Why

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

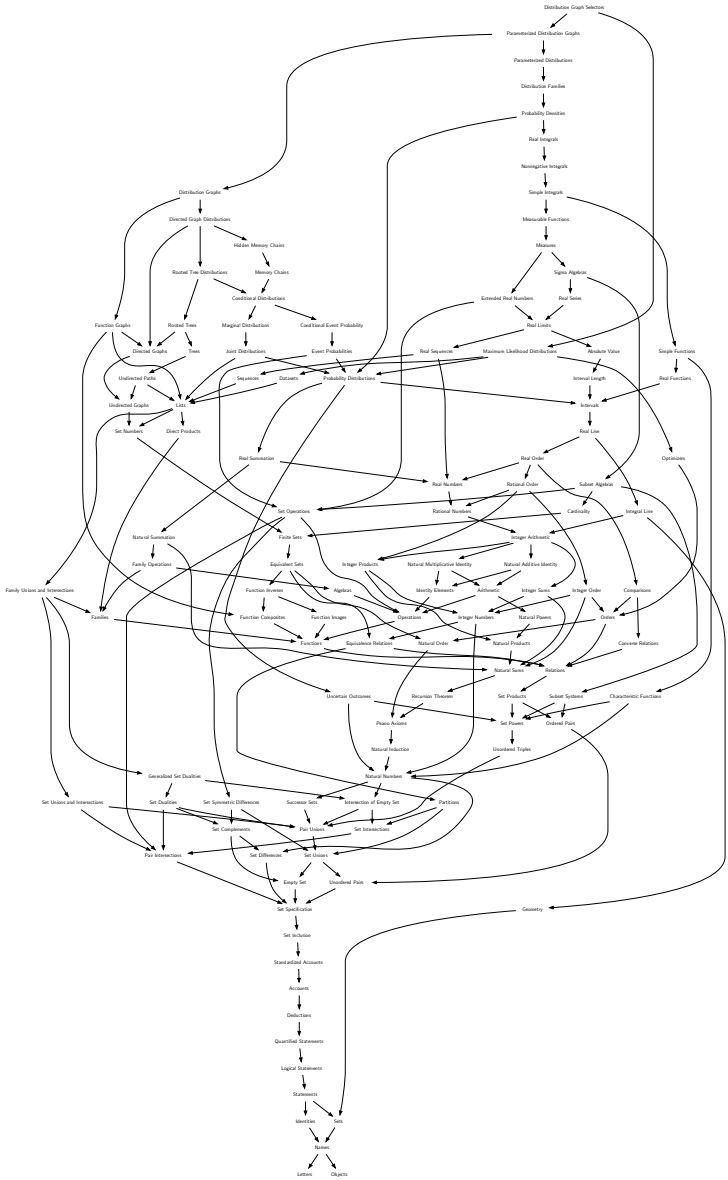
Definition

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 Selection
Parameterized Distribution Graphs
Parameterized Distributions
Distribution Families
Probability Densities
Real Integrals
Nonnegative Integrals
Simple Integrals
Measurable Functions
Measures
Sigma Algebras
Distribution Graphs
Directed Graph Distributions
Hidden Memory Chains
Memory Chains
Rooted Tree Distributions
Conditional Distributions
Extended Real Numbers
Real Series
Function Graphs
Rooted Trees
Marginal Distributions
Conditional Event Probability
Real Limits
Directed Graphs
Trees
Joint Distributions
Event Probabilities
Real Sequences
Maximum Likelihood Distributions
Absolute Value
Simple Functions
Undirected Paths
Lists
Sequences
Datasets
Probability Distributions
Interval Length
Real Functions
Undirected Graphs
Intervals
Set Numbers
Direct Products
Real Line
Real Summation
Real Order
Opinions
Real Numbers
Rational Order
Subset Algebras
Set Operations
Rational Numbers
Cardinality
Integral Line
Natural Summation
Finite Sets
Integer Arithmetic
Family Operations
Equivalent Sets
Integer Products
Natural Multiplicative Identity
Natural Additive Identity
Family Unions and Intersections
Function Inverses
Algebras
Identity Elements
Arithmetic
Integer Sums
Integer Order
Comparisons
Families
Function Composites
Function Images
Operations
Integer Numbers
Natural Powers
Orders
Functions
Equivalence Relations
Natural Order
Natural Products
Converse Relations
Natural Series
Relations
Uncertain Outcomes
Recursion Theorem
Set Products
Subset Systems
Characteristic Functions
Peano Axioms
Set Powers
Ordered Pairs
Natural Induction
Unordered Triples
Natural Numbers
Generalized Set Dualities
Set Unions and Intersections
Set Dualities
Set Symmetric Differences
Successor Sets
Intersection of Empty Set
Partitions
Pair Unions
Set Complements
Set Intersections
Pair Intersections
Set Differences
Set Unions
Empty Set
Unordered Pairs
Set Specification
Geometry
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects