Problem set Set Theory
Sebastián Caballero Axiomatization

Problem 1.

Let x be a set. Show that $\{\{y\} : y \in x\}$ is a set

Solution. Formally, this must be written as

$$\{z \in \mathcal{P}(x) : \exists y(y \in x \wedge z = \{y\})\}$$

Note that this set is also a set because:

- $\{y\}$ is a set
- $\exists y(y \in x \wedge z = \{y\})$ is a formula in the formal language
- $\mathcal{P}(x)$ is a set
- The axiom of separation

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