Empty Set

Why

If there is a set, there is an empty set. Are there many such sets? How do they (or it) relate to other sets?

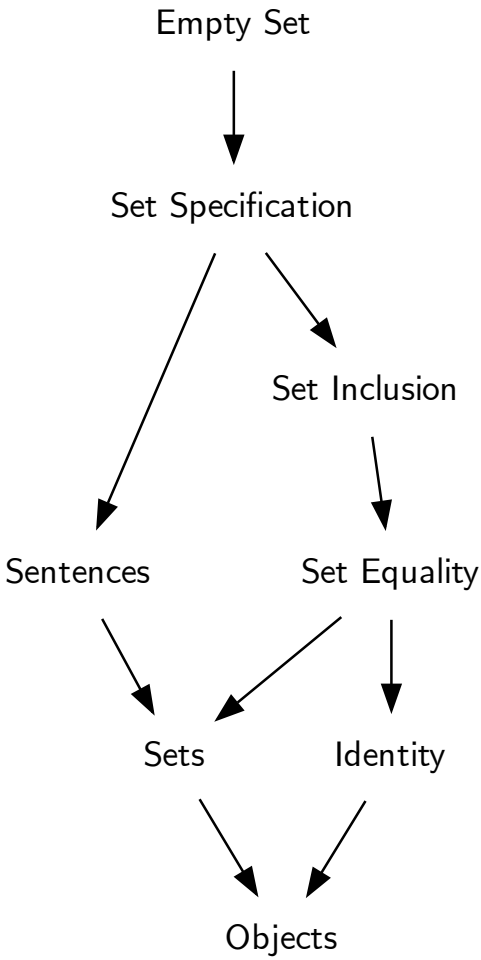
Definition

First, we assume there exists a set. As a consequence, there exists a set which contains no elements at all. We use the axiom of specification with a condition that is always false, and so selects no elements.

As a result of the axiom of extension, this set with no elements is unique. We call this empty set *the empty set.*

Notation

We denote the empty set by $\varnothing$.


Empty Set
Set Specification
Set Inclusion
Sentences
Set Equality
Sets
Identity
Objects