Why

Given that we know that one event has occured, we want language for what the new probabilities should be.[1]

Definition

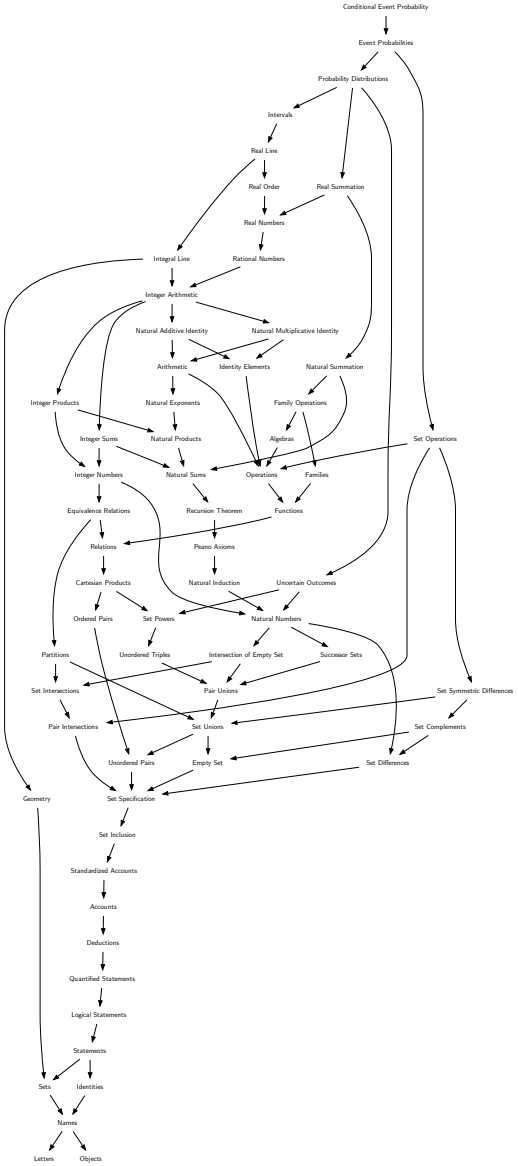
Consider two events, the second of which has non-zero probability. The *conditional probability* of the first event *conditioned* on a second event is the result of dividing the probability of the second event into the probability of the intersection of the two events.

Notation

Let $\mathbf{P}$ be the event probability function. Let A and B be two events with $\mathbf{P}(B) \neq 0$. We denote the conditional probability of A conditioned on B by $\mathbf{P}(A \mid B)$; defined by

$$\mathbf{P}(A \mid B) = \frac{\mathbf{P}(A \cap B)}{\mathbf{P}(B)}.$$

[1] Future editions will improve.


Conditional Event Probability
Event Probabilities
Probability Distributions
Intervals
Real Line
Real Order
Real Summation
Real Numbers
Integral Line
Rational Numbers
Integer Arithmetic
Natural Additive Identity
Natural Multiplicative Identity
Arithmetic
Identity Elements
Natural Summation
Integer Products
Natural Exponents
Family Operations
Integer Sums
Natural Products
Algebras
Set Operations
Integer Numbers
Natural Sums
Operations
Families
Equivalence Relations
Recursion Theorem
Functions
Relations
Peano Axioms
Cartesian Products
Natural Induction
Uncertain Outcomes
Ordered Pairs
Set Powers
Natural Numbers
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Set Intersections
Pair Unions
Set Symmetric Differences
Pair Intersections
Set Unions
Set Complements
Unordered Pairs
Empty Set
Set Differences
Geometry
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects