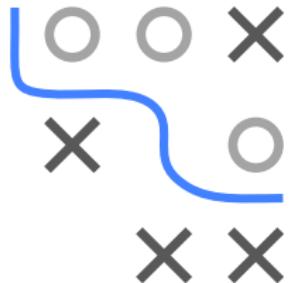


LABELS: ROC METRICS

Example:

		Actual Class y		
		Positive	Negative	
\hat{y} Pred.	Positive	True Positive (TP) = 20	False Positive (FP) = 180	Positive predictive value $= TP / (TP + FP)$ $= 20 / (20 + 180)$ $= 10\%$
	Negative	False Negative (FN) = 10	True Negative (TN) = 1820	Negative predictive value $= TN / (FN + TN)$ $= 1820 / (10 + 1820)$ $\approx 99.5\%$
		True Positive Rate $= TP / (TP + FN)$ $= 20 / (20 + 10)$ $\approx 67\%$	True Negative Rate $= TN / (FP + TN)$ $= 1820 / (180 + 1820)$ $= 91\%$	

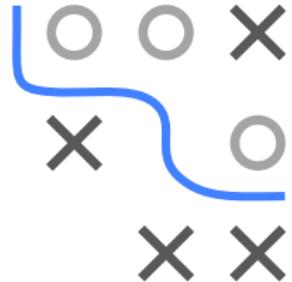


https://en.wikipedia.org/wiki/Receiver_operating_characteristic

MORE METRICS AND ALTERNATIVE TERMINOLOGY

Unfortunately, for many concepts in ROC, 2-3 different terms exist.

		True condition		Prevalence $= \frac{\sum \text{Condition positive}}{\sum \text{Total population}}$	Accuracy (ACC) = $\frac{\sum \text{True positive} + \sum \text{True negative}}{\sum \text{Total population}}$
Total population	Condition positive	Condition negative			
Predicted condition	Predicted condition positive	True positive, Power	False positive, Type I error	Positive predictive value (PPV), Precision = $\frac{\sum \text{True positive}}{\sum \text{Predicted condition positive}}$	False discovery rate (FDR) = $\frac{\sum \text{False positive}}{\sum \text{Predicted condition positive}}$
	Predicted condition negative	False negative, Type II error	True negative	False omission rate (FOR) = $\frac{\sum \text{False negative}}{\sum \text{Predicted condition negative}}$	Negative predictive value (NPV) = $\frac{\sum \text{True negative}}{\sum \text{Predicted condition negative}}$
True positive rate (TPR), Recall, Sensitivity, probability of detection = $\frac{\sum \text{True positive}}{\sum \text{Condition positive}}$		False positive rate (FPR), Fall-out, probability of false alarm = $\frac{\sum \text{False positive}}{\sum \text{Condition negative}}$	Positive likelihood ratio (LR+) = $\frac{\text{TPR}}{\text{FPR}}$	Diagnostic odds ratio (DOR) = $\frac{\text{LR}^+}{\text{LR}^-}$	$F_1 \text{ score} = \frac{1}{\frac{1}{\text{Recall}} + \frac{1}{\text{Precision}}} \cdot 2$
		False negative rate (FNR), Miss rate = $\frac{\sum \text{False negative}}{\sum \text{Condition positive}}$	Specificity (SPC), Selectivity, True negative rate (TNR) = $\frac{\sum \text{True negative}}{\sum \text{Condition negative}}$	Negative likelihood ratio (LR-) = $\frac{\text{FNR}}{\text{TNR}}$	



► Clickable version/picture source

► Interactive diagram