Why

Definition

The mutual information of a joint distribution over two random variables is the entropy of the product of the marginal distributions relative to the joint distribution.

Notation

Let R be the set of real numbers. Let A and B be two nonempty sets. Let $p : A \times B \to R$ be a distribution.

Mutual Information

Relative Entropy

Similarity Functions

Metrics

Distance

Space Distance

Absolute Value

Plane Distance

Entropy

Cross Entropy

Interval Length

Probability Distributions

Logarithm

Intervals

Real Space

Real Plane

Real Line

Integral Line

Real Order

Real Summation

Geometry

Real Numbers

Rational Numbers

Sequence

Natural Summation

Integer Arithmetic

Direct Products

Set Numbers

Family Operations

Natural Additive Identity

Natural Multiplicative Identity

Finite Sets

Algebras

Identity Elements

Arithmetic

Equivalent Sets

Operations

Natural Exponents

Integer Products

Family Unions and Intersections

Function Inverses

Natural Products

Integer Sums

Families

Function Composites

Function Images

Functions

Equivalence Relations

Natural Order

Recursion Theorem

Natural Sums

Integer Numbers

Relations

Peano Axioms

Cartesian Products

Natural Induction

Uncertain Outcomes

Generalized Set Dualities

Set Powers

Natural Numbers

Set Dualities

Set Unions and Intersections

Unordered Triples

Intersection of Empty Set

Successor Sets

Partitions

Set Complements

Ordered Pairs

Pair Unions

Set Intersections

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