Translation of HOL Types to Sets

- Types variable α translates to ordinary an variable $\alpha : V$
- Type constant c translates to term $|c|$
  - e.g. $|bool| = \{\mathsf{true}, \mathsf{false}\}$
- Type operator op translates to function $|op|$
  - if op_n is an n-ary operator then

$$|op_n| : \underbrace{V \to V \to \cdots \to V}_{n \text{ parameters}} \to V$$

  - $|\times| = \divideontimes$ where $\divideontimes : V \to V \to V$
  - $|\to| = \twoheadrightarrow$ where $\twoheadrightarrow : V \to V \to V$
  - $|\mathit{list}| = \mathsf{List}$ where $\mathsf{List} : V \to V$
- Type σ recursively translated to term $[\![\sigma]\!]$

$$[\![(\sigma_1, \ldots, \sigma_n)op_n]\!] = |op_n|\ [\![\sigma_1]\!] \ldots [\![\sigma_n]\!]$$