

## es-hist-is-append<sup>11,40</sup>

$$\begin{aligned} & \forall ds:\text{fpf}(\text{Id}; x.\text{Type}), da:\text{fpf}(\text{Knd}; k.\text{Type}), es:\text{event\_system}\{i:l\}, i:\text{Id}, e_1, e_2:\{e:\text{es-E}(es) \mid \\ & \qquad \qquad \qquad \text{loc}(e) = i\}, \\ & L_1, L_2:(\text{event-info}(ds; da) \text{ List}). \\ & (\neg(L_1 = [])) \\ & \Rightarrow (\neg(L_2 = [])) \\ & \Rightarrow (\forall x:\text{Id}. \text{subtype\_rel}(\text{es-variantype}(es; i; x); \text{fpf-cap}(ds; \text{id-deq}; x; \text{top}))) \\ & \Rightarrow (\forall e:\text{es-E}(es). \\ & \quad (\text{loc}(e) = i) \\ & \quad \Rightarrow \text{subtype\_rel}(\text{es-valtype}(es; e); \text{fpf-cap}(da; \text{Kind-deq}; \text{es-kind}(es; e); \text{top}))) \\ & \Rightarrow (\text{es-hist}\{i:l\}(es; e_1; e_2) = \text{append}(L_1; L_2) \in (\text{event-info}(ds; da) \text{ List})) \\ & \Rightarrow \exists e \in (e_1, e_2]. (\text{es-hist}\{i:l\}(es; e_1; \text{es-pred}(es; e)) = L_1) \wedge (\text{es-hist}\{i:l\}(es; e; e_2) = L_2) \end{aligned}$$