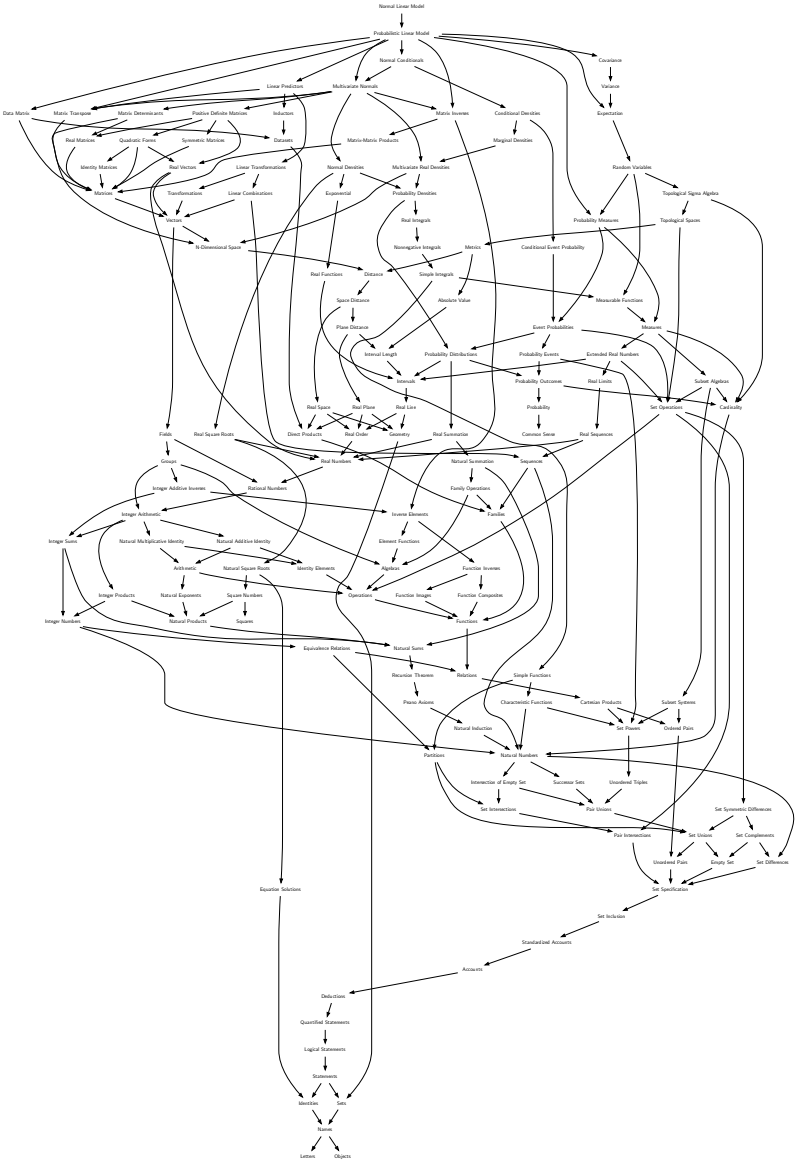
Why

Definition

The *normal linear model* is a linear model in which the signal and noise are assumed to have normal (Gaussian) densities.

Let $(\Omega, \mathcal{A}, \mathbf{P})$ be a probability space. Let $x : \Omega \to \mathbf{R}^d$ and $e : \Omega \to \mathbf{R}^d$ be independent *normal* random vectors with zero mean and covariances Σ_x and Σ_e. Let $y = Ax + e$.


Normal Linear Model
Probabilistic Linear Model
Normal Conditionals
Covariance
Variance
Linear Predictors
Multivariate Normals
Data Matrix
Matrix Transpose
Matrix Determinants
Positive Definite Matrices
Inductions
Matrix Inverses
Conditional Densities
Expectation
Real Matrices
Quadratic Forms
Symmetric Matrices
Datasets
Matrix-Matrix Products
Marginal Densities
Random Variables
Identity Matrices
Real Vectors
Linear Transformations
Normal Densities
Multivariate Real Densities
Matrices
Transformations
Linear Combinations
Exponential
Probability Densities
Topological Sigma Algebra
Vectors
Real Integrals
Probability Measures
Topological Spaces
N-Dimensional Space
Nonnegative Integrals
Metrics
Conditional Event Probability
Real Functions
Distance
Simple Integrals
Space Distance
Absolute Value
Measurable Functions
Plane Distance
Event Probabilities
Measures
Interval Length
Probability Distributions
Probability Events
Extended Real Numbers
Intervals
Probability Outcomes
Real Lines
Subset Algebras
Real Space
Real Plane
Real Line
Probability
Set Operations
Cardinality
Fields
Real Square Roots
Direct Products
Real Order
Geometry
Real Summation
Common Sense
Real Sequences
Real Numbers
Natural Summation
Sequences
Groups
Integer Additive Inverses
Natural Numbers
Family Operations
Integer Arithmetic
Inverse Elements
Function
Integer Sums
Natural Multiplicative Identity
Natural Additive Identity
Element Functions
Arithmetic
Natural Square Roots
Identity Elements
Algebras
Function Inverses
Integer Products
Natural Exponents
Square Numbers
Operations
Function Images
Function Composites
Integer Numbers
Natural Products
Squares
Functions
Equivalence Relations
Natural Sums
Recursive Theorems
Relations
Simple Functions
Peano Axioms
Characteristic Functions
Cartesian Products
Subset Systems
Natural Induction
Set Pipelines
Ordered Pairs
Partitions
Natural Numbers
Intersection of Empty Set
Successor Sets
Unordered Triples
Set Intersections
Pair Unions
Set Symmetric Differences
Pair Intersections
Set Unions
Set Complements
Unordered Pairs
Empty Set
Set Differences
Equation Solutions
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects