

better-sends-rule^{11,40}

$\forall i:\text{Id}, k:\text{Knd}, l:\text{IdLnk}, ds:x:\text{Id} \text{ fp} \rightarrow \text{Type}, da:a:\text{Knd} \text{ fp} \rightarrow \text{Type},$
 $f:((tg:\text{Id} \times (\text{State}(ds) \rightarrow \text{Valtype}(da;k) \rightarrow (da(\text{rcv}(l,tg))?\text{Void List}))) \text{ List}).$
 $(\text{source}(l) = i)$
 $\Rightarrow @i:$ with declarations
 $ds:ds$
 $da:da$
 $k(v)$ sends f s v on link l
 realizes es .
 $((\forall x:\text{Id}. \text{vartype}(i;x) \subseteq_r ds(x)?\text{Top})$
 $\& (\forall e:\text{E}. (\text{loc}(e) = i \in \text{Id}) \Rightarrow (\text{valtype}(e) \subseteq_r \text{Valtype}(da;\text{kind}(e))))$
 $\& (\forall e:\text{E}. (\uparrow \text{isrcv}(e)) \Rightarrow (\text{lnk}(e) = l \in \text{IdLnk}) \Rightarrow (\text{valtype}(e) \subseteq_r \text{Valtype}(da;\text{kind}(e)))))$
 $c \wedge (\forall e:\text{E}.$
 $(\text{loc}(e) = i \in \text{Id})$
 $\Rightarrow (\text{kind}(e) = k \in \text{Knd})$
 $\Rightarrow (\exists L:\{e':\text{E} \mid (\uparrow \text{isrcv}(e')) \ c \wedge (\text{lnk}(e') = l \in \text{IdLnk})\} \text{ List}$
 $((\forall e':\text{E}.$
 $(e' \in L) \iff ((\uparrow \text{isrcv}(e')) \ c \wedge (\text{lnk}(e') = l \in \text{IdLnk} \ \& \ \text{sender}(e') = e \in \text{E})))$
 $\& (\forall e_1, e_2:\text{E}. e_1 \text{ before } e_2 \in L \Rightarrow (e_1 <_{\text{loc}} e_2))$
 $\& \text{map}(\lambda e'. <\text{tag}(e'), \text{val}(e')>; L)$
 $=$
 $\text{tagged-list-messages}(\lambda z.z \text{ when } e;\text{val}(e);f)$
 $\in ((tg:\text{Id} \times \text{Valtype}(da;\text{rcv}(l,tg))) \text{ List})))$