Definition 3.28. [OOR] *We usually write*

$$\text{"}\forall x \in A, P(x)\text{"} \quad \textit{to say} \quad \text{"for every } x \text{ in } A\ P(x) \text{ holds"},$$

or

$$\text{"}\exists x \in A, P(x)\text{"} \quad \textit{to say} \quad \text{"there is a } x \text{ in } A \text{ for which } P(x)\text{"} \textit{ holds;}$$

(where A is a set); to link these writings to the previous definitions, we decide that the previous writings are abbreviations for

$$\forall x \in A, P(x) \doteq \forall x, x \in A \Rightarrow P(x) \quad ,$$
$$\exists x \in A, P(x) \doteq \exists x, x \in A \wedge P(x) \quad .$$

Note that these RHS are "well-formed formulas". See also the exercise [016].