

es-first-at-since^{0,22}

$$\begin{aligned} & \text{es-first-at-since}(es; i; e; e.R(e); e.P(e)) \\ \equiv_{\text{def}} & \text{loc}(e) = i \\ & \quad \& P(e) \& \neg R(e) \\ & \quad \& (\forall e' < e. P(e') \Rightarrow (\exists e'' : \mathbb{E}. e' \leq e'' \& (e'' < \text{loc } e) \& R(e''))) \end{aligned}$$

clarification:

$$\begin{aligned} & \text{es-first-at-since}(es; i; e; e.R(e); e.P(e)) \\ \equiv_{\text{def}} & \text{es-loc}(es; e) = i \in \text{Id} \\ & \quad \& P(e) \& \neg R(e) \\ & \quad \& \text{alle-lt}(es; e; e'.P(e')) \\ & \quad \quad \Rightarrow (\exists e'' : \text{es-E}(es). \\ & \quad \quad \text{es-le}(es; e'; e'') \& \text{es-locl}(es; e''; e) \& R(e'')) \end{aligned}$$