

es-responsive^{11,40}

$$\begin{aligned}
& \text{es-responsive}(es; l_1; tg_1; l_2; tg_2) \\
& \equiv_{\text{def}} (\forall e = \text{rcv}(l_1, tg_1). \\
& \quad \exists e' = \text{rcv}(l_2, tg_2). \\
& \quad e \leq_{\text{loc}} \text{sender}(e') \\
& \quad \& (\forall e_2 = \text{rcv}(l_1, tg_1). (e <_{\text{loc}} e_2) \Rightarrow (\text{sender}(e') <_{\text{loc}} e_2)) \\
& \quad \& (\forall e'' = \text{rcv}(l_2, tg_2). (\text{sender}(e'') = \text{sender}(e')) \Rightarrow (e'' = e'))) \\
& \quad \& (\forall e' = \text{rcv}(l_2, tg_2). \\
& \quad \quad \exists e = \text{rcv}(l_1, tg_1). \\
& \quad \quad e \leq_{\text{loc}} \text{sender}(e') \\
& \quad \quad \& (\forall e'' = \text{rcv}(l_2, tg_2). (\text{sender}(e'') <_{\text{loc}} \text{sender}(e')) \Rightarrow (\text{sender}(e'') <_{\text{loc}} e)))
\end{aligned}$$

clarification:

$$\begin{aligned}
& \text{es-responsive}(es; l_1; tg_1; l_2; tg_2) \\
& \equiv_{\text{def}} \text{alle-rcv}(es; l_1; tg_1; e. \text{existse-rcv}(es; l_2; tg_2; e'. \text{es-le}(es; e; \text{es-sender}(es; e')) \\
& \quad \& \text{alle-rcv}(es; l_1; tg_1; e_2. \text{es-locl}(es; e; e_2) \Rightarrow \text{es-locl}(es; \text{es-sender}(es; e'); e_2)) \\
& \quad \& \text{alle-rcv}(es; l_2; tg_2; e''. (\text{es-sender}(es; e'') = \text{es-sender}(es; e') \in \text{es-E}(es)) \\
& \quad \quad \Rightarrow (e'' = e' \in \text{es-E}(es)))) \\
& \quad \& \text{alle-rcv}(es; l_2; tg_2; e'. \text{existse-rcv}(es; l_1; tg_1; e. \text{es-le}(es; e; \text{es-sender}(es; e')) \\
& \quad \quad \& \text{alle-rcv}(es; l_2; tg_2; e''. \text{es-locl}(es; \text{es-sender}(es; e''); \text{es-sender}(es; e')) \\
& \quad \quad \quad \Rightarrow \text{es-locl}(es; \text{es-sender}(es; e''); e))))
\end{aligned}$$