Why

We want a notion of entropy for continuous random variables.

Definition

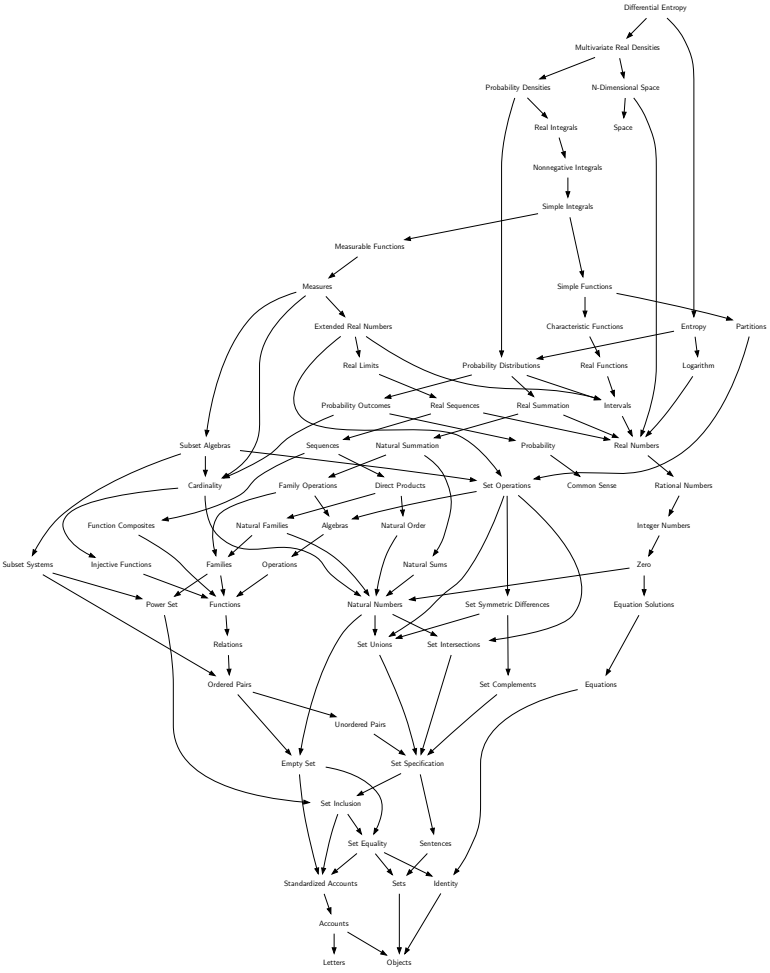
The *relative entropy* of a probability density function is the integral of the density against the negative log of the density.

Notation

Let R denote the set of real numbers. Let $f : R^n \to R$ be a probability density function. The differential entropy of f is

$$-\int f \log f$$

We denote the differential entropy of f by $h(f)$.


Differential Entropy
Multivariate Real Densities
Probability Densities
N-Dimensional Space
Real Integrals
Space
Nonnegative Integrals
Simple Integrals
Measurable Functions
Measures
Simple Functions
Extended Real Numbers
Characteristic Functions
Entropy
Partitions
Real Limits
Probability Distributions
Real Functions
Logarithm
Probability Outcomes
Real Sequences
Real Summation
Intervals
Subset Algebras
Sequences
Natural Summation
Probability
Real Numbers
Cardinality
Family Operations
Direct Products
Set Operations
Common Sense
Rational Numbers
Function Composites
Natural Families
Algebras
Natural Order
Integer Numbers
Subset Systems
Injective Functions
Families
Operations
Natural Sums
Zero
Power Set
Functions
Natural Numbers
Set Symmetric Differences
Equation Solutions
Relations
Set Unions
Set Intersections
Ordered Pairs
Set Complements
Equations
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Set Equality
Sentences
Standardized Accounts
Sets
Identity
Accounts
Letters
Objects