Specificity, Sensitivity, Precision & Recall

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Predicted** | | |
|  |  | No | Yes |  |
| **Actual** | No | TN | FP | Na |
| Yes | FN | TP | Pa |
|  | Np | Pp |  |

Specificity: , Proportion of *Actual Positives* Correctly Predicted

Sensitivity: , Proportion of *Actual Negatives Correctly Predicted*

1 – Sensitivity: , Proportion of Actual Negatives Incorrectly Predicted

Precision: , Proportion of Predicted Positives, correctly predicted.

Recall == Specificity

F = 2 \*

Recall/Specificity inform about FN. Recall = 1 🡪 0 FN, Recall = 0 🡪 0 TP (How many did we miss)

1 – Sensitivity informs about TN. 1 – Sensitivity = 1 🡪 0 TN, 1 – Sensitivity = 0 🡪 FP

Precision informs about FP. Precision = 1 🡪 0 FP, Recall = 0 🡪 0 TP (How many did we catch)

ROC: 0,0 🡪 Predict all N (0 TP, 0 FP, All in left column of confusion matrix)

* Specificity = 1 – Sensitivity = 0

1,1 🡪 Predict all P (0 FN, 0 TN, All in right column of confusion matrix)

* Specificity = 1 – Sensitivity = 1