

es-local-le-pred-property^{11,40}

$$\begin{aligned}
& \forall es:ES, P:(E \rightarrow \mathbb{B}), e:E. \\
& ((\uparrow(e \in_b \text{es-local-le-pred}\{i:l\}(es;P))) \iff (\exists a:E. (a \leq_{\text{loc}} e \ \& \ (\uparrow(P(a)))))) \\
& \& ((\uparrow(e \in_b \text{es-local-le-pred}\{i:l\}(es;P))) \\
& \quad \Rightarrow (\text{es-local-le-pred}\{i:l\}(es;P)(e) \leq_{\text{loc}} e \\
& \quad \quad \& \ (\uparrow(P(\text{es-local-le-pred}\{i:l\}(es;P)(e)))) \\
& \quad \quad \& \ (\forall e'':E. \\
& \quad \quad \quad e'' \leq_{\text{loc}} e \Rightarrow (\text{es-local-le-pred}\{i:l\}(es;P)(e) <_{\text{loc}} e'' \Rightarrow (\neg(\uparrow(P(e''))))))))
\end{aligned}$$