

es-sends-iff2^{11,40}

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

clarification:

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