

$(B \rho) \longrightarrow B$	[p-bool]
$(N \rho) \longrightarrow N$	[p-num]
$(CH \rho) \longrightarrow CH$	[p-char]
$(O \rho) \longrightarrow O$	[p-op]
$((M_1 M_2) \rho) \longrightarrow ((M_1 \rho) (M_2 \rho))$	[p-app]
$((\text{mlet } (X) = M_1 \text{ in } M_2) \rho) \longrightarrow (\text{mlet } (X) = (M_1 \rho) \text{ in } (M_2 \rho))$	[p-let]
$((C_1 C_2) \rho) \longrightarrow ((C_1 \rho) (C_2 \rho))$	[p-Capp]

$(X \rho) \longrightarrow W$  where `lookup2` $\llbracket \rho, X, W \rrbracket$  [p-x]

$(X \rho) \longrightarrow \text{nameerror}$  where `predicado1` $\llbracket \rho, X \rrbracket$  [p-xErr]

$((\lambda (X) M) \rho) W \longrightarrow (M \text{ext} \llbracket \rho, (X W) \rrbracket)$  [app]

$(OB B) \longrightarrow W_l$  where `δB` $\llbracket (OB B), W_l \rrbracket$  [δB]

$(ON N) \longrightarrow W_l$  where `δN` $\llbracket (\text{add1 } N), W_l \rrbracket$  [δN]

$(\text{mlet } (X) = W \text{ in } (M \rho)) \longrightarrow (M \text{ext} \llbracket \rho, (X W) \rrbracket)$  [let]

$(\text{mlet } (X) = ER \text{ in } C) \longrightarrow ER$  [letErr1]

$(ER C) \longrightarrow ER$  [AppErr1]

$(W ER) \longrightarrow ER$  [AppErr2]

$(OB W) \longrightarrow \text{typeerror}$  where `(not (is-bool? W))` [δBErr]

$(ON W) \longrightarrow \text{typeerror}$  where `(not (is-num? W))` [δNErr]

$(W_l W_2) \longrightarrow \text{typeerror}$  where `(not (is-closure1? W_l))`, `(not (is-operator? W_l))`, [AppErr]