old_event_system^{0,22}

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

clarification:

old_event_system{i:l}
$\equiv_{\text{def}}$ E:Type$_{\text{i}}$
$\times$EqDecider(E)
$\times T$:(Id$\rightarrow$Id$\rightarrow$Type$_{\text{i}}$)

$\times V$:(Id$\rightarrow$Id$\rightarrow$Type$_{\mathrm{i}}$)
$\times M$:(IdLnk$\rightarrow$Id$\rightarrow$Type$_{\mathrm{i}}$)
$\times$Top
$\times loc$:($E\rightarrow$Id)
$\times kind$:($E\rightarrow$Knd)
$\times val$:(e:$E\rightarrow$eventtype($kind$;loc;V;M;e))
$\times when$:(x:Id$\rightarrow e$:$E\rightarrow T(loc(e),x)$)
$\times after$:(x:Id$\rightarrow e$:$E\rightarrow T(loc(e),x)$)
$\times sends$:(l:IdLnk$\rightarrow E\rightarrow$(Msg_sub(l;M) List))
$\times sender$:($\{e$:$E|$ isrcv($kind(e)$) $\}\rightarrow E$)
$\times index$:(e:$\{e$:$E|$ isrcv($kind(e)$) $\}\rightarrow\{0..\|sends(\mathrm{lnk}(kind(e)),sender(e))\|^{-}\}$)
$\times first$:($E\rightarrow\mathbb{B}$)
$\times pred$:($\{e'$:$E|\ \neg first(e')\ \}\rightarrow E$)
$\times causl$:($E\rightarrow E\rightarrow$Prop$_{\mathrm{i}}$)
$\times$ESAxioms{i:l}
(E;
T;
M;
loc;
$kind$;
val;
$when$;
$after$;
$sends$;
$sender$;
$index$;
$first$;
$pred$;
$causl$)
$\times Trans$:(i:Id$\rightarrow k$:Knd$\rightarrow$kindcase(k; $a.V(i,a)$; $l,t.M(l,t)$)$\rightarrow$(x:Id$\rightarrow T(i,x)$)$\rightarrow$(x:Id$\rightarrow T$
(i
,x)))
$\times Send$:(i:Id$\rightarrow k$:Knd$\rightarrow$kindcase(k; $a.V(i,a)$; $l,t.M(l,t)$)$\rightarrow$(x:Id$\rightarrow T(i,x)$)$\rightarrow$
(Msg(M) List))
$\times Choose$:(i:Id$\rightarrow a$:Id$\rightarrow$(x:Id$\rightarrow T(i,x)$)$\rightarrow$($V(i,a)$+Unit))
$\times$ESMachineAxiom(E;T;V;M;loc;$kind$;val;
$when$;$after$;
$sender$;$Trans$;$Send$;$Choose$)
$\times$ESAtomAxiom{i:l}
(T; ($\lambda i,k.$ kindcase(k; $a.V(i,a)$; $l,t.M(l,t)$)))
$\times$Top

http://www.cs.cornell.edu/Info/Projects/NuPrl/FDLcontent/p0_286125_/p55_291317_{old_event_system}.html