

## SESAxioms<sup>11,40</sup>

$$\begin{aligned}
& \text{SESAxioms}\{i:l\}(E;T;pred?;info;when;after;time) \\
& \equiv_{\text{def}} (\forall e:E, l:\text{IdLnk}. \\
& \quad \exists e':E \\
& \quad (\forall e'':E. \\
& \quad (\uparrow\text{rcv?}(e'')) \\
& \quad \Rightarrow (\text{sender}(e'') = e) \\
& \quad \Rightarrow (\text{link}(e'') = l) \\
& \quad \Rightarrow (((e'' = e') \vee e'' < e') \& \text{loc}(e') = \text{destination}(l))) \\
& \& (((\forall e, e':E. (\text{loc}(e) = \text{loc}(e')) \Rightarrow (\text{pred?}(e) = \text{pred?}(e')) \Rightarrow (e = e')) \\
& \quad \& \text{SWellFounded}(\text{pred!}(e;e')) \\
& \quad \& (\forall e:E. (\neg(\uparrow\text{first}(e))) \Rightarrow (\text{loc}(\text{pred}(e)) = \text{loc}(e))) \\
& \quad \& (\forall e:E. (\uparrow\text{rcv?}(e)) \Rightarrow (\text{loc}(\text{sender}(e)) = \text{source}(\text{link}(e)))) \\
& \quad \& (\forall e, e':E. \\
& \quad (\uparrow\text{rcv?}(e)) \\
& \quad \Rightarrow (\uparrow\text{rcv?}(e')) \\
& \quad \Rightarrow (\text{link}(e) = \text{link}(e')) \\
& \quad \Rightarrow \text{sender}(e) < \text{sender}(e') \\
& \quad \Rightarrow e < e')) \\
& \quad c \wedge (\forall e:E. \\
& \quad (\neg(\uparrow\text{first}(e))) \\
& \quad \Rightarrow (\forall x:\text{Id}, t:\mathbb{Q}. \\
& \quad \text{when}(x,e,t) = \text{after}(x,\text{pred}(e),t + ((\text{time}(e)) - (\text{time}(\text{pred}(e))))))))))
\end{aligned}$$

*clarification:*

$$\begin{aligned}
& \text{SESAxioms}\{i:l\} \\
& \quad (E; T; pred?; info; when; after; time) \\
& \equiv_{\text{def}} (\forall e:E, l:\text{IdLnk}. \\
& \quad \exists e':E \\
& \quad (\forall e'':E. \\
& \quad (\uparrow\text{rcv?}(info;e'')) \\
& \quad \Rightarrow (\text{sender}(info;e'') = e \in E) \\
& \quad \Rightarrow (\text{link}(info;e'') = l \in \text{IdLnk}) \\
& \quad \Rightarrow (((e'' = e' \in E) \vee \text{cless}(E;pred?;info;e'';e')) \\
& \quad \quad \& \text{loc}(info;e') = \text{destination}(l) \in \text{Id})) \\
& \& (((\forall e:E, e':E. \\
& \quad (\text{loc}(info;e) = \text{loc}(info;e') \in \text{Id}) \\
& \quad \Rightarrow (\text{pred?}(e) = \text{pred?}(e') \in (E + \text{Unit})) \\
& \quad \Rightarrow (e = e' \in E)) \\
& \quad \& \text{strongwellfounded}(E; e, e'.\text{pred!}(E;pred?;info;e;e')) \\
& \quad \& (\forall e:E. (\neg(\uparrow\text{first}(pred?;e))) \Rightarrow (\text{loc}(info;\text{pred}(pred?;e)) = \text{loc}(info;e) \in \text{Id})) \\
& \quad \& (\forall e:E.
\end{aligned}$$

$$\begin{aligned}
& (\uparrow\text{rcv?}(info;e) \Rightarrow (\text{loc}(info;\text{sender}(info;e)) = \text{source}(\text{link}(info;e)) \in \text{Id})) \\
& \& (\forall e:E, e':E. \\
& \quad (\uparrow\text{rcv?}(info;e) \\
& \quad \Rightarrow (\uparrow\text{rcv?}(info;e')) \\
& \quad \Rightarrow (\text{link}(info;e) = \text{link}(info;e') \in \text{IdLnk}) \\
& \quad \Rightarrow \text{cless}(E;pred?;info;\text{sender}(info;e);\text{sender}(info;e')) \\
& \quad \Rightarrow \text{cless}(E;pred?;info;e;e')) \\
& c \wedge (\forall e:E. \\
& \quad (\neg(\uparrow\text{first}(pred?;e))) \\
& \quad \Rightarrow (\forall x:\text{Id}, t:\mathbb{Q}. \\
& \quad \quad \text{when}(x,e,t) \\
& \quad \quad = \\
& \quad \quad \text{after}(x,\text{pred}(pred?;e),t + ((\text{time}(e)) - (\text{time}(\text{pred}(pred?;e)))))) \\
& \quad \quad \in T(\text{loc}(info;e),x)))
\end{aligned}$$