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

Inductors Probability Measures

Measure

Datasets Extended Real Numbers

Sigma Algebras

Real Limits

Event Probabilities Absolute Value

Probability Distributions Interval Length

Intervals

Real Line

Real Summation Real Sequences Real Order

Real Numbers

Rational Numbers Integral Line

Integer Arithmetic

Sequences

Direct Products Set Numbers Natural Multiplicative Identity Natural Additive Identity

Natural Summation Finite Sets Arithmetic Identity Elements

Family Operations Equivalent Sets Integer Products Natural Powers

Function Inverses Family Unions and Intersections Integer Sums Algebras Natural Products Comparisons Set Operations

Families Function Images Function Composites Natural Sums Integer Numbers Operations Orders

Functions Natural Order Recursion Theorem Equivalence Relations Converse Relations

Peano Axioms Relations Cardinality

Uncertain Outcomes Natural Induction Set Products Subset Systems

Generalized Set Dualities Natural Numbers Set Powers Ordered Pairs

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

Set Intersections Pair Unions Set Complements

Pair Intersections Set Differences Set Unions

Empty Set Unordered Pairs

Subset Algebra

Set Specification Geometry

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities Sets

Names

Letters Objects

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