Defining Types via ST

- Suppose $t : V \to V \to \cdots \to V$ satisfies

  $\mathsf{Inhab}\ \mathtt{X1},\ \mathsf{Inhab}\ \mathtt{X2},\ \ldots\ \mathsf{Inhab}\ \mathtt{X}n \vdash$
  $\mathsf{Inhab}(t\ \mathtt{X1}\ \mathtt{X2}\ \ldots\ \mathtt{X}n)$

- Can define an n-ary *op* so that:

  $\vdash |op| = t$

- Example: polymorphic lists. Since:

  $\mathsf{Inhab}\ \mathtt{X} \vdash \mathsf{Inhab}(\mathsf{List}\ \mathtt{X})$

- Can define HOL type *list* satisfying:

  $\vdash |list| = \mathsf{List}$