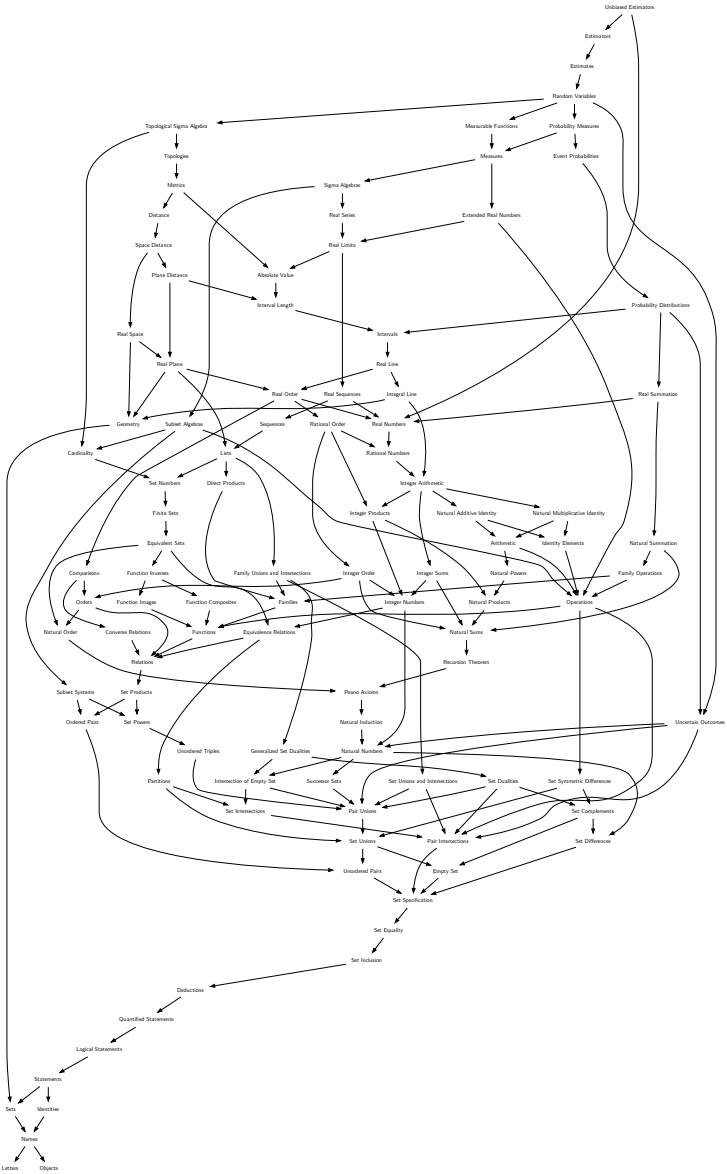
Definition

Consider a random variable $x : \Omega \to \mathbf{R}^n$. The error of the estimate $\xi \in \mathbf{R}^n$ is the random variable $e : \Omega \to \mathbf{R}^n$ which is defined by $e(\omega) = x(\omega) - \xi$. The *bias* of an estimate is the expected value of the error. An estimate is *unbiased* if it has zero bias.

Likewise, if we have another random variable $y : \Omega \to \mathbf{R}^m$, then the error of the estimator $f : \mathbf{R}^m \to \mathbf{R}^n$ is the random variable $e : \Omega \to \mathbf{R}^n$ defined by $e(\omega) = f(x(\omega)) - y(\omega)$.


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