

# 1 Infinity

**Definition 1.1.** Let  $A$  be a class and  $a$  be an object and  $f$  be a map such that  $A \subseteq \text{dom}(f)$ .  $A$  is inductive regarding  $a$  and  $f$  iff  $a \in A$  and for all  $x \in A$  we have  $f(x) \in A$ .

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**Axiom 1.2 (Infinity Axiom).** Let  $A$  be a class and  $a \in A$  and  $f : A \rightarrow A$ . Then there exists a subset of  $A$  that is inductive regarding  $a$  and  $f$ .