Why

We want to generalize rectangles and cubes to n-dimensional space.

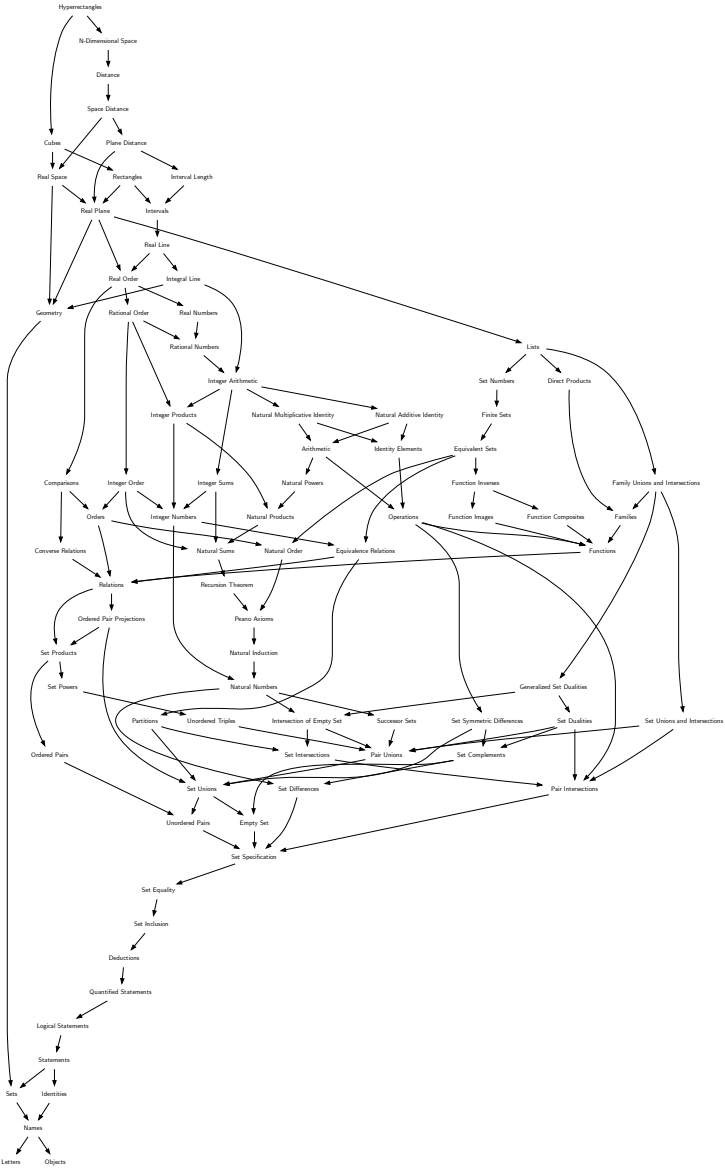
Definition

Let $I : \{1, 2, \ldots, d\} \to \mathbf{R}$ be a family of d intervals. A *hyperrectangle* is the set $\prod_{i=1}^{d} I_i$.[1]

As a result of this definition, an interval, a rectangle, and a cube are all hyperrectangles. Of course, in our definition we include four, five, and "dimensional" rectangles.

As with intervals, rectangles, and cubes, we call a hyperrectangle open, closed, left-open, right-open accordingly.

[1] Some authors use the term rectangle or *n-dimensional rectangle*. Some authors use the term *box* or *n-box*.


Hyperrectangles
N-Dimensional Space
Distance
Space Distance
Cubes
Plane Distance
Real Space
Rectangles
Interval Length
Real Plane
Intervals
Real Line
Real Order
Integral Line
Geometry
Rational Order
Real Numbers
Rational Numbers
Integer Arithmetic
Lists
Set Numbers
Direct Products
Integer Products
Natural Multiplicative Identity
Natural Additive Identity
Finite Sets
Arithmetic
Identity Elements
Equivalent Sets
Comparisons
Integer Order
Integer Sums
Natural Powers
Function Inverses
Family Unions and Intersections
Orders
Integer Numbers
Natural Products
Operations
Function Images
Function Composites
Families
Converse Relations
Natural Sums
Natural Order
Equivalence Relations
Functions
Relations
Recursion Theorem
Ordered Pair Projections
Peano Axioms
Set Products
Natural Induction
Set Powers
Natural Numbers
Generalized Set Dualities
Partitions
Unordered Triples
Intersection of Empty Set
Successor Sets
Set Symmetric Differences
Set Dualities
Set Unions and Intersections
Ordered Pairs
Set Intersections
Pair Unions
Set Complements
Set Unions
Set Differences
Pair Intersections
Unordered Pairs
Empty Set
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects