

ADA BOOST Example

Let error = $\frac{1}{3}$

$$\frac{\text{error}}{1-\text{error}} = \frac{\frac{1}{3}}{2/3} = \frac{1}{2} \cdot \frac{3}{2} = \frac{1}{2}$$

~~down~~ correct weights go down (multiplied by $\frac{1}{2}$)

$$N = 4$$

$$\frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4}$$

$$\text{error} = \frac{1}{4} \quad \frac{1}{4} \cdot \frac{4}{3} = \frac{1}{3}$$

$$\frac{1}{12} \quad \frac{1}{12} \quad \frac{1}{4} \quad \frac{1}{12}$$

Normalize weights

$$\frac{3}{12} = \frac{1}{4} + \frac{1}{4} = \frac{1}{2} \quad \text{want} = 1$$

$$\text{so multiply by } \left(\frac{1}{2}\right)^{-1} = 2$$

$$\frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{2} \quad \frac{1}{6}$$