Why

We want to visualize function composition.

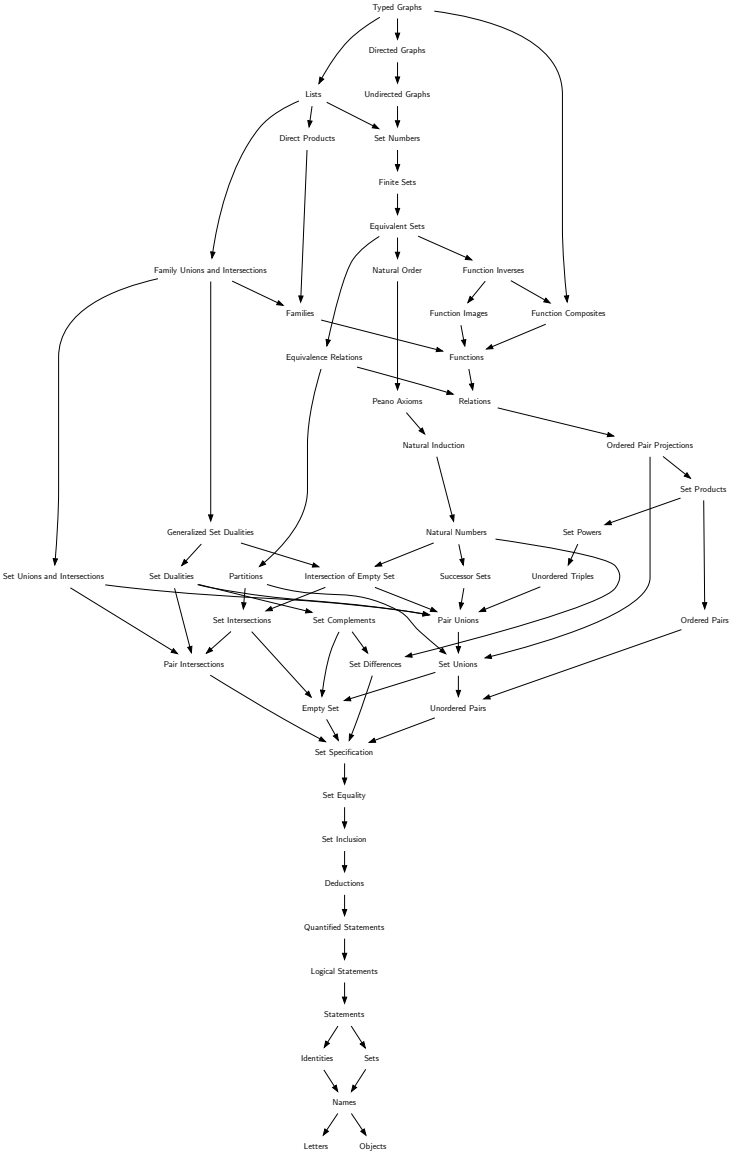
Definition

Let G be a graph (directed or undirected) on $\{1, \ldots, n\}$ and let $A = (A_1, \ldots, A_n)$ be a list of sets. We call the ordered pair (G, A) a *typed graph*. We call A_i the *ith domain*. For $S \subset \{1, \ldots, n\}$, we denote the product$\prod_{s \in S} A_s$ by A_S.

If G is directed, we call a source vertex*exogenous* and otherwise we call a vertex *endogenous*.

Let $\bar{G} = (G, A)$ be a typed graph where G is directed. Let $f_i : A_{\mathrm{pa}_i} \to A_i$ for $i = 1, \ldots, n$ so that f is a sequence of functions. We call the ordered pair $(\bar{G}, f)$ a *function graph*[1] (or *function diagram*).

[1] This sheet is not to be confused with the graph of a function (see Functions).


Typed Graphs
Directed Graphs
Lists
Undirected Graphs
Direct Products
Set Numbers
Finite Sets
Equivalent Sets
Family Unions and Intersections
Natural Order
Function Inverses
Families
Function Images
Function Composites
Equivalence Relations
Functions
Peano Axioms
Relations
Natural Induction
Ordered Pair Projections
Set Products
Generalized Set Dualities
Natural Numbers
Set Powers
Set Unions and Intersections
Set Dualities
Partitions
Intersection of Empty Set
Successor Sets
Unordered Triples
Set Intersections
Set Complements
Pair Unions
Ordered Pairs
Pair Intersections
Set Differences
Set Unions
Empty Set
Unordered Pairs
Set Specification
Set Equality
Set Inclusion
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects