

The basic notions of set theory are defined in Basic properties of sets. There we introduced a formal syntax that will be utilised to define the axioms. For easy reference:

- variables  $a, b, c, \dots$  to range over sets
- variables  $x, y, z$  to range over ordinary objects as well as sets.

### **Axiom of Extensionality**

Sets which contain the same members are the same set. If sets A and B contain the same elements then  $A = B$ .

$$\forall a \forall b [\forall x (x \in a \leftrightarrow x \in b) \rightarrow a = b]$$