

Interpretation $I = (\mathcal{A}, \alpha, \beta)$

- \mathcal{A} is the *carrier* with $\mathcal{A} \neq \emptyset$
- α is the *meaning* of function and predicate symbols
 - $\alpha_f : \mathcal{A}^n \rightarrow \mathcal{A}$ for all $f \in \Sigma_n$
 - $\alpha_p \in \{TRUE, FALSE\}$ for all $p \in \Delta_0$
 - $\alpha_p \subseteq \mathcal{A}^n$ for all $p \in \Delta_n, n \geq 1$
- β is the *variable assignment* with $\beta : \mathcal{V} \rightarrow \mathcal{A}$

Interpretation of terms $I : \mathcal{T}(\Sigma, \mathcal{V}) \rightarrow \mathcal{A}$

$$I(X) = \beta(X) \text{ for } X \in \mathcal{V}$$

$$I(f(t_1, \dots, t_n)) = \alpha_f(I(t_1), \dots, I(t_n)) \text{ for } f \in \Sigma_n \text{ and } t_1, \dots, t_n \in \mathcal{T}(\Sigma, \mathcal{V})$$