

## better-sends-rule<sup>0,22</sup>

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