Why

[1]

Definition

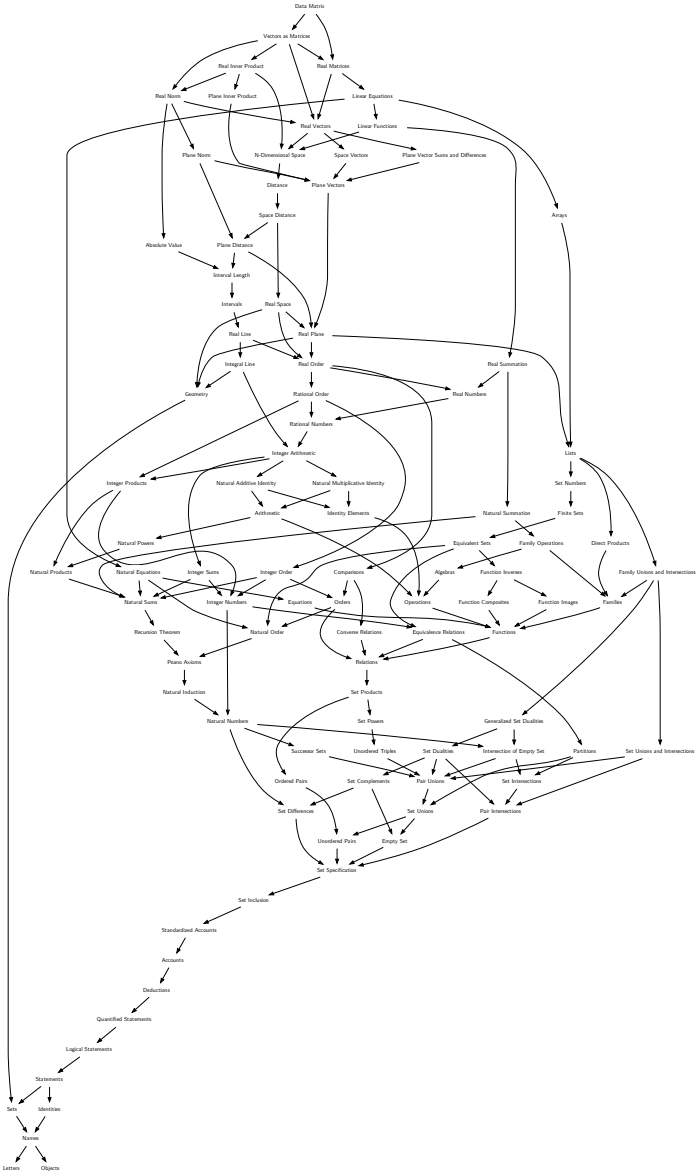
The *data matrix* corresponding to a data set of n records which are length d tuples of real numbers is the n by d matrix whose ith row is the i element of the data set. Some authors refer to the data matrix as the *design matrix*.

Notation

Let $(a^1, \ldots, a^n)$ where $a^i \in \mathbf{R}^n$ for $i = 1, \ldots, n$. Let A be the $n \times d$ matrix whose rows are the a^i. Then A is the data matrix of $(a^1, \ldots, a^n)$. In other words,

$$A = \begin{bmatrix} (a^1)^\top \\ \cdots \\ (a^n)^\top \end{bmatrix}.$$

[1] Future editions will retire this sheet.


Data Matrix
Vectors as Matrices
Real Inner Product
Real Matrices
Real Norm
Plane Inner Product
Linear Equations
Real Vectors
Linear Functions
Plane Norm
N-Dimensional Space
Space Vectors
Plane Vector Sums and Differences
Distance
Plane Vectors
Space Distance
Arrays
Absolute Value
Plane Distance
Interval Length
Intervals
Real Space
Real Line
Real Plane
Integral Line
Real Order
Real Summation
Geometry
Rational Order
Real Numbers
Rational Numbers
Integer Arithmetic
Lists
Integer Products
Natural Additive Identity
Natural Multiplicative Identity
Set Numbers
Arithmetic
Identity Elements
Natural Summation
Finite Sets
Natural Powers
Equivalent Sets
Family Operations
Direct Products
Natural Products
Natural Equations
Integer Sums
Integer Order
Comparisons
Algebras
Function Inverses
Family Unions and Intersections
Natural Sums
Integer Numbers
Equations
Orders
Operations
Function Composites
Function Images
Families
Recursion Theorem
Natural Order
Converse Relations
Equivalence Relations
Functions
Peano Axioms
Relations
Natural Induction
Set Products
Natural Numbers
Set Powers
Generalized Set Dualities
Successor Sets
Unordered Triples
Set Dualities
Intersection of Empty Set
Partitions
Set Unions and Intersections
Ordered Pairs
Set Complements
Pair Unions
Set Intersections
Set Differences
Set Unions
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects