



Evaluation Metrics

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More Evaluation Measures

Precision

Recall

F-measure

Confusion matrix

Confusion Matrix

Confusion matrix for two classes

- Examines results of the classifier on the test set. Compare the predicted labels against the ground truth.

		Predicted sentiment	
Actual sentiment		Positive	Negative
	Positive	a	b
	Negative	c	d

a: TP (true positive)

b: FN (false negative)

c: FP (false positive)

d: TN (true negative)

Precision, Recall, and f-Measure

Recall and precision for each class:

- $\text{Recall}_{\text{Class=Yes}} = a / a + b$, $\text{Recall}_{\text{Class=No}} = d / c + d$
- $\text{Precision}_{\text{Class=Yes}} = a / a + c$, $\text{Precision}_{\text{Class=No}} = d / b + d$
- $F_1\text{-measure} = 2/(1/P+1/R)=2PR/(P+R)$

	Predicted sentiment			
Actual sentiment		Positive	Negative	Recall
	Positive	a	b	$a/(a+b)$
	Negative	c	d	$d/(c+d)$
	Precision	$a/(a+c)$	$d/(b+d)$	

a: TP (true positive)

b: FN (false negative)

c: FP (false positive)

d: TN (true negative)

Confusion Matrix for Multi-Class

	Predicted sentiment			
		Positive	Negative	Neutral
Ground truth	Positive	a	b	e
	Negative	c	d	f
	Neutral	g	h	i