

Confusion Matrix

	Reference		
		ham	spam
Prediction	ham	a	b
	spam	c	d

a: TP (true positive)

b: FN (false positive)

c: FP (false negative)

d: TN (true negative)

Accuracy

Intuition – What percentage of the predictions were correct?

		Reference	
		ham	spam
Prediction	ham	a (TP)	b (FP)
	spam	c (FN)	d (TN)

$$\text{Accuracy} = \frac{TP+TN}{TP+FP+FN+TN} = \frac{a+d}{a+b+c+d}$$

Sensitivity

Intuition – What percentage of the ham messages were correctly predicted?

		Reference	
		ham	spam
Prediction	ham	a (TP)	b (FP)
	spam	c (FN)	d (TN)

$$\text{Sensitivity} = \frac{TP}{TP+FN} = \frac{a}{a+c}$$

Specificity

Intuition – What percentage of the spam messages were correctly predicted?

		Reference	
		ham	spam
Prediction	ham	a (TP)	b (FP)
	spam	c (FN)	d (TN)

$$\text{Specificity} = \frac{TN}{FP+TN} = \frac{d}{b+d}$$