$$
\begin{aligned}
[\![\mathsf{T}]\!] &= \mathcal{P}(\mathsf{Val}) = \mathsf{Type} \\
[\![\mathsf{E}]\!] = [\![\mathsf{R}]\!] &= \mathcal{P}(\mathsf{Exp} \times \mathbb{N} \times \mathsf{Type})
\end{aligned}
$$

$$
\mathrm{Obs} = \{e \mid e \to^* v\}
$$

$$
\begin{aligned}
\mathcal{E}[\![\tau/\varepsilon]\!]_\eta &= \{t \mid \forall K \in \mathcal{K}[\![\tau/\varepsilon]\!]_\eta.\, K[t] \in \mathrm{Obs}\} \\
\mathcal{K}[\![\tau/\varepsilon]\!]_\eta &= \{K \mid \forall v \in [\![\tau]\!]_\eta.\, K[v] \in \mathrm{Obs} \wedge \forall s \in \mathcal{S}[\![\tau/\varepsilon]\!]_\eta.\, K[s] \in \mathrm{Obs}\} \\
\mathcal{S}[\![\tau/\varepsilon]\!]_\eta &= \{K[\mathsf{do}\, v] \mid \exists n, \mu.\, (v, n, \mu) \in [\![\varepsilon]\!]_\eta \wedge n\text{-free}(K) \wedge \forall e \in \mu.\, K[e] \in \mathcal{E}[\![\tau/\varepsilon]\!]_\eta\}
\end{aligned}
$$

$$
\begin{aligned}
[\![\tau_1 \to_\varepsilon \tau_2]\!]_\eta &= \{t \mid \forall v \in [\![\tau_1]\!].\, t\, v \in \mathcal{E}[\![\tau_2/\varepsilon]\!]_\eta\} \\
[\![\forall \alpha :: \kappa.\, \tau]\!]_\eta &= \{v \mid \forall \mu \in [\![\kappa]\!].\, v \in [\![\tau]\!]_{[\alpha \mapsto \mu]\eta}\} \\
[\![\alpha]\!]_\eta &= \eta(\alpha)
\end{aligned}
$$

$$
\begin{aligned}
[\![\tau_1 \Rightarrow \tau_2]\!]_\eta &= \{(v, 0, [\![\tau_2]\!]_\eta \mid v \in [\![\tau_1]\!]_\eta\} \\
[\![\forall \alpha :: \kappa.\, \varepsilon]\!]_\eta &= \{t \mid \exists \mu \in [\![\kappa]\!].\, t \in [\![\varepsilon]\!]_{[\alpha \mapsto \mu]\eta}\} \\
[\![\varepsilon \cdot \rho]\!]_\eta &= [\![\varepsilon]\!]_\eta \cup \{(v, n+1, \mu) \mid (v, n, \mu) \in [\![\rho]\!]_\eta\}
\end{aligned}
$$

$$
\begin{aligned}
\mathcal{E}[\![\tau/\varepsilon]\!]_\eta(X) &= \{t \mid \forall K \in \mathcal{K}[\![\tau/\varepsilon]\!]_\eta(X).\, K[t] \in \mathrm{Obs}\} \\
\mathcal{K}[\![\tau/\varepsilon]\!]_\eta(X) &= \{K \mid \forall v \in [\![\tau]\!]_\eta.\, K[v] \in \mathrm{Obs} \wedge \forall s \in \mathcal{S}[\![\tau/\varepsilon]\!]_\eta(X).\, K[s] \in \mathrm{Obs}\} \\
\mathcal{S}[\![\tau/\varepsilon]\!]_\eta(X) &= \{K[\mathsf{do}\, v] \mid \exists n, \mu.\, (v, n, \mu) \in [\![\varepsilon]\!]_\eta \wedge n\text{-free}(K) \wedge \forall e \in \mu.\, K[e] \in X\}
\end{aligned}
$$