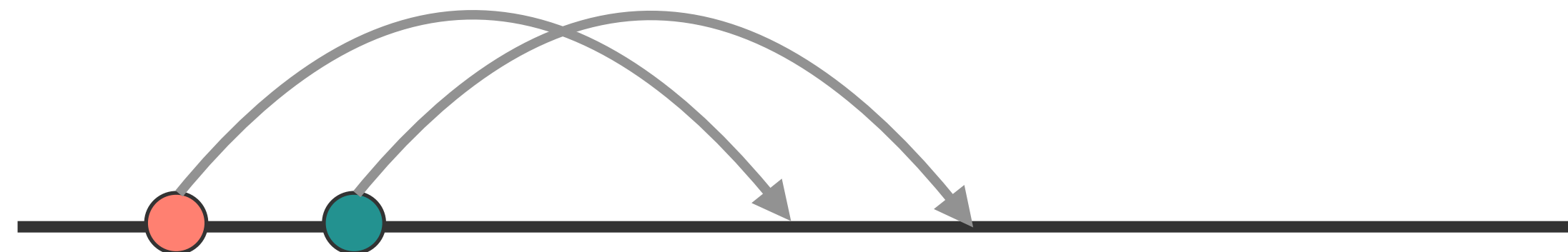
we can use the Polynomial Kernel to get the intuition
behind how Radial Kernel works in infinite dimensions

$$K(a, b) = (a \cdot b + r)^d$$

set $r = 0 \implies (a \cdot b)^d = a^d \cdot b^d$

set $d = 1 \implies (a) \cdot (b)$

set $d = 2 \implies (a^2) \cdot (b^2)$

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