Why

I am doing a homework on this.

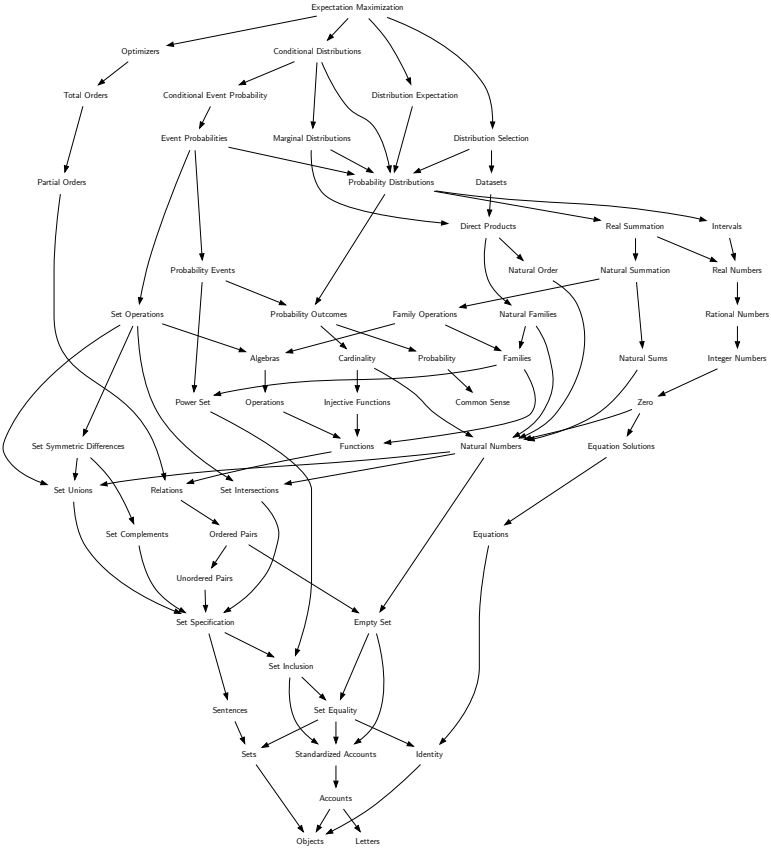
Definition

Let Z and X be non-empty finite sets. We want to model a distribution $p^\theta : Z \times X \to \mathbf{R}$. We parameterize a family of distributions by a parameter θ. We have a dataset $(x^1, \ldots, x^n)$. Given a parameter θ^0, we want to solve

$$\begin{aligned} \textbf{find} \quad & \theta \\ \textbf{to maximize} \quad & \sum_{k=1}^{n} \mathbf{E}_{p^{\theta^0}_{z|x}(z,x^k)} \left[\log p^\theta(z,x)\right] \end{aligned}$$

0.1 Binary Gaussian Mixture Example

The


Expectation Maximization
Optimizers
Conditional Distributions
Total Orders
Conditional Event Probability
Distribution Expectation
Event Probabilities
Marginal Distributions
Distribution Selection
Partial Orders
Probability Distributions
Datasets
Direct Products
Real Summation
Intervals
Probability Events
Natural Order
Natural Summation
Real Numbers
Set Operations
Probability Outcomes
Family Operations
Natural Families
Rational Numbers
Algebras
Cardinality
Probability
Families
Natural Sums
Integer Numbers
Power Set
Operations
Injective Functions
Common Sense
Zero
Set Symmetric Differences
Functions
Natural Numbers
Equation Solutions
Set Unions
Relations
Set Intersections
Set Complements
Ordered Pairs
Equations
Unordered Pairs
Set Specification
Empty Set
Set Inclusion
Sentences
Set Equality
Sets
Standardized Accounts
Identity
Accounts
Objects
Letters