## Why

[1]

## 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 $e(\omega) = f(x(\omega)) - y(\omega)$.

[1] Future editions will include an account.

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