Why

Definition

The *correlation* between two integrable real-valued random variables with non-zero variance is the quotient of their covariance with the product of their standard deviations.

Two integrable real-valued random variables are *uncorrelated* if their covariance is zero. We can speak of uncorrelated random variables who have zero variance, although in this case their correlation is undefined.

Notation

Let f and g be two integrable real-valued random variables with fg integrable. Denote the correlation of f with g by $\mathrm{cor}(f, g)$. We defined it:

$$\mathrm{cor}(f, g) = \frac{\mathrm{cov}(f, g)}{\mathrm{std}\, f \,\mathrm{std}\, g}.$$

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[1]Future editions will include this.

Correlation

Standard Deviation

Covariance

Variance

Expectation

Random Variables

Probability Measure · Measurable Functions · Topological Sigma Algebra

Measure

Topological Spaces

Event Probabilities

Sigma Algebras

Metrics

Real Square Roots

Real Series · Extended Real Numbers

Distance

Real Square

Real Limits

Space Distance

Real Arithmetic

Absolute Value

Plane Distance

Real Multiplicative Inverse

Probability Distributions

Interval Length

Real Products

Intervals

Real Space

Real Additive Inverse

Rational Multiplication Inverse · Rational Arithmetic · Real Sums · Real Sequences · Real Summation · Real Order · Integral Line

Real Line

Real Plane

Rational Products · Rational Sums · Real Numbers · Rational Order

Sequences

Geometry

Rational Numbers

Subset Algebra

Integer Arithmetic

Lists

Cardinality · Set Numbers · Direct Products

Integer Products

Natural Additive Identity · Natural Multiplicative Identity

Finite Sets · Natural Summation · Inverse Elements

Natural Square Roots

Arithmetic · Identity Elements · Equivalent Sets · Element Functions · Family Operations

Square Numbers

Integer Sums · Natural Powers · Integer Order · Natural Equations · Family Unions and Intersections · Operations · Function Inverses · Comparison

Square

Integer Numbers · Natural Products · Natural Sums · Natural Order · Orders · Equations · Function Composites · Function Images · Families

Equivalence Relations

Functions · Converse Relations

Recursion Theorem

Relations

Peano Axioms

Set Products · Subset Systems

Uncertain Outcomes · Natural Induction

Set Powers · Ordered Pairs

Natural Numbers

Generalized Set Dualities · Unordered Triples

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

Set Intersections

Pair Unions · Set Complements

Pair Intersections

Set Differences · Set Unions

Empty Set · Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities · Sets

Names

Letters · Objects