Why

We want to visualize function composition.

Definition

A *function diagram* is a finite directed graph with map from vertices the powerset of a set and a map from edges to functions between the sets of the incident vertices.

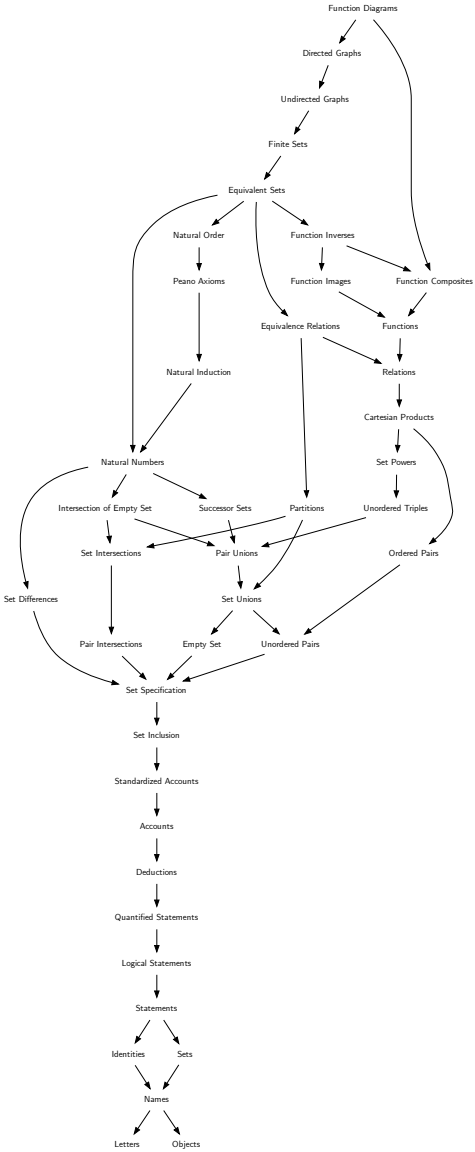
Example

For example, let A and R be sets and let $i : A \to A$, $f : A \to R$ and $g : R \to A$ be functions. We can consider the diagram whose graph is $(\{1, 2, 3\}, \{(1, 2), (2, 3), (1, 3)\})$, with vertices one and three corresponding to A, vertex 2 corresponding to R, edge $(1, 2)$ corresponding to f, edge $(2, 3)$ corresponding to g and edge $(1, 3)$ corresponding to i. [1]

Path composition

The function associated with a path (or *path composition*) is the composition of the functions corresponding to the edges along the path. The digram is *commutative* if the composition of any two paths between any two vertices result in identical functions.

[1] Future editions will include the highly important figures associated with function diagrams.


Function Diagrams
Directed Graphs
Undirected Graphs
Finite Sets
Equivalent Sets
Natural Order
Function Inverses
Peano Axioms
Function Images
Function Composites
Equivalence Relations
Functions
Natural Induction
Relations
Cartesian Products
Natural Numbers
Set Powers
Intersection of Empty Set
Successor Sets
Partitions
Unordered Triples
Set Intersections
Pair Unions
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