Why

It is natural to want to infer a relation which is consistent with the dataset.

Definition

Let $(x_1, y_1), \ldots, (x_n, y_n)$ be a dataset in $X \times Y$. Let $\mathcal{R}$ be the set of all relations on $X \times Y$.

A *consistent inductor* $\{G_n : (X \times Y)^n \to \mathcal{R}\}_n$ is one for which, for all $n \in \mathbb{N}$, for all $D_n \in (X \times Y)^n$, D is consistent with $G_n(D_n)$. In other words, a consistent inductor always produces a relation with which the dataset is consistent.

The interpretation follows. Fix a relation $R^\star$. And let every dataset "shown" to the algorithm G_n be constructed by selecting elements from $R^\star$. In other words, every dataset is a sequence in $R^\star$.

Consistent Inductors

Inductors

Datasets

Sequences

Direct Products

Set Numbers

Finite Sets

Equivalent Sets

Family Unions and Intersections

Natural Order

Function Inverses

Families

Function Composites

Function Images

Peano Axioms

Functions

Equivalence Relations

Natural Induction

Relations

Cartesian Products

Generalized Set Dualities

Natural Numbers

Set Powers

Set Dualities

Set Unions and Intersections

Intersection of Empty Set

Successor Sets

Unordered Triples

Partitions

Set Complements

Pair Unions

Set Intersections

Ordered Pairs

Set Differences

Pair Intersections

Set Unions

Empty Set

Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects