$$\neg A \sqcap \exists R^{-}.A \sqcap (\leq 1\ R) \sqcap \forall (R^{-})^{+}.(\exists R^{-}.A \sqcap (\leq 1\ R)) \tag{1}$$

```
\begin{equation}
  \neg A \sqcap \exists R^{-}. A \sqcap (\leq 1\ R) \sqcap
  \forall (R^{-})^{+}. (\exists R^{-}. A \sqcap (\leq 1\ R))
\end{equation}
```

$$\pi_{x}(\leq n\ R) = \exists^{\leq n} y. R(x, y) = \exists y_{1}, \dotsc, y_{n}. \bigwedge_{i \neq j} y_{i} \neq y_{j} \supset \bigvee_{i} \neg R(x, y_{i}) \tag{2}$$

```
\begin{equation}
  \pi_{x}(\leq n\ R) = \exists^{\leq n} y. R(x, y) = \exists y_{1},
  \dotsc, y_{n}. \bigwedge_{i \neq j} y_{i} \neq y_{j} \supset
  \bigvee_{i} \neg R(x, y_{i})
\end{equation}
```

$$\mathsf{Tree} \equiv \mu X.(\mathsf{EmptyTree} \sqcup (\mathsf{Node}\ \sqcap \leq 1\ \mathsf{child}^{-} \sqcap \exists \mathsf{child}.\top \sqcap \forall \mathsf{child}.X)) \tag{3}$$

```
\begin{equation}
  \mathsf{Tree} \equiv \mu X.(\mathsf{EmptyTree} \sqcup (\mathsf{Node}
  \ \sqcap \leq 1\ \mathsf{child}^{-} \sqcap \exists
  \mathsf{child}.\top \sqcap \forall \mathsf{child}.X))
\end{equation}
```

$$(\mu X.C)_{\rho}^{\mathcal{I}} = \bigcap \{ \mathcal{E} \subseteq \Delta^{\mathcal{I}} \mid C_{\rho[X/\mathcal{E}]}^{\mathcal{I}} \subseteq \mathcal{E} \} \tag{4}$$

```
\begin{equation}
  (\mu X.C)_{\rho}^{\mathcal{I}} = \bigcap \{ \mathcal{E} \subseteq
  \Delta^{\mathcal{I}} \mid C_{\rho[X/\mathcal{E}]}^{\mathcal{I}}
  \subseteq \mathcal{E} \}
\end{equation}
```

$$s \to_{E} t\ \text{iff}\ \exists (l, r) \in E, p \in \mathcal{P}os(s), \sigma \in \mathcal{S}ub.\ \left. s \right|_{p} = \sigma(l)\ \text{and}\ t = s[\sigma(r)]_{p} \tag{5}$$

```
\begin{equation}
  s \to_{E} t\ \text{iff}\ \exists (l, r) \in E, p \in
  \mathcal{P}os(s), \sigma \in \mathcal{S}ub. \left. s \right|_{p} =
  \sigma(l)\ \text{and}\ t = s[\sigma(r)]_{p}
\end{equation}
```

$$\mathbb{K}[\mathfrak{C}]_{r} \coloneqq (G \cup \mathfrak{C}_{min}, M \cup \mathfrak{C}_{max}, I_{\mathfrak{C}} \cap (G \cup \mathfrak{C}_{min}) \times (M \cup \mathfrak{C}_{max})) \tag{6}$$

\begin{equation}
\mathbb{K}[\mathfrak{C}]_{r} \coloneqq (G **cup** \mathfrak{C}_{min}, M **cup** \mathfrak{C}_{max},
I_{\mathfrak{C}} **cap** (G **cup** \mathfrak{C}_{min}) **times** (M **cup** \mathfrak{C}_{max}))
end{equation}

$$0 = \int_{\left\{s_n(u) > \frac{1}{k} + \boldsymbol{\mathsf{E}}^{\mathcal{A}_n} u\right\}} \left(s_n(u) - \boldsymbol{\mathsf{E}}^{\mathcal{A}_n} u\right) d\mu \geq \frac{1}{k}\mu\left(\left\{s_n(u) > \frac{1}{k} + \boldsymbol{\mathsf{E}}^{A_n} u\right\}\right) \tag{7}$$

\begin{equation}
0 = **int**_{**left**\{s_{n}(u) > \frac{1}{k} +
\bm{\mathsf{E}}^{\mathcal{A}_{n}}u**right**\}}
left(s_{n}(u) − \bm{\mathsf{E}}^{\mathcal{A}_{n}}u**right**) d**mu** **geq**
\frac{1}{k}**mu** **left**(
left\{
s_{n}(u) > \frac{1}{k} + \bm{\mathsf{E}}^{A_{n}}u
right\}**right**)
end{equation}