Why

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

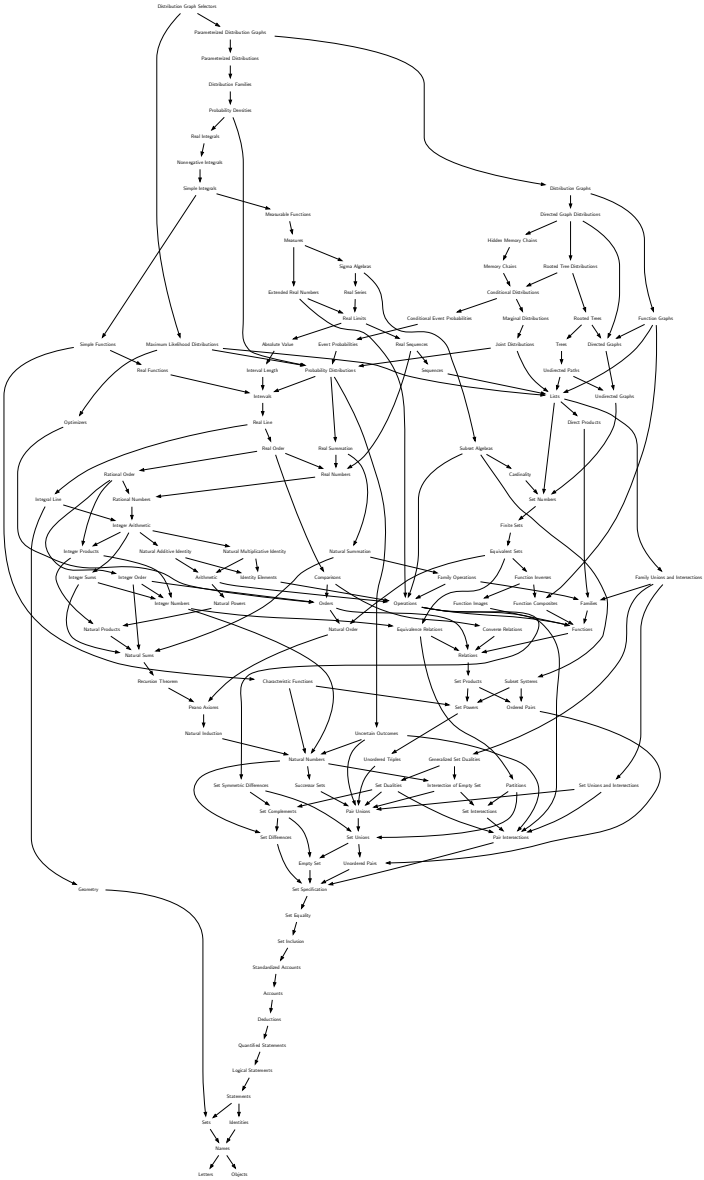
Definition

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
Measurable Functions
Measures
Hidden Memory Chains
Memory Chains
Rooted Tree Distributions
Sigma Algebras
Extended Real Numbers
Real Series
Conditional Distributions
Simple Functions
Maximum Likelihood Distributions
Real Limits
Conditional Event Probabilities
Marginal Distributions
Rooted Trees
Function Graphs
Absolute Value
Event Probabilities
Real Sequences
Joint Distributions
Trees
Directed Graphs
Real Functions
Interval Length
Probability Distributions
Sequences
Undirected Pairs
Intervals
Lists
Undirected Graphs
Optimizers
Real Line
Direct Products
Real Order
Real Summation
Subset Algebras
Rational Order
Real Numbers
Continuity
Integral Line
Rational Numbers
Set Relations
Finite Sets
Integer Arithmetic
Equivalent Sets
Integer Products
Natural Additive Identity
Natural Multiplication Identity
Natural Summation
Family Operations
Function Inverses
Family Unions and Intersections
Integer Sums
Integer Order
Arithmetic
Identity Elements
Comparisons
Operations
Function Images
Function Composites
Families
Integer Numbers
Natural Powers
Orders
Natural Products
Natural Order
Equivalence Relations
Concrete Relations
Functions
Natural Sums
Relations
Recursion Theorem
Characteristic Functions
Set Products
Subset Systems
Peano Axioms
Set Powers
Ordered Pairs
Natural Induction
Uncertain Outcomes
Natural Numbers
Unordered Triples
Generalized Set Dualities
Set Symmetric Difference
Successor Sets
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 Equality
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Nouns
Lenses
Objects