$$(\; S, \; E, \; \texttt{PUSH\_S} \; atom : C, \; D, \; H \;) \; \rightarrow \; (\; atom : S, \; E, \; C, \; D, \; H \;)$$

$$\begin{aligned} &(\; S, \; se_1 : \ldots se_i : E, \; \texttt{PUSH\_ES} \; i : C, \; D, \; H \;) \\ &\qquad\qquad \rightarrow \; (\; se_i : S, \; se_1 : \ldots : se_i : E, \; C, \; D, \; H \;) \end{aligned}$$

$$\begin{aligned} &(\; se_1 : \ldots se_n : S, \; E, \; \texttt{MOVE\_SE} \; n : C, \; D, \; H \;) \\ &\qquad\qquad \rightarrow \; (\; S, \; se_n : \ldots : se_1 : E, \; C, \; D, \; H \;) \end{aligned}$$

$$(\; S, \; se_1 : \ldots se_n : E, \; \texttt{FREE} \; n : C, \; D, \; H \;) \; \rightarrow \; (\; S, \; E, \; C, \; D, \; H \;)$$

$$\begin{aligned} &(\; num_1 : num_2 : S, \; E, \; \texttt{PLUS} : C, \; D, \; H \;) \\ &\qquad\qquad \rightarrow \; (\; sum(num_1, sum_2) : S, \; E, \; C, \; D, \; H \;) \end{aligned}$$

$$\begin{aligned} &(\; \#t : S, \; E, \; \texttt{BRC} \; p\_t \; p\_f : C, \; D, \; H[\; p\_t \rightsquigarrow code\_t \;] \;) \\ &\qquad\qquad \rightarrow \; (\; S, \; E, \; code\_t : nil, \; (\; C, \; D \;), \; H \;) \end{aligned}$$

$$\begin{aligned} &(\; \#f : S, \; E, \; \texttt{BRC} \; p\_t \; p\_f : C, \; D, \; H[\; p\_f \rightsquigarrow code\_f \;] \;) \\ &\qquad\qquad \rightarrow \; (\; S, \; E, \; code\_f : nil, \; (\; C, \; D \;), \; H \;) \end{aligned}$$

$$\begin{aligned} &(\; S, \; E, \; \texttt{CALL} \; p\_ff : C, \; D, \; H[\; p\_ff \rightsquigarrow (\; r, \; code\_ff \;) \;] \;) \\ &\qquad\qquad \rightarrow \; (\; S, \; E, \; code\_ff : nil, \; (\; C, \; D \;), \; H \;) \end{aligned}$$

$$\begin{aligned} &(\; p\_ff : S, \; E, \; \texttt{AP} \; r : C, \; D, \; H[\; p\_ff \rightsquigarrow (\; r, \; code\_ff \;) \;] \;) \\ &\qquad\qquad \rightarrow \; (\; S, \; E, \; code\_ff : nil, \; (\; C, \; D \;), \; H \;) \end{aligned}$$

$$\begin{aligned} &(\; prim\_func^{(n)} : e_1 : \ldots e_n : S, \; E, \; \texttt{AP} \; n : C, \; D, \; H \;) \\ &\qquad\qquad \rightarrow \; (\; value : S, \; E, \; C, \; D \; , \; H \;) \end{aligned}$$

$$(\; S, \; E, \; \texttt{RET} : nil, \; (\; C, \; D \;), \; H \;) \; \rightarrow \; (\; S, \; E, \; C, \; D, \; H \;)$$

$\mathcal{C}[\ atom : es\ ]\ \rightarrow\ \texttt{PUSH\_S}\ atom;\ \mathcal{C}[\ es\ ];$

$\mathcal{C}[\ \#i : es\ ]\ \rightarrow\ \texttt{PUSH\_ES}\ i;\ \mathcal{C}[\ es\ ];$

$$\begin{aligned}&\mathcal{C}[\ (\ \texttt{if}\ e_0\ e_1\ e_2\ ) : es\ ]\\ &\qquad \rightarrow\ \mathcal{C}[\ e_0\ ];\ \texttt{BRC}\ p\_t\ p\_f;\ \mathcal{C}[\ es\ ];\\ &\qquad\qquad p\_t \leadsto \mathcal{F}[\ e_1\ ];\quad p\_f \leadsto \mathcal{F}[\ e_2\ ];\end{aligned}$$

$\mathcal{C}[\ (\ e_0 \ldots e_{(n-1)}\ ) : es\ ]\ \rightarrow \mathcal{C}[\ e_n\ ]; \mathcal{C}[\ e_{(n-1)} : \ldots : e_0 : ap(n) : es\ ]$
$\mathcal{C}[\ (\ +\ e_1\ e_2\ ) : es\ ]\ \rightarrow \mathcal{C}[\ e_2\ ];\ \mathcal{C}[\ e_1\ ];\ \texttt{PLUS};\ \mathcal{C}[\ es\ ]$

$\mathcal{C}[\ (\ -\ e_1\ e_2\ ) : es\ ]\ \rightarrow \mathcal{C}[\ e_2\ ];\ \mathcal{C}[\ e_1\ ];\ \texttt{MINUS};\ \mathcal{C}[\ es\ ]$

$$\begin{aligned}&\mathcal{C}[\ \Lambda^{(r)} e_b : ap^{(r)} : es\ ]\ \rightarrow \texttt{CALL}\ p_{ff}; \mathcal{C}[\ es\ ]\\ &\qquad p\_ff\ \leadsto\ \mathcal{F}[\ \Lambda^{(r)} e_b\ ]\ ;\end{aligned}$$

$$\begin{aligned}&\mathcal{C}[\ \Lambda^{(r)} e_b : es\ ]\ \rightarrow \texttt{PUSH\_S}\ p\_ff; \mathcal{C}[\ es\ ]\\ &\qquad p\_ff\ \leadsto\ \mathcal{F}[\ \Lambda^{(r)} e_b\ ];\end{aligned}$$

$\mathcal{C}[\ (\ \texttt{define}\ ff\ e\ ) : es\ ]\ \rightarrow\ \mathcal{C}[\ es\ ];\quad p\_ff\ \leadsto\ \mathcal{F}[\ e\ ];$

$$\begin{aligned}&\mathcal{C}[\ (\ \texttt{letrec}\ ((\ ff_1\ e_1\ ) \ldots (\ ff_k\ e_k\ ))\ e_b\ ) : es\ ]\ \rightarrow\ \mathcal{C}[\ e_0\ ];\ \mathcal{C}[\ es\ ];\\ &\qquad p\_ff_1\ \leadsto\ \mathcal{F}[\ e_1\ ]; \ldots;\ p\_ff_k\ \leadsto\ \mathcal{F}[\ e_k\ ];\end{aligned}$$

$$\mathcal{F}[\ e\ ]\ \rightarrow\ \begin{cases} (\ r,\ \texttt{MOVE\_SE}\ r;\ \mathcal{C}[\ e_b\ ];\ \texttt{FREE}\ r;\ \texttt{RET};\ ) & \text{if } e = \Lambda^{(r)} e_b\\ (\ 0,\ \mathcal{C}[\ e\ ];\ \texttt{RET};\ ) & \text{otherwise}\end{cases}$$