Why

We name a predictor whose set of outputs is finite.

Definition

A *classifer* is a predictor whose codomain is a finite set. In the case that we call the predictor a classifier, we call the outputs *classes* or *labels* or *label set*. We call the prediction of a classifier on an input the *classification* of the input.

We call the classifier a *binary classifier* (some authors: *two-class classifier*) if the set of labels has two elements. In the case that there are k labels, we call the classifier a *k-way classifier*, *k-class classifier* or *multi-class classifier*. This second term is used, illogically but conventionally, in contrast to binary classification.

Let A be a set of inputs and let B be a set of labels (outputs). Suppose $B = \{0, 1\}$, so that, in particular B is finite. Then $f : A \to B$ is a binary classifier with labels 0 and 1. Suppose instead that $B = \{\text{YES}, \text{NO}, \text{MAYBE}\}$ In this case, we would call $f : A \to B$ a three-way classifier.

Other terminology

Following our terminology, but speaking of processes, some authors refer to the application of inductors for these special cases as *binary classification* and *multi-class classification*. Or they speak of *classification* or a *classification problem*.

Some authors refer to a classifier as a *discriminator* and reference *discrimination problems*. Some authors refer to a classifier as a *point classifier* since it makes one guess.[1]

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[1]Future editions may remove this. This term is used in contrast with list predictors, mentioned in subsequent sheets.

Classifiers

Inductors

Datasets

Sequences

Set Numbers Direct Products

Finite Sets

Equivalent Sets

Natural Order Function Inverses Family Unions and Intersections

Function Composites Function Images Families

Equivalence Relations Peano Axioms Functions

Relations Natural Induction

Cartesian Products

Set Powers Natural Numbers Generalized Set Dualities

Partitions Unordered Triples Successor Sets Intersection of Empty Set Set Dualities Set Unions and Intersections

Ordered Pairs Set Intersections Pair Unions Set Complements

Set Unions Set Differences Pair Intersections

Unordered Pairs Empty Set

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities Sets

Names

Letters Objects