

$i \in \mathbf{Int}$

$b \in \mathbf{Bool}$

$x, y \in \mathbf{Var}$

$op \in \mathbf{Prim} \quad ::= + \mid - \mid * \mid <$

$v \in \mathbf{Value} \quad ::= i \mid b \mid (\mathcal{E})[\text{fun } x \rightarrow e] \mid (\mathcal{E})[\text{rec } x = \text{fun } y \rightarrow e] \mid [] \mid v :: v$

$\mathcal{E} \in \mathbf{Env} \quad ::= \bullet \mid \mathcal{E}, x = v$

$e \in \mathbf{Exp} \quad ::= i \mid b \mid x \mid e \text{ op } e \mid \text{if } e \text{ then } e \text{ else } e \mid \text{let } x = e \text{ in } e$   
 $\mid \text{fun } x \rightarrow e \mid e \ e \mid \text{let rec } x = \text{fun } y \rightarrow e \text{ in } e$   
 $\mid [] \mid e :: e \mid \text{match } e \text{ with } [] \rightarrow e \mid x :: y \rightarrow e$