

sends1-p^{11,40}

$$\begin{aligned}
& \text{sends1-p}(es;x;A;k;B;l;tg;T;f) \\
& \equiv_{\text{def}} ((\text{vartype}(\text{source}(l);x) \subseteq_r A) \\
& \quad \& (\forall e:\mathbb{E}. (\text{loc}(e) = \text{source}(l)) \Rightarrow (\text{kind}(e) = k) \Rightarrow (\text{valtype}(e) \subseteq_r B)) \\
& \quad \& (\forall e:\mathbb{E}. (\text{kind}(e) = \text{rcv}(l,tg)) \Rightarrow (\text{valtype}(e) \subseteq_r T))) \\
& \quad c \wedge (\forall e:\mathbb{E}. \\
& \quad \quad (\text{loc}(e) = \text{source}(l)) \\
& \quad \quad \Rightarrow (\text{kind}(e) = k) \\
& \quad \quad \Rightarrow (\exists L:\{e':\mathbb{E} \mid \text{kind}(e') = \text{rcv}(l,tg)\} \text{ List} \\
& \quad \quad \quad ((\forall e':\mathbb{E}. (e' \in L) \iff ((\text{kind}(e') = \text{rcv}(l,tg)) \wedge (\text{sender}(e') = e))) \\
& \quad \quad \quad \& (\forall e_1, e_2:\mathbb{E}. e_1 \text{ before } e_2 \in L \Rightarrow (e_1 <_{\text{loc}} e_2)) \\
& \quad \quad \quad \& \text{map}(\lambda e'. \text{val}(e');L) = f((x \text{ when } e), \text{val}(e))))))
\end{aligned}$$

clarification:

$$\begin{aligned}
& \text{sends1-p}(es;x;A;k;B;l;tg;T;f) \\
& \equiv_{\text{def}} ((\text{es-vartype}(es; \text{source}(l); x) \subseteq_r A) \\
& \quad \& (\forall e:\text{es-E}(es). \\
& \quad \quad (\text{es-loc}(es; e) = \text{source}(l) \in \text{Id}) \\
& \quad \quad \Rightarrow (\text{es-kind}(es; e) = k \in \text{Knd}) \\
& \quad \quad \Rightarrow (\text{es-valtype}(es; e) \subseteq_r B)) \\
& \quad \& (\forall e:\text{es-E}(es). (\text{es-kind}(es; e) = \text{rcv}(l,tg) \in \text{Knd}) \Rightarrow (\text{es-valtype}(es; e) \subseteq_r T))) \\
& \quad c \wedge (\forall e:\text{es-E}(es). \\
& \quad \quad (\text{es-loc}(es; e) = \text{source}(l) \in \text{Id}) \\
& \quad \quad \Rightarrow (\text{es-kind}(es; e) = k \in \text{Knd}) \\
& \quad \quad \Rightarrow (\exists L:\{e':\text{es-E}(es) \mid \text{es-kind}(es; e') = \text{rcv}(l,tg) \in \text{Knd}\} \text{ List} \\
& \quad \quad \quad ((\forall e':\text{es-E}(es). \\
& \quad \quad \quad (e' \in L \in \text{es-E}(es)) \\
& \quad \quad \quad \iff ((\text{es-kind}(es; e') = \text{rcv}(l,tg) \in \text{Knd}) \\
& \quad \quad \quad \quad \wedge (\text{es-sender}(es; e') = e \in \text{es-E}(es)))))) \\
& \quad \quad \& (\forall e_1:\text{es-E}(es), e_2:\text{es-E}(es). \\
& \quad \quad \quad e_1 \text{ before } e_2 \in L \in \text{es-E}(es) \Rightarrow \text{es-locl}(es; e_1; e_2)) \\
& \quad \quad \& \text{map}(\lambda e'. \text{es-val}(es; e');L) \\
& \quad \quad = \\
& \quad \quad f(\text{es-when}(es; x; e), \text{es-val}(es; e)) \\
& \quad \quad \in (T \text{ List}))))
\end{aligned}$$