Definition

Given a probability space $(\Omega, \mathcal{F}, \mathbf{P})$, a sequence of $\mathcal{G}_1, \ldots, \mathcal{G}_n$ of sub-σ-algebras of $\mathcal{F}$, are *independent* if

$$\mathbf{P}(A_1 \cap A_2 \cap \cdots A_n) = \prod_{i=1}^{n} \mathbf{P}(A_i)$$

for any $A_1 \in \mathcal{G}_1$, $A_2 \in \mathcal{G}_2$, ..., $A_n \in \mathcal{G}_n$. A family $\{\mathcal{G}_i\}_{i \in I}$ is a family of sub-σ-algebras of $\mathcal{F}$ is *independent* if any finitely many of them are independent.

Independent Sigma Algebras

Dependent Events

Probability Measures

Conditional Event Probabilities

Measures

Sigma Algebras

Real Series

Extended Real Numbers

Real Limits

Event Probabilities

Absolute Value

Probability Distributions

Interval Length

Outcome Probabilities

Intervals

Real Summation

Real Line

Real Order

Real Sequences

Rational Order

Real Number

Sequences

Natural Summation

Subset Algebras

Integral Line

Rational Numbers

Lists

Cardinality

Integer Arithmetic

Direct Products

Set Numbers

Integer Products

Natural Multiplicative Identity

Natural Additive Identity

Finite Sets

Arithmetic

Identity Elements

Equivalent Sets

Family Operations

Uncertain Events

Integer Sums

Integer Order

Natural Powers

Comparisons

Family Unions and Intersections

Function Inverses

Operations

Integer Numbers

Natural Products

Orders

Familiar

Function Composite

Function Image

Natural Sums

Converse Relations

Equivalence Relations

Natural Order

Functions

Recursion Theorem

Relations

Peano Axioms

Uncertain Outcomes

Ordered Pair Projections

Natural Induction

Set Products

Subset Systems

Natural Numbers

Generalized Set Dualities

Set Powers

Ordered Pairs

Partitions

Set Unions and Intersections

Successor Sets

Intersection of Empty Set

Unordered Triples

Set Dualities

Set Symmetric Differences

Set Intersections

Pair Unions

Pair Intersections

Set Differences

Set Unions

Set Complements

Empty Set

Unordered Pairs

Set Specification

Geometry

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Sets

Identities

Names

Letters

Objects