

combine-ecl-trans-state2^{11,40}

$$\begin{aligned}
& \forall ds:\text{fpf}(\text{Id}; x.\text{Type}), da:\text{fpf}(\text{Knd}; k.\text{Type}), A,B:\text{ecl-trans-tuple}\{i:l\} \\
& \hspace{15em} (ds; da). \\
& \text{ecl-trans-normal}(A) \\
& \Rightarrow \text{ecl-trans-normal}(B) \\
& \Rightarrow (\forall n:\mathbb{N}, L':(\text{event-info}(ds;da) \text{ List}). \\
& \quad (\text{ecl-trans-halt2}(ds; da; A)(n,L')) \\
& \quad \Rightarrow (\forall L:(\text{event-info}(ds;da) \text{ List}). \\
& \quad \quad \text{iseg}(\text{event-info}(ds;da); L'; L) \Rightarrow (\text{ecl-trans-halt2}(ds; da; A)(n,L)))) \\
& \Rightarrow (\forall n:\mathbb{N}, L':(\text{event-info}(ds;da) \text{ List}). \\
& \quad (\text{ecl-trans-halt2}(ds; da; B)(n,L')) \\
& \quad \Rightarrow (\forall L:(\text{event-info}(ds;da) \text{ List}). \\
& \quad \quad \text{iseg}(\text{event-info}(ds;da); L'; L) \Rightarrow (\text{ecl-trans-halt2}(ds; da; B)(n,L)))) \\
& \Rightarrow (\forall n:\mathbb{N}^+, L:(\text{event-info}(ds;da) \text{ List}). \\
& \quad (\text{ecl-trans-halt2}(ds; da; A)(n,L)) \Rightarrow (n \in \text{ecl-trans-es}(A))) \\
& \Rightarrow (\forall n:\mathbb{N}^+, L:(\text{event-info}(ds;da) \text{ List}). \\
& \quad (\text{ecl-trans-halt2}(ds; da; B)(n,L)) \Rightarrow (n \in \text{ecl-trans-es}(B))) \\
& \Rightarrow (\forall f:(\mathbb{B} \rightarrow (\mathbb{N} \rightarrow \mathbb{B}) \rightarrow (\mathbb{N} \rightarrow \mathbb{B}) \rightarrow \mathbb{N} \rightarrow \mathbb{B}), g:(\mathbb{B} \rightarrow \mathbb{B} \rightarrow \mathbb{B} \rightarrow \mathbb{B} \rightarrow \mathbb{B} \rightarrow \mathbb{B} \rightarrow \mathbb{B} \rightarrow \mathbb{B}), L:(\text{event-info}(ds;da) \text{ List}). \\
& \quad \exists x:\mathbb{B} \\
& \quad ((\text{ecl-trans-state}(\text{combine-ecl-tuples2}(A; B; f; g); L) \\
& \quad = \\
& \quad <\text{ecl-trans-state}(A; L), \text{ecl-trans-state}(B; L), x> \\
& \quad \in \text{ecl-trans-type}(\text{combine-ecl-tuples2}(A; B; f; g))) \\
& \quad \wedge ((x = (\text{inl } \text{tt})) \\
& \quad \iff (\exists L':\text{event-info}(ds;da) \text{ List} \\
& \quad \quad \exists m:\mathbb{N} \\
& \quad \quad (\text{iseg}(\text{event-info}(ds;da); L'; L) \\
& \quad \quad \wedge (\text{ecl-trans-halt2}(ds; da; A)(m,L')) \\
& \quad \quad \wedge (\forall n:\mathbb{N}, L'':(\text{event-info}(ds;da) \text{ List}). \\
& \quad \quad \quad \text{iseg}(\text{event-info}(ds;da); L''; L') \\
& \quad \quad \quad \Rightarrow (\text{ecl-trans-halt2}(ds; da; B)(n,L'')) \\
& \quad \quad \quad \Rightarrow (L'' = L')) \\
& \quad \quad \wedge (\forall n:\text{int_seg}(0; m). \neg(\text{ecl-trans-halt2}(ds; da; B)(n,L')))))) \\
& \quad \wedge ((x = (\text{inl } \text{ff})) \\
& \quad \iff (\exists L':\text{event-info}(ds;da) \text{ List} \\
& \quad \quad \exists m:\mathbb{N} \\
& \quad \quad (\text{iseg}(\text{event-info}(ds;da); L'; L) \\
& \quad \quad \wedge (\text{ecl-trans-halt2}(ds; da; B)(m,L')) \\
& \quad \quad \wedge (\forall n:\mathbb{N}, L'':(\text{event-info}(ds;da) \text{ List}). \\
& \quad \quad \quad \text{iseg}(\text{event-info}(ds;da); L''; L') \\
& \quad \quad \quad \Rightarrow (\text{ecl-trans-halt2}(ds; da; A)(n,L'')) \\
& \quad \quad \quad \Rightarrow (L'' = L')) \\
& \quad \quad \wedge (\forall n:\text{int_seg}(0; (m + 1)). \neg(\text{ecl-trans-halt2}(ds; da; A)(n,L'))))))
\end{aligned}$$

$$\begin{aligned}
& \wedge ((\neg(\uparrow \text{isl}(x))) \\
& \iff (\forall m:\mathbb{N}. \\
& \quad (\neg(\text{ecl-trans-halt2}(ds; da; A)(m,L))) \wedge (\neg(\text{ecl-trans-halt2}(ds; da; B)(m,L))))))
\end{aligned}$$