Equivalent Sets

Why

We want to talk about the size of a set.

Definition

Two sets are *equivalent* if there exists a bijection between them.

Proposition **1.** *Set equivalence in the sense defined above is an equivalence relation in the power set of a set.*

Proposition **2.** *Every proper subset of a natural number is equivalent to some smaller natural number.*

Proof. TODO induction □

TODO: smaller defined?

Proposition **3.** *A set can be equivalent to a proper subset of itself.*

Halmos' example here is not a bijection, though...

Proposition **4.** *If n is a natural number, then n is not equivalent ot a proper subset of itself.*

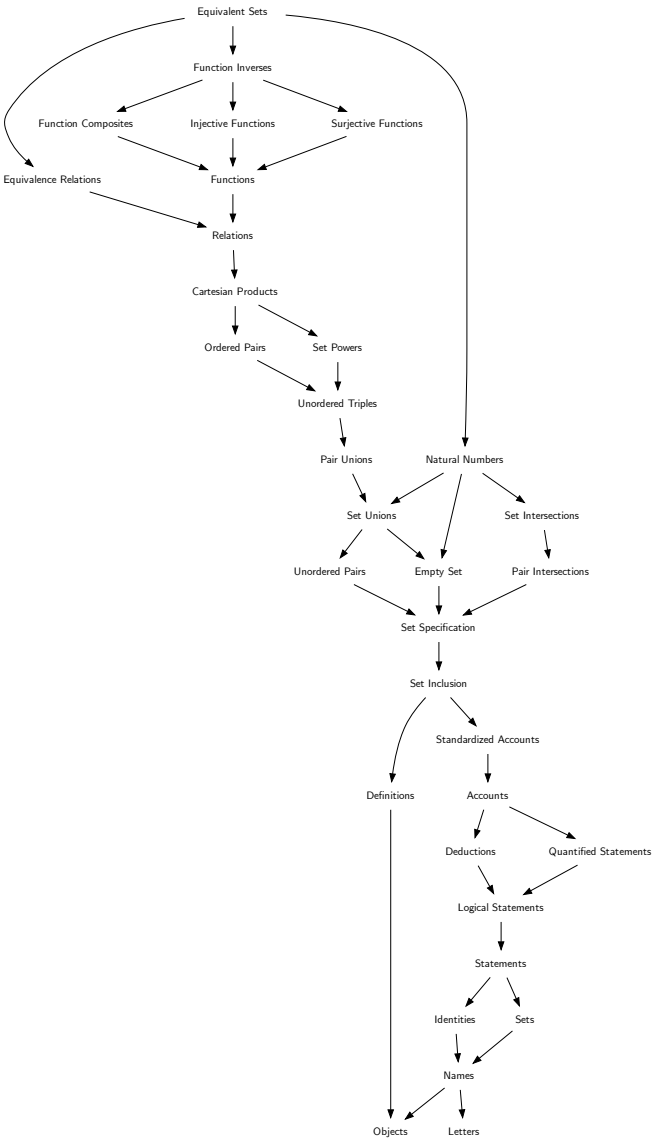
Proposition **5.** *A set can be equivalent to at most one natural number.*

Proposition **6.** *The set of natural numbers is infinite.*

Proposition **7.** *A finite set is never equivalent to a proper subset of itself.*

Proposition **8.** *Every subset of a finite set is finite.*

Proposition **9.** *Every subset of a natural number is equivalent to a natural number.*


Equivalent Sets
Function Inverses
Function Composites
Injective Functions
Surjective Functions
Equivalence Relations
Functions
Relations
Cartesian Products
Ordered Pairs
Set Powers
Unordered Triples
Pair Unions
Natural Numbers
Set Unions
Set Intersections
Unordered Pairs
Empty Set
Pair Intersections
Set Specification
Set Inclusion
Standardized Accounts
Definitions
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Objects
Letters