



## Why

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### Definition

Given two classifiers  $G_1$  and  $G_2$  and a dataset, we can associate to each its false positive and false negative rate on the dataset. For a finite dataset, these are two rational numbers. It is natural to prefer  $G_1$  to  $G_2$  if the former has a smaller false positive rate. Conversely, it is natural to prefer  $G_2$  to  $G_1$  if the former has a smaller false negative rate. Unfortunately, one may need to trade-off these two desiderata (see **Combined Orders**), since there is no total order.

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<sup>1</sup>Future editions will include.



