Why

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

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[1]Future editions will include an account.

Unbiased Estimators

Estimation

Estimates

Random Variables

Measurable Functions Probability Measures Topological Sigma Algebra

Measures Event Probabilities Topological Spaces

Sigma Algebras

Extended Real Numbers Real Series

Metrics Distance

Real Limits

Space Distance

Absolute Value Plane Distance

Probability Distributions Interval Length

Intervals Real Space

Real Line Real Plane

Real Sequences Real Summation Real Order Integral Line

Real Numbers Geometry

Rational Order

Sequences Rational Numbers

Subset Algebras Limits Integer Arithmetic

Cardinality Set Numbers Natural Multiplicative Identity Natural Additive Identity

Finite Sets Identity Elements Arithmetic Integer Products

Direct Products Equivalent Sets Natural Summation Natural Power

Function Inverses Family Operations Comparisons Family Unions and Intersections Integer Order Integer Sums Natural Products

Operations Function Images Function Composites Families Orders Integer Numbers Natural Sums

Functions Converse Relations Equivalence Relations Natural Order Recursion Theorem

Relations Peano Axioms

Subset Systems Set Products Natural Induction Uncertain Outcomes

Ordered Pairs Set Powers Generalized Set Dualities Natural Numbers

Set Symmetric Differences Set Dualities Unordered Triples Successor Sets Partitions Intersection of Empty Set Set Unions and Intersections

Set Complements Pair Unions Set Intersections

Set Unions Set Differences Pair Intersections

Empty Set Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities Sets

Names

Letters Objects