



## Why

We sometimes use special language for a function inductor, which alludes to its similarities with “learning.”

## Definition

Let  $X$  and  $Y$  be sets and let  $\{G_n : (X \times Y)^n \rightarrow X \times Y^*\}_{n \in \mathbf{N}}$  be a family of functional inductors. A predictor can be used to “guess” inputs which do not necessarily appear in the dataset. For this reason, some authors call an inductor (or family of inductors) a *learner* or *learning algorithm*. In accordance with this usage, they refer to the argument of an inductor as the *training data* or *training dataset* or *training set*. As with our terminology dataset, the word “set”, however, may mislead since we are speaking of a sequence.

It is common to refer to the construction a predictor from a dataset a *learning problem*. In this case, the learning problem is said to be *supervised learning*. By supervision, we mean to indicate that we have the outputs corresponding to the inputs. In line with this usage, the outputs are often called *labels* and the labels are said “to provide supervision.”



