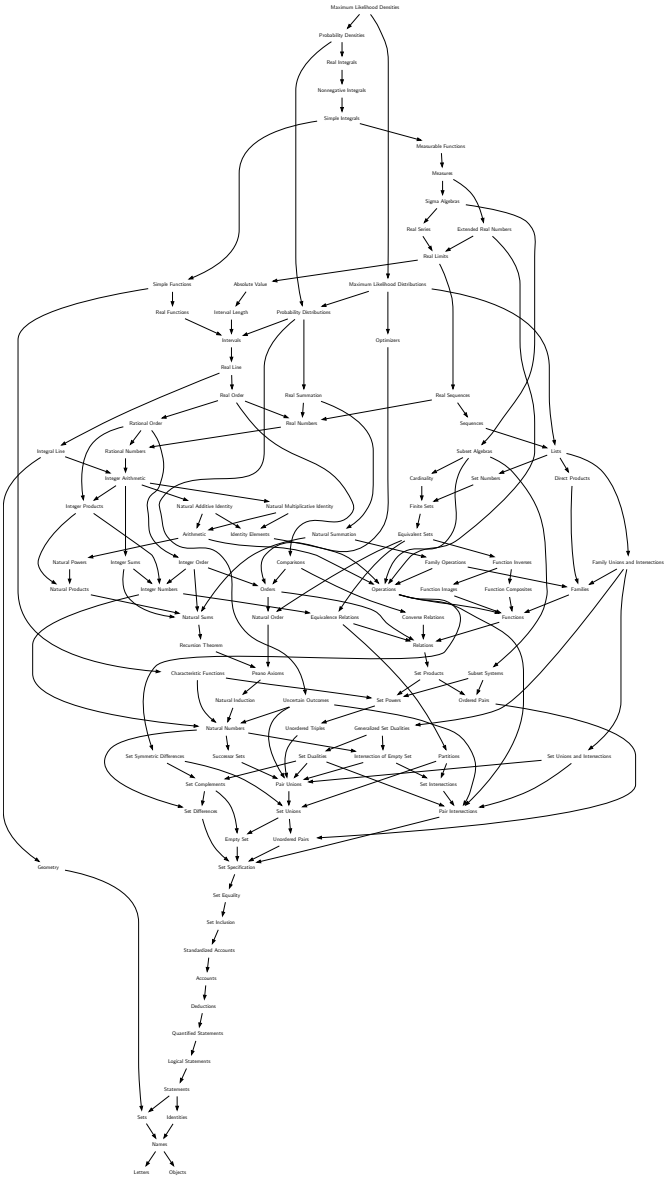
Why

We want to summarize a dataset in $\mathbf{R}$ with a density.

Definition

The *likelihood* (or *density likelihood*) of a density $f : \mathbf{R} \to \mathbf{R}$ on a datset $x^1, \ldots, x^n \in \mathbf{R}$ is $\prod_{k=1}^{n} f(x^k)$. A *maximum likelihood density* is a density which maximizes the likelihood among all densities.

As with probability distributions, we say that we are selecting the distribution according to the *maximum likelihood principle*. In general, we call any function from datasets to densities a *density selector*.


Maximum Likelihood Densities
Probability Densities
Real Integrals
Nonnegative Integrals
Simple Integrals
Measurable Functions
Measures
Sigma Algebras
Real Series
Extended Real Numbers
Real Limits
Simple Functions
Absolute Value
Maximum Likelihood Distributions
Real Functions
Interval Length
Probability Distributions
Intervals
Optimizers
Real Line
Real Order
Real Summation
Real Sequences
Rational Order
Real Numbers
Sequences
Integral Line
Rational Numbers
Subset Algebras
Lists
Image Arithmetic
Cardinality
Set Numbers
Direct Products
Image Products
Natural Additive Identity
Natural Multiplication Identity
Finite Sets
Arithmetic
Identity Elements
Natural Summation
Equivalent Sets
Natural Powers
Integer Sums
Integer Order
Comparisons
Family Operations
Function Inverses
Family Unions and Intersections
Natural Products
Integer Numbers
Orders
Operations
Function Images
Function Composites
Families
Natural Sums
Natural Order
Equivalence Relations
Convene Relations
Functions
Recursion Theorem
Relations
Characteristic Functions
Peano Axioms
Set Products
Subset Systems
Natural Induction
Uncertain Outcomes
Set Powers
Ordered Pairs
Natural Numbers
Unordered Triples
Generalized Set Dualities
Set Symmetric Differences
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
Names
Letters
Objects