Definition

The *limit* of an increasing sequence of sets is the family union of the sequence. The *limit* of a decreasing sequence of sets is the family intersection of the sequence.

A *monotone limit* of an sequence of sets is the limit of a monotone sequence.

A *monotone class* is a subset system in which monotone limits of monotone sequences of distinguished sets are distinguished. We call the distinguished sets a *monotone class*.

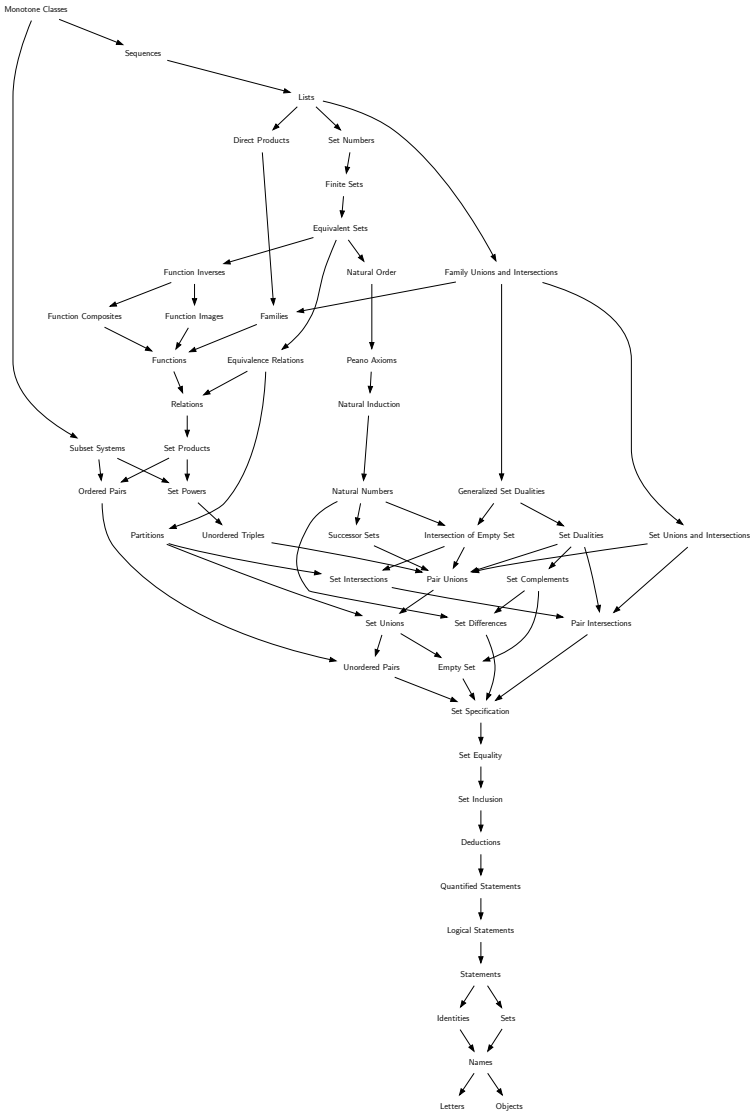
Notation

Let A a non-empty set with partial order $\preceq$. Let $(A, \mathcal{A})$ be a subset space on A.

Let $(A_n)_n$ be an increasing or decreasing sequence in $\mathcal{A}$. We denote the limit of $(A_n)_n$ by $\lim_n A_n$.

If $(A_n)_n$ is increasing, $\lim_n A_n = \cup_n A_n$. If $(A_n)_n$ is decreasing, $\lim_n A_n = \cap_n A_n$.

If $(A, \mathcal{A})$ is a monotone space, then for all monotone $(A_n)_n$ in $\mathcal{A}$, $\lim_n A_n \in \mathcal{A}$. In this case, $\mathcal{A}$ is a montone class.


Monotone Classes
Sequences
Lists
Direct Products
Set Numbers
Finite Sets
Equivalent Sets
Function Inverses
Natural Order
Family Unions and Intersections
Function Composites
Function Images
Families
Functions
Equivalence Relations
Peano Axioms
Relations
Natural Induction
Subset Systems
Set Products
Ordered Pairs
Set Powers
Natural Numbers
Generalized Set Dualities
Partitions
Unordered Triples
Successor Sets
Intersection of Empty Set
Set Dualities
Set Unions and Intersections
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
Identities
Sets
Names
Letters
Objects