Why

Definition

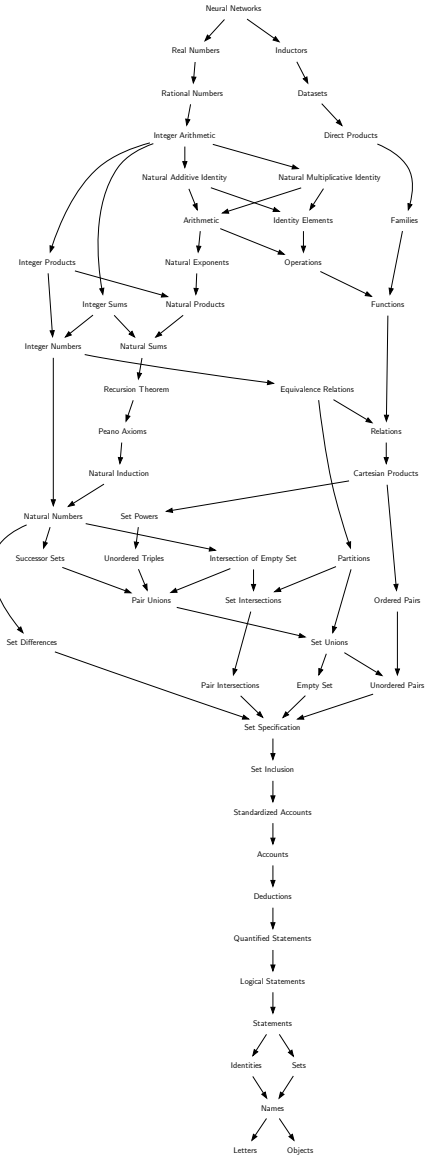
A *neural network* is a sequence of functions from with several properties. First, the codomain and domain of two subsequence functions in the sequence match. Second, each function is a composition of a function wit We associate a neural network with a predictor which is the composition of the functions in the sequence.

Notation

Let $g^1 : \mathbf{R}^d \to \mathbf{R}^k$, $g^2 : \mathbf{R}^k \to \mathbf{R}^k$, $g^3 : \mathbf{R}^k \to \mathbf{R}^m$. Then (g^1, g^2, g^3) is a neural network. Notice that the codomain of g^1 ($\mathbf{R}^k$

Activation functions

An activation function $h : \mathbf{R} \to \mathbf{R}$ is nonlinear.


Neural Networks
Real Numbers
Inductors
Rational Numbers
Datasets
Integer Arithmetic
Direct Products
Natural Additive Identity
Natural Multiplicative Identity
Arithmetic
Identity Elements
Families
Integer Products
Natural Exponents
Operations
Integer Sums
Natural Products
Functions
Integer Numbers
Natural Sums
Recursion Theorem
Equivalence Relations
Peano Axioms
Relations
Natural Induction
Cartesian Products
Natural Numbers
Set Powers
Successor Sets
Unordered Triples
Intersection of Empty Set
Partitions
Pair Unions
Set Intersections
Ordered Pairs
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects