

old_event_system^{0,22}

old_event_system{i:l}()

\equiv_{def} $E:\text{Type}$
 $\times \text{EqDecider}(E)$
 $\times T:(\text{Id} \rightarrow \text{Id} \rightarrow \text{Type})$
 $\times V:(\text{Id} \rightarrow \text{Id} \rightarrow \text{Type})$
 $\times M:(\text{IdLnk} \rightarrow \text{Id} \rightarrow \text{Type})$
 $\times \text{Top}$
 $\times \text{loc}:(E \rightarrow \text{Id})$
 $\times \text{kind}:(E \rightarrow \text{Knd})$
 $\times \text{val}:(e:E \rightarrow \text{eventtype}(\text{kind}; \text{loc}; V; M; e))$
 $\times \text{when}:(x:\text{Id} \rightarrow e:E \rightarrow T(\text{loc}(e), x))$
 $\times \text{after}:(x:\text{Id} \rightarrow e:E \rightarrow T(\text{loc}(e), x))$
 $\times \text{sends}:(l:\text{IdLnk} \rightarrow E \rightarrow (\text{Msg_sub}(l; M) \text{ List}))$
 $\times \text{sender}:(\{e:E \mid \text{isrcv}(\text{kind}(e))\} \rightarrow E)$
 $\times \text{index}:(e:\{e:E \mid \text{isrcv}(\text{kind}(e))\} \rightarrow \mathbb{N}_{<\|\text{sends}(\text{lnk}(\text{kind}(e)), \text{sender}(e))\|})$
 $\times \text{first}:(E \rightarrow \mathbb{B})$
 $\times \text{pred}:(\{e':E \mid \neg \text{first}(e')\} \rightarrow E)$
 $\times \text{causl}:(E \rightarrow E \rightarrow \text{Prop})$
 $\times \text{ESAxioms}(E; T; M;$
 $\quad \text{loc}; \text{kind}; \text{val};$
 $\quad \text{when}; \text{after};$
 $\quad \text{sends}; \text{sender}; \text{index};$
 $\quad \text{first}; \text{pred};$
 $\quad \text{causl})$
 $\times \text{Trans}:(i:\text{Id} \rightarrow k:\text{Knd} \rightarrow \text{kindcase}(k; a.V(i, a); l, t.M(l, t)) \rightarrow (x:\text{Id} \rightarrow T(i, x)) \rightarrow (x:\text{Id} \rightarrow T$
 $\quad (i$
 $\quad , x)))$
 $\times \text{Send}:(i:\text{Id} \rightarrow k:\text{Knd} \rightarrow \text{kindcase}(k; a.V(i, a); l, t.M(l, t)) \rightarrow (x:\text{Id} \rightarrow T(i, x)) \rightarrow$
 $\quad (\text{Msg}(M) \text{ List}))$
 $\times \text{Choose}:(i, a:\text{Id} \rightarrow (x:\text{Id} \rightarrow T(i, x)) \rightarrow (V(i, a) + \text{Unit}))$
 $\times \text{ESMachineAxiom}(E; T; V; M; \text{loc}; \text{kind}; \text{val};$
 $\quad \text{when}; \text{after};$
 $\quad \text{sender}; \text{Trans}; \text{Send}; \text{Choose})$
 $\times \text{ESAtomAxiom}\{i:l\}(T; \lambda i, k. \text{kindcase}(k; a.V(i, a); l, t.M(l, t)))$
 $\times \text{Top}$

clarification:

old_event_system{i:l}

\equiv_{def} $E:\text{Type}_i$
 $\times \text{EqDecider}(E)$
 $\times T:(\text{Id} \rightarrow \text{Id} \rightarrow \text{Type}_i)$

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×V:(Id→Id→Typei)
×M:(IdLnk→Id→Typei)
×Top
×loc:(E→Id)
×kind:(E→Knd)
×val:(e:E→eventtype(kind;loc;V;M;e))
×when:(x:Id→e:E→T(loc(e),x))
×after:(x:Id→e:E→T(loc(e),x))
×sends:(l:IdLnk→E→(Msg_sub(l;M) List))
×sender:({e:E| isrcv(kind(e)) }→E)
×index:(e:{e:E| isrcv(kind(e)) }→{0..||sends(lnk(kind(e)),sender(e))||-})
×first:(E→ℕ)
×pred:({e':E| ¬first(e') }→E)
×causl:(E→E→Propi)
×ESAxioms{i:l}
    (E;
     T;
     M;
     loc;
     kind;
     val;
     when;
     after;
     sends;
     sender;
     index;
     first;
     pred;
     causl)
×Trans:(i:Id→k:Knd→kindcase(k; a.V(i,a); l,t.M(l,t) )→(x:Id→T(i,x))→(x:Id→T
    (i
     ,x)))
×Send:(i:Id→k:Knd→kindcase(k; a.V(i,a); l,t.M(l,t) )→(x:Id→T(i,x))→
    (Msg(M) List))
×Choose:(i:Id→a:Id→(x:Id→T(i,x))→(V(i,a)+Unit))
×ESMachineAxiom(E;T;V;M;loc;kind;val;
    when;after;
    sender;Trans;Send;Choose)
×ESAtomAxiom{i:l}
    (T; (λi,k. kindcase(k; a.V(i,a); l,t.M(l,t) )))
×Top

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