Why

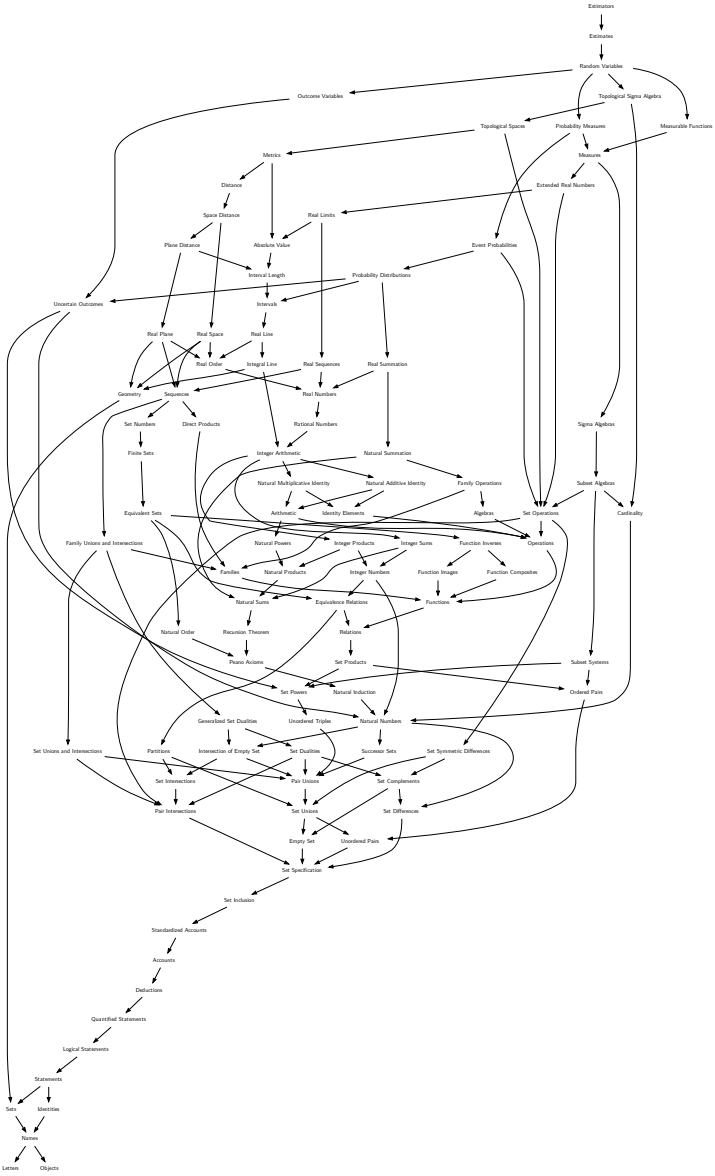
We have studied guessing random variables (see Estimates). What if we can use another random variable in making our estimate?

Definition

Let $(\Omega, \mathcal{A}, \mathsf{P})$ be a probability space. Let U, V be sets. Let $x : \Omega \to V$ and let $y : \Omega \to U$. An *estimator* or *predictor* for x given y is a function from U to V. An estimate, then, corresponds to a constant estimator, and vice versa. Some authors call the selection of an estimator *estimation* or an *estimation problem*.

Error function

An error function is a function $e : U \times V \to \mathsf{R}$ which quantifies the cost of an error.


Estimators
Estimates
Random Variables
Outcome Variables
Topological Sigma Algebra
Topological Spaces
Probability Measures
Measurable Functions
Metrics
Measures
Distance
Extended Real Numbers
Space Distance
Real Limits
Plane Distance
Absolute Value
Event Probabilities
Interval Length
Probability Distributions
Uncertain Outcomes
Intervals
Real Plane
Real Space
Real Line
Real Order
Integral Line
Real Sequences
Real Summation
Geometry
Sequences
Real Numbers
Set Numbers
Direct Products
Rational Numbers
Sigma Algebras
Finite Sets
Integer Arithmetic
Natural Summation
Natural Multiplicative Identity
Natural Additive Identity
Family Operations
Subset Algebras
Arithmetic
Identity Elements
Algebras
Set Operations
Cardinality
Equivalent Sets
Family Unions and Intersections
Natural Powers
Integer Products
Integer Sums
Function Inverses
Operations
Families
Natural Products
Integer Numbers
Function Images
Function Composites
Natural Sums
Equivalence Relations
Functions
Natural Order
Recursion Theorem
Relations
Peano Axioms
Set Products
Subset Systems
Set Powers
Natural Induction
Ordered Pairs
Generalized Set Dualities
Unordered Triple
Natural Numbers
Set Unions and Intersections
Partitions
Intersection of Empty Set
Set Dualities
Successor Sets
Set Symmetric Differences
Set Intersections
Pair Unions
Set Complements
Pair Intersections
Set Unions
Set Differences
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects