Auxiliary Notions

- ST axioms plus HOL allows definition of:

  Empty set, unions, powersets, pairs, products, relations, functions ...

- Can define truthvalues:

  False = $\emptyset$, True = $\{\emptyset\}$, Bool = $\{$True,False$\}$

- Converting between HOL and ST truthvalues:

  bool2Bool T = True, bool2Bool F = False

- The set Num of natural numbers:

  $\{\emptyset,\ \{\emptyset\},\ \{\emptyset,\{\emptyset\}\},\ \{\emptyset,\{\emptyset\},\{\emptyset,\{\emptyset\}\}\},\ \ldots\ \}$

- Converting between HOL and ST numbers:

  num2Num : $num \to V$

  Num2num : $V \to num$

  $\forall$n. Num2num(num2Num n) = n

  $\forall$x. x $\in$ Num =
  (num2Num(Num2num x) = x)