Why

We can generalize the notion of real monotone functions to functions between any two sets with total partial orders.

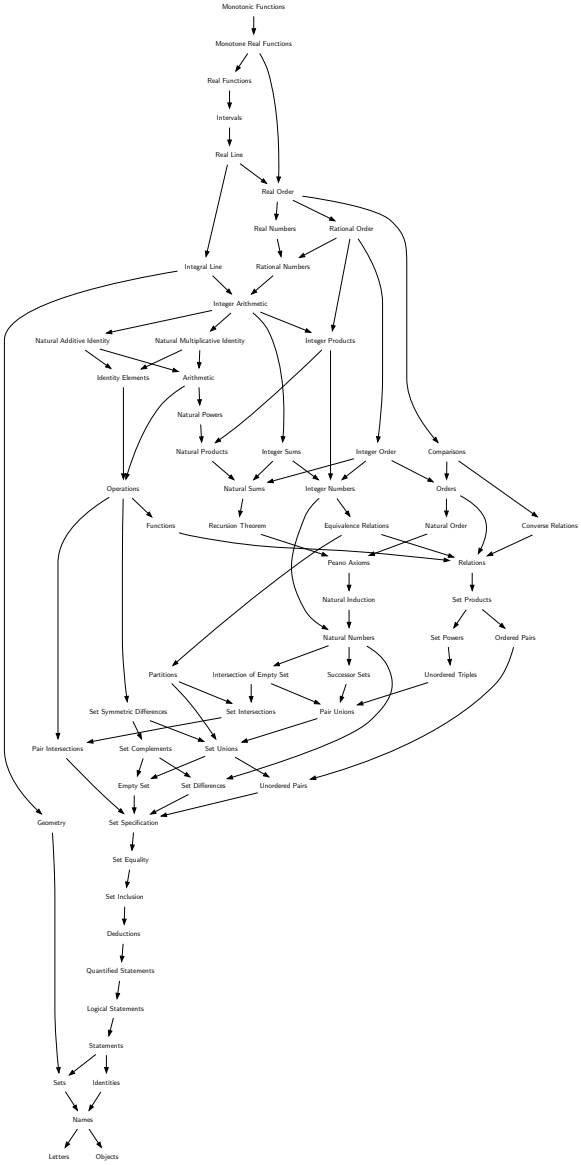
Definition

Let $(A, \geq_A)$ and $(B, \geq_B)$ be two partially ordered sets. $f : A \to B$ is *isotonic* if it is order preserving and *antitonic* if it is order reversing. A function is *monotonic* if it is either antitonic or isotonic.[1]

Examples[2]

[1] Future editions may modify this terminology.

[2] Future editions will include. A nice example is monotonic matrix functions.


Monotonic Functions
Monotone Real Functions
Real Functions
Intervals
Real Line
Real Order
Real Numbers
Rational Order
Integral Line
Rational Numbers
Integer Arithmetic
Natural Additive Identity
Natural Multiplicative Identity
Integer Products
Identity Elements
Arithmetic
Natural Powers
Natural Products
Integer Sums
Integer Order
Comparisons
Operations
Natural Sums
Integer Numbers
Orders
Functions
Recursion Theorem
Equivalence Relations
Natural Order
Converse Relations
Peano Axioms
Relations
Natural Induction
Set Products
Natural Numbers
Set Powers
Ordered Pairs
Partitions
Intersection of Empty Set
Successor Sets
Unordered Triples
Set Symmetric Differences
Set Intersections
Pair Unions
Pair Intersections
Set Complements
Set Unions
Empty Set
Set Differences
Unordered Pairs
Geometry
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Sets
Identities
Names
Letters
Objects