

Calculation of Cohen's Kappa

Formula:

$$K = \frac{(P_o - P_e)}{1 - P_e}, \text{ where}$$

P_o = observed agreement
 P_e = Expected agreement by chance.

In my dataset,

P_o (instances where both annotators agree / Total no. of instances)

$$= \frac{146}{150} = 0.9733 \approx 0.97$$

P_e (Calculating Probability of agreement by random chance)

$$P_{1no} = \frac{68}{150} = 0.4533$$

$$P_{1w} = \frac{82}{150} = 0.5466$$

$$P_{2no} = \frac{66}{150} = 0.44$$

$$P_{2w} = \frac{84}{150} = 0.56$$

$$\begin{aligned} &= (P_{1no} \cdot P_{2no}) + (P_{1w} \cdot P_{2w}) \\ &= (0.4533 \cdot 0.44) + (0.5466 \cdot 0.56) \\ &= 0.199452 + 0.306096 \\ &= 0.505548 \approx 0.50 \end{aligned}$$

$$\text{Thus, } K = \frac{0.97 - 0.50}{1 - 0.50} = \frac{0.47}{0.50}$$

$$= 0.94$$

So,

$$K = 0.94$$

for my dataset.

↪ Almost perfect