Why

We want to select a distribution graph to summarize some data.

Definition

Let (G, A) be a typed graph on $\{1, \ldots, n\}$. Let $S \subset \{1, \ldots, n\}$. Let $x^1, \ldots, x^n$ be a dataset in $A_S = \prod_{j \in S} A_j$ (see Function Graphs).

A *distribution graph selector* for typed graph (G, A), dataset of size n, and indices $S \subset \{1, \ldots, n\}$ is a function from datasets of size n in A_S to distribution graphs on (G, A).

In the case that $S \neq \{1, \ldots, n\}$ we call S the *observable* (or *data*) indices and $T = \{1, \ldots, n\} - S$ the *hidden* (or *latent*, *nonobservable*) indices. It is common for many authorities to use the notational convention Z for A_T and X for A_S.

Let $p : \prod_i A_i \to [0, 1]$ denote the full joint distribution of a distribution graph. In this case, we call $p_S : A_S \to [0, 1]$ the *observable distribution* (or *evidence distribution*).


Distribution Graph Selectors
Parameterized Distribution Graphs
Parameterized Distributions
Distribution Families
Probability Densities
Real Integrals
Nonnegative Integrals
Simple Integrals
Distribution Graphs
Directed Graph Distributions
Hidden Memory Chains
Rooted Tree Distributions
Memory Chains
Index Lists
Conditional Distributions
Measurable Functions
Measures
Marginal Distributions
Conditional Event Probabilities
Sigma Algebras
Maximum Likelihood Distributions
Joint Distributions
Real Series
Extended Real Numbers
Probability Distributions
Event Probabilities
Real Limits
Optimizers
Outcome Probabilities
Absolute Value
Simple Functions
Typed Graphs
Rooted Trees
Real Functions
Interval Length
Directed Graphs
Trees
Real Sequences
Intervals
Real Summation
Sequences
Size of Direct Product
Natural Summation
Real Line
Undirected Paths
Subset Algebras
Unlimited Graphs
Number of Set Products
Real Order
Direct Products
Finite Set Examples
Continuity
Number of Disjoint Unions
Real Numbers
Natural Order
Set Numbers
Natural Numbers
Integral Line
Finite Sets
Natural Functions
Integer Arithmetic
Equivalent Sets
Natural Multiplication Identity
Natural Additive Identity
Integer Products
Family Unions and Intersections
Countable Unions
Family Operations
Uncertain Events
Comparison
Integer Order
Natural Arithmetic
Identity Elements
Integer Sums
Function Composites
Function Graphs
Families
Orders
Operations
Natural Powers
Integer Numbers
Functions
Natural Orders
Equivalence Relations
Converse Relations
Natural Products
Relations
Natural Sums
Induction Theorems
Geometry
Uncertain Outcomes
Ordered Pair Projections
Plane Axioms
Subset Systems
Set Products
Characteristic Functions
Natural Induction
Generalized Set Dualities
Ordered Pairs
Set Powers
Natural Numbers
Set Unions and Intersections
Set Dualities
Unordered Triples
Intersection of Empty Set
Increment Sets
Partitions
Set Symmetric Differences
Pair Unions
Set Intersections
Set Complements
Pair Intersections
Set Unions
Set Differences
Empty Set
Unordered Pairs
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects