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
Measurable Functions
Probability Measures
Topological Sigma Algebra
Measures
Topologies
Sigma Algebras
Metrics
Extended Real Numbers
Real Series
Distance
Event Probabilities
Real Limits
Space Distance
Outcome Probabilities
Absolute Value
Plane Distance
Real Functions
Interval Length
Intervals
Real Space
Real Line
Real Plane
Size of Direct Product
Real Sequences
Real Summation
Real Order
Integral Line
Subset Algebras
Sequences
Natural Summation
Number of Set Products
Real Numbers
Rational Order
Geometry
Finite Set Examples
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Number of Disjoint Unions
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Direct Products
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Integer Arithmetic
Finite Sets
Natural Multiplicative Identity
Natural Additive Identity
Integer Products
Uncertain Events
Family Operations
Equivalent Sets
Identity Elements
Arithmetic
Operations
Function Inverses
Natural Powers
Integer Sums
Comparisons
Integer Order
Family Unions and Intersections
Families
Function Images
Function Compositions
Natural Products
Integer Numbers
Orders
Functions
Equivalence Relations
Natural Order
Natural Sums
Converse Relations
Relations
Relation Theorems
Uncertain Outcomes
Ordered Pair Projections
Plane Axioms
Subset Systems
Set Products
Natural Induction
Ordered Pairs
Generalized Set Duality
Set Powers
Natural Numbers
Set Unions and Intersections
Set Duality
Unordered Triples
Successor Sets
Intersection of Empty Set
Set Symmetric Differences
Partitions
Pair Unions
Set Intersections
Set Complements
Pair Intersections
Set Unions
Set Differences
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
States
Letters
Objects