

$i \in \mathbf{Int}$
 $b \in \mathbf{Bool}$
 $x, y \in \mathbf{Var}$
 $op \in \mathbf{Prim} ::= + \mid - \mid * \mid <$
 $\tau \in \mathbf{Types} ::= \mathbf{bool} \mid \mathbf{int} \mid \tau \rightarrow \tau \mid \tau \text{ list}$
 $\Gamma \in \mathbf{Env} ::= \bullet \mid \Gamma, x : \tau$
 $e \in \mathbf{Exp} ::= i \mid b \mid x \mid e \text{ op } e \mid \text{if } e \text{ then } e \text{ else } e \mid \text{let } x = e \text{ in } e$
 $\mid \text{fun } x \rightarrow e \mid \text{letrec } x = \text{fun } y \rightarrow e \text{ in } e$
 $\mid [] \mid e :: e \mid \text{match } e \text{ with } [] \rightarrow e \mid x :: y \rightarrow e$