

es-sends-iff2^{0,22}

$$\begin{aligned}
& \text{es-sends-iff2}(es;l;tg;B;ds;e.P(e);e.f(e)) \\
\equiv_{\text{def}} & (\forall e:\mathbb{E}. \text{kind}(e) = \text{rcv}(l,tg) \Rightarrow \text{valtype}(e) \subseteq \rho B) \\
& \& (\forall x:\text{Id}. \text{vartype}(\text{source}(l);x) \subseteq \rho ds(x)?\text{Top}) \\
& \& \forall e@\text{source}(l). P(e) \Rightarrow (\exists e':\mathbb{E}. \text{kind}(e') = \text{rcv}(l,tg) \& \text{sender}(e') = e) \\
& \& (\forall e':\mathbb{E}. \text{kind}(e') = \text{rcv}(l,tg) \Rightarrow P(\text{sender}(e')) \& \text{val}(e') = f(\text{sender}(e'))) \\
& \& (\forall e':\mathbb{E}. \\
& \quad \text{kind}(e') = \text{rcv}(l,tg) \\
& \quad \Rightarrow (\forall e'':\mathbb{E}. \text{isrcv}(e'') \Rightarrow \text{lnk}(e'') = l \Rightarrow \text{sender}(e'') = \text{sender}(e') \Rightarrow e'' = e'))
\end{aligned}$$

clarification:

$$\begin{aligned}
& \text{es-sends-iff2}(es;l;tg;B;ds;e.P(e);e.f(e)) \\
\equiv_{\text{def}} & (\forall e:\text{es-E}(es). \text{es-kind}(es; e) = \text{rcv}(l,tg) \in \text{Knd} \Rightarrow \text{es-valtype}(es; e) \subseteq \rho B) \\
& \& (\forall x:\text{Id}. \text{es-vartype}(es; \text{source}(l); x) \subseteq \rho \text{fpf-cap}(ds;\text{IdDeq};x;\text{Top})) \\
& \& \text{alle-at}(es;\text{source}(l);e.P(e)) \\
& \quad \Rightarrow (\exists e':\text{es-E}(es). \\
& \quad \quad \text{es-kind}(es; e') = \text{rcv}(l,tg) \in \text{Knd} \\
& \quad \quad \& \text{es-sender}(es; e') = e \in \text{es-E}(es))) \\
& \& (\forall e':\text{es-E}(es). \\
& \quad \text{es-kind}(es; e') = \text{rcv}(l,tg) \in \text{Knd} \\
& \quad \Rightarrow P(\text{es-sender}(es; e')) \& \text{es-val}(es; e') = f(\text{es-sender}(es; e')) \in B) \\
& \& (\forall e':\text{es-E}(es). \\
& \quad \text{es-kind}(es; e') = \text{rcv}(l,tg) \in \text{Knd} \\
& \quad \Rightarrow (\forall e'':\text{es-E}(es). \\
& \quad \quad \text{es-isrcv}(es; e'') \\
& \quad \quad \Rightarrow \text{es-lnk}(es; e'') = l \in \text{IdLnk} \\
& \quad \quad \Rightarrow \text{es-sender}(es; e'') = \text{es-sender}(es; e') \in \text{es-E}(es) \\
& \quad \quad \Rightarrow e'' = e' \in \text{es-E}(es)))
\end{aligned}$$