Why

We often start with an undirected graph and want to talk about the graphs we obtain by only keeping the edges incident to particular vertices.

Definition

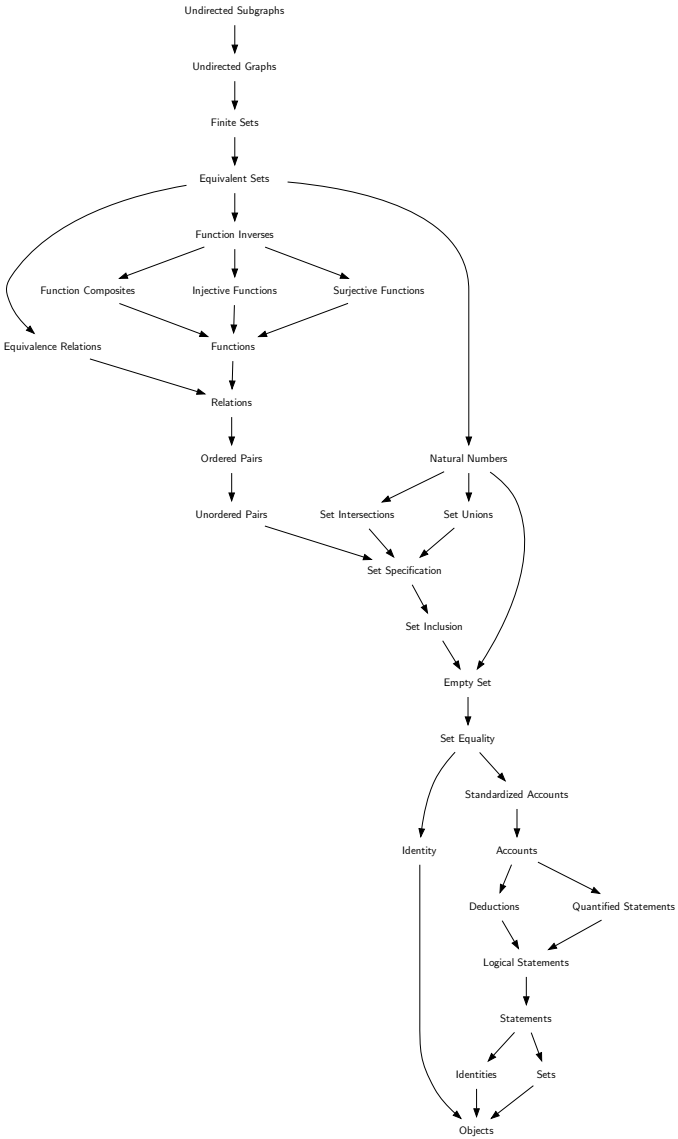
The *subgraph* of a graph corresponding to a subset of vertices is the undirected graph with those vertices and all edges between those vertices.

Notation

Let $G = (V, E)$ be an undirected graph. Let $W \subset V$. The subgraph corresponding to W is the undirected graph (W, F) where

$$F = \{\{v, w\} \in E \mid v, w \in W\}.$$

TODO: maybe delete; this abuses G, which is no longer an ordered pair, but becomes a function on subsets of V with a complicated codomain. We denote the subgraph of G corresponding to W by $G(W) = (W, E(W))$.


Undirected Subgraphs
Undirected Graphs
Finite Sets
Equivalent Sets
Function Inverses
Function Composites
Injective Functions
Surjective Functions
Equivalence Relations
Functions
Relations
Ordered Pairs
Natural Numbers
Unordered Pairs
Set Intersections
Set Unions
Set Specification
Set Inclusion
Empty Set
Set Equality
Standardized Accounts
Identity
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Objects