

1) Simplest possible classifier always chooses the class with highest probability: boats

\Rightarrow correct : 987
incorrect: 356 + 1

$$\Rightarrow \text{accuracy} = \frac{987}{987 + 356 + 1} = 0,734 = 73,4\%$$

$$2) \quad CM = \begin{pmatrix} 8 & 1 & 2 \\ 0 & 5 & 3 \\ 3 & 2 & 5 \end{pmatrix}$$

$$\text{accuracy} = \frac{\text{Sum of main diagonal}}{\text{Sum of all elements}} = \frac{8+5+5}{8+1+2+5+3+3+2+5} = \frac{18}{29} = 62.1\%$$

$$\text{precision}_0 = \frac{8}{8+3} = \frac{8}{11}$$

$$\text{precision}_1 = \frac{5}{5+1+2} = \frac{5}{8}$$

$$\text{precision}_2 = \frac{5}{5+2+3} = \frac{1}{2}$$

$$\text{recall}_0 = \frac{8}{8+1+2} = \frac{8}{11}$$

$$\text{recall}_1 = \frac{5}{5+3} = \frac{5}{8}$$

$$\text{recall}_2 = \frac{5}{5+2+3} = \frac{1}{2}$$

SpokenWordIndex is used as row-index in the confusion matrix.

The simplest possible classifier uses the index, with the highest row-sum, which is the 0-th row.

The accuracy for this case is:

$$\frac{11}{11+8+10} = \frac{11}{29} = 0.379 \approx \frac{1}{3} \Rightarrow \text{this dataset can be assumed to be balanced.}$$















