

Formally, the concrete transition rule must rebuild the value environment with every transition:

$$\begin{aligned}
& (\llbracket (f \ e_1 \dots e_n)^\ell \rrbracket, \beta, ve, t) \Rightarrow (call, \beta'', ve', t'), \text{ where:} \\
& \quad d_i = \mathcal{E}(e_i, \beta, ve) \\
& \quad d_0 = (\llbracket (\lambda^{\ell'} (v_1 \dots v_n) \ call) \rrbracket, \beta') \\
& \quad t' = tick(call, t) \\
& \quad b_i = alloc(v_i, t') \\
& \quad B = \{b_i : b_i \in Bind_1\} \\
& \quad \beta'' = (g_B^{-1} \beta')[v_i \mapsto b_i] \\
& \quad ve' = (g_B^{-1} ve)[b_i \mapsto (g_B^{-1} d_i)],
\end{aligned}$$

where the de-anodization function $g_B^{-1} : (BEnv \rightarrow BEnv) \cup (VEnv \rightarrow VEnv) \cup (D \rightarrow D) \cup (Bind \rightarrow Bind)$ strips the anodization off bindings that abstract to any binding in the set B :

$$\begin{aligned}
& g_B^{-1}(b) = b \\
& g_B^{-1}(g(b)) = \begin{cases} b & \eta(b) = \eta(b') \text{ for some } g(b') \in B \\ g(b) & \text{otherwise} \end{cases} \\
& g_B^{-1}(lam, \beta) = (lam, g_B^{-1}(\beta)) \\
& g_B^{-1}(\beta) = \lambda v. g_B^{-1}(\beta(v)) \\
& g_B^{-1}(ve) = \lambda b. g_B^{-1}(ve(b)).
\end{aligned}$$

The corresponding abstract transition rule must also rebuild the value environment with every transition:

$$\begin{aligned}
& (\llbracket (f \ e_1 \dots e_n)^\ell \rrbracket, \hat{\beta}, \hat{ve}, \hat{t}) \rightsquigarrow (call, \hat{\beta}'', \hat{ve}', \hat{t}'), \text{ where:} \\
& \quad \hat{d}_i = \hat{\mathcal{E}}(e_i, \hat{\beta}, \hat{ve}) \\
& \quad \hat{d}_0 \ni (\llbracket (\lambda^{\ell'} (v_1 \dots v_n) \ call) \rrbracket, \hat{\beta}') \\
& \quad \hat{t}' = \widehat{tick}(call, \hat{t}) \\
& \quad \hat{b}_i = \widehat{alloc}(v_i, \hat{t}') \\
& \quad \hat{B} = \{\hat{b}_i : \hat{b}_i \in Bind_1\} \\
& \quad \hat{\beta}'' = (\hat{g}_{\hat{B}}^{-1} \hat{\beta}')[v_i \mapsto \hat{b}_i] \\
& \quad \hat{ve}' = (\hat{g}_{\hat{B}}^{-1} \hat{ve}) \sqcup [\hat{b}_i \mapsto (\hat{g}_{\hat{B}}^{-1} \hat{d}_i)],
\end{aligned}$$

where the de-anodization function $\hat{g}_{\hat{B}}^{-1} : (\widehat{BEnv} \rightarrow \widehat{BEnv}) \cup (\widehat{VEnv} \rightarrow \widehat{VEnv}) \cup (\widehat{D} \rightarrow \widehat{D}) \cup (\widehat{Val} \rightarrow \widehat{Val}) \cup (\widehat{Bind} \rightarrow \widehat{Bind})$ strips the anodization off abstract