$$(B\,\rho) \longrightarrow B \qquad\qquad\qquad\qquad \text{[ρ-bool]}$$

$$(N\,\rho) \longrightarrow N \qquad\qquad\qquad\qquad \text{[ρ-num]}$$

$$(CH\,\rho) \longrightarrow CH \qquad\qquad\qquad\qquad \text{[ρ-str]}$$

$$(O\,\rho) \longrightarrow O \qquad\qquad\qquad\qquad \text{[ρ-op]}$$

$$((M_1\,M_2)\,\rho) \qquad\qquad\qquad\qquad \text{[ρ-app]}$$
$$\longrightarrow ((M_1\,\rho)\,(M_2\,\rho))$$

$$((M :: T)\,\rho) \longrightarrow ((M\,\rho) :: T) \qquad\qquad\qquad \text{[ρ-asc]}$$

$$((\text{mlet } (X\,T) = M_1 \text{ in } M_2)\,\rho) \qquad\qquad\qquad \text{[ρ-let]}$$
$$\longrightarrow (\text{mlet } (X\,T) = (M_1\,\rho) \text{ in } (M_2\,\rho))$$

$$(X\,\rho) \longrightarrow W \qquad\qquad\qquad\qquad \text{[ρ-x]}$$
where $\text{lookup2}\,[\![\,\rho, X, W\,]\!]$,
$\quad\quad \text{construirEnvCond}\,[\![\,\rho\,]\!]$

$$(((\lambda\,(X\,T)\,M)\,\rho)\,W) \qquad\qquad\qquad \text{[app]}$$
$$\longrightarrow (\text{subst}\,[\![\,(X\,W), M\,]\!]\ \rho)$$

$$((X_1\,\rho_1)\,(X_2\,\rho_2)) \longrightarrow (W_1\,W_2) \qquad\qquad \text{[app11]}$$
where $\text{lookup3}\,[\![\,\rho_1, X_1, W_1, T_1\,]\!]$,
$\quad\quad \text{lookup4}\,[\![\,\rho_2, X_2, T_1, W_2\,]\!]$

$$(((\lambda\,(X\,T)\,M)\,\rho)\,(X_2\,\rho_2)) \qquad\qquad\qquad \text{[app12]}$$
$$\longrightarrow (((\lambda\,(X\,T)\,M)\,\rho)\,W_2)$$
where $\text{lookup4}\,[\![\,\rho_2, X_2, T, W_2\,]\!]$

$$((X_1\,\rho_1)\,W_2) \longrightarrow (W_1\,W_2) \qquad\qquad \text{[app13]}$$
where $\text{lookup5}\,[\![\,\rho_1, X_1, W_1\,]\!]$

$$(OB\,W\,...) \longrightarrow W_1 \qquad\qquad\qquad \text{[δB]}$$
where $\delta B\,[\![\,(OB\,W\,...), W_1\,]\!]$

$$(ON\,W\,...) \longrightarrow W_1 \qquad\qquad\qquad \text{[δN]}$$
where $\delta N\,[\![\,(ON\,W\,...), W_1\,]\!]$

$$(OB\,(X_2\,\rho_2)) \longrightarrow W_2 \qquad\qquad\qquad \text{[δB1]}$$
where $\text{lookup4}\,[\![\,\rho_2, X_2, \text{bool}, W_1\,]\!]$,
$\quad\quad \delta B\,[\![\,(OB\ W_1), W_2\,]\!]$

$$(ON\,(X_2\,\rho_2)) \longrightarrow W_2 \qquad\qquad\qquad \text{[δN1]}$$
where $\text{lookup4}\,[\![\,\rho_2, X_2, \text{num}, W_1\,]\!]$,
$\quad\quad \delta N\,[\![\,(ON\ W_1), W_2\,]\!]$

$$(W :: T) \longrightarrow W \qquad\qquad\qquad\qquad \text{[asc]}$$

$$((X\,\rho) :: T) \longrightarrow W \qquad\qquad\qquad \text{[asc11]}$$
where $\text{lookup4}\,[\![\,\rho, X, T, W\,]\!]$

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

$$(\text{mlet } (X\,T) = (X_1\,\rho_1) \text{ in } (M\ \rho)) \qquad\qquad \text{[let11]}$$
$$\longrightarrow (M\,\text{ext}\,[\![\,\rho, (X\,(T\,W))\,]\!]\,)$$
where $\text{lookup4}\,[\![\,\rho_1, X_1, T, W\,]\!]$