### Why

The relationship between the inclusion map and the identity map is characteristic of making small functions out of large ones.

### Definition

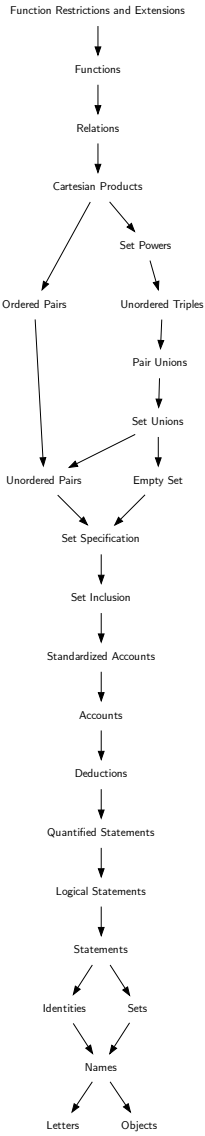
Let $X \subset Y$ and $f : Y \to Z$. There is a natural function $g : X \to Z$, namely the one defined by $g(x) = f(x)$ for all $x \in X$. We call $g$ the *restriction* of $f$ to $X$. We call $f$ an *extension* of $g$ to $Y$. Clearly, there may be more than one extension of a function

### Notation

We denote the restriction of $f : Y \to Z$ to the set $X \subset Y$ by $f|X$.

### Example

A simple example is the that the inclusion mapping from $X$ to $Y$ with $X \subset Y$ is a restriction of the identity map on $X$


Function Restrictions and Extensions
Functions
Relations
Cartesian Products
Set Powers
Ordered Pairs
Unordered Triples
Pair Unions
Set Unions
Unordered Pairs
Empty Set
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects