Why

In general, a dataset may be both incomplete and inconsistent.

Why

Let $(Z, \mathcal{Z})$ be a measurable space. Let $\mathcal{M}(Z, \mathcal{Z})$ be the set of measures over $(Z, \mathcal{Z})$. A *probabilistic inductor* for a dataset in Z^n is a function mapping Z^n to $\mathcal{M}(Z, \mathcal{Z})$.

Suppose $(Z, \mathcal{Z}) = (X \times Y, \mathcal{X} \times \mathcal{Y})$ for measurable spaces $(X, \mathcal{X})$ and $(Y, \mathcal{Y})$. Then a probabilistic inductor yields a probabilistic functional inductor. The conditional measure on Y given an observation $x \in X$ is exactly a family of measures indexed by X.

Probabilistic Inductors

Probabilistic Dataset Models • Probabilistic Functional Inductors

Probability Measures • Induction

Measures • Sigma Algebras • Datasets

Real Series • Extended Real Numbers

Real Limits

Event Probabilities • Absolute Value

Probability Distributions • Interval Length

Intervals

Real Line

Real Summation • Real Order • Real Sequences

Real Numbers • Rational Order • Sequences

Integral Line • Rational Numbers • Natural Summation

Integer Arithmetic • Subset Algebras • Lists

Natural Additive Identity • Natural Multiplicative Identity • Family Operations • Set Operations • Cardinality • Set Numbers

Integer Products • Arithmetic • Identity Elements • Algebra • Operations • Equivalent Sets • Finite Sets • Direct Products

Natural Powers • Function Inverses • Family Unions and Intersections

Natural Products • Integer Sums • Integer Order • Comparisons • Function Composition • Function Images • Families

Natural Sums • Integer Numbers • Orders • Converse Relations • Equivalence Relations • Functions

Recursion Theorem • Natural Order • Peano Axioms • Relations

Uncertain Outcomes • Natural Induction • Set Products • Subset Systems

Natural Numbers • Set Powers • Ordered Pairs • Generalized Set Dualities

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

Set Complements • Pair Unions • Set Intersections

Set Differences • Set Unions • Pair Intersections

Empty Set • Unordered Pairs

Geometry • Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Sets • Identities

Names

Letters • Objects