Definition

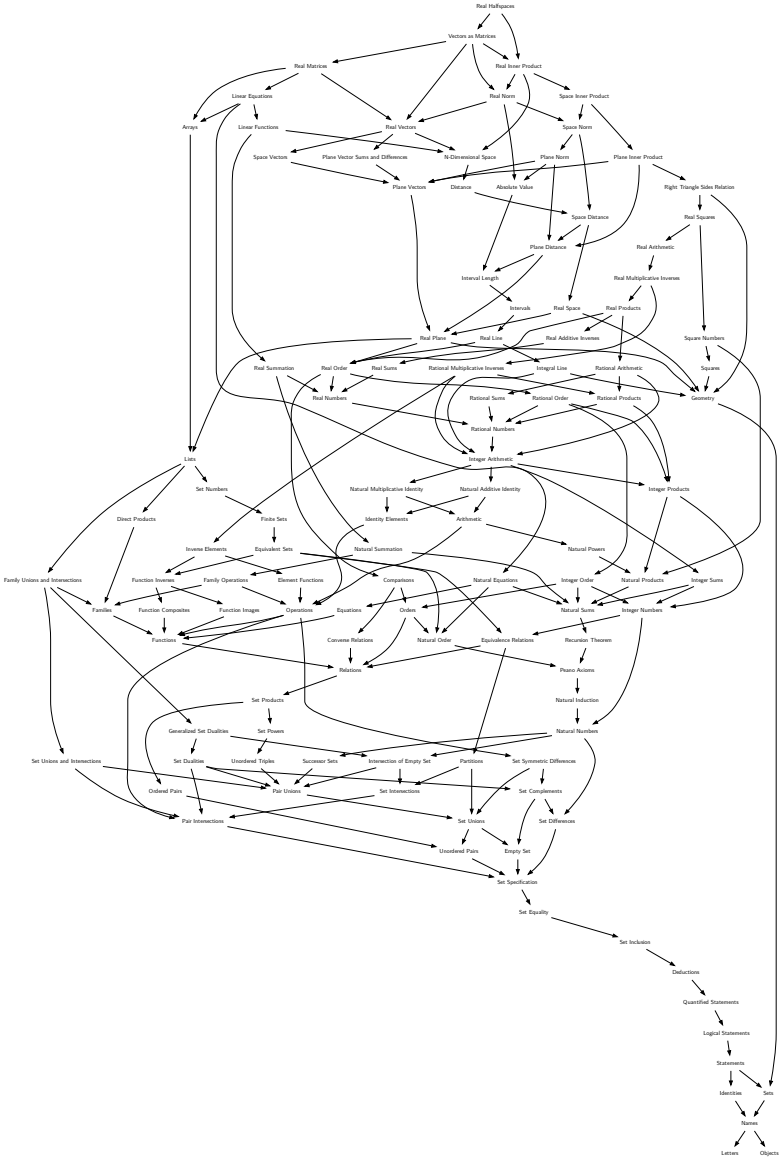
For any $a \in \mathbf{R}^n$ and $\alpha \in \mathbf{R}$, the sets

$$\{x \in \mathbf{R}^n \mid a^\top x \leq \alpha\}, \quad \{x \in \mathbf{R}^n \mid a^\top x \geq \alpha\}$$

are called *closed halfspaces* and the sets

$$\{x \in \mathbf{R}^n \mid a^\top x < \alpha\}, \quad \{x \in \mathbf{R}^n \mid a^\top x > \alpha\}$$

are called *open halfspaces*.


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