Definition

A probability distribution $p : X \to [0, 1]$ is *log-linear* (a *log-linear probability distribution*) if the function $f : X \to \mathbf{R}$ defined by

$$f(x) = \log p(x) \quad \text{for all } x \in X$$

is a linear function

Log-Linear Probability Distributions

Logarithm

Exponential Function · Outcome Probabilities

Real Functions

Intervals

Real Line

Real Order · Real Summation

Rational Order · Real Numbers · Natural Summation

Integral Line · Rational Numbers · Lists · Set Numbers

Integer Arithmetic · Natural Fractions · Direct Products

Integer Products · Natural Additive Identity · Natural Multiplicative Identity · Finite Sets

Identity Elements · Natural Arithmetic · Equivalent Sets

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

Natural Products · Integer Numbers · Orders · Operations · Families · Function Composites · Function Images

Natural Sums · Natural Order · Converse Relations · Functions · Equivalence Relations

Recursion Theorem · Relations

Peano Axioms · Ordered Pair Projections · Uncertain Outcomes

Natural Induction · Set Products

Natural Numbers · Set Powers · Generalized Set Dualities

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

Set Complements · Pair Unions · Set Intersections · Ordered Pairs

Set Differences · Set Unions · Pair Intersections

Empty Set · Unordered Pairs

Geometry · Set Specification

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Sets · Identities

Names

Letters · Objects