E-State[11,40]

EventsWithState
$\equiv_{\mathrm{def}}$ E:Type
$\quad\times$ (eq:EqDecider(E)
$\quad\times$ $pred?$:($E\rightarrow$(?E))
$\quad\times$ $info$:($E\rightarrow$((:Id $\times$ Id) + (:(:IdLnk $\times$ E) $\times$ Id)))
$\quad\times$ $oaxioms$:EOrderAxioms(E; $pred?$; $info$)
$\quad\times$ T:(Id$\rightarrow$Id$\rightarrow$Type)
$\quad\times$ V:(Id$\rightarrow$Id$\rightarrow$Type)
$\quad\times$ M:(IdLnk$\rightarrow$Id$\rightarrow$Type)
$\quad\times$ $init$:(i:Id$\rightarrow$EState($T(i)$))
$\quad\times$ $Trans$:(i:Id$\rightarrow$$k$:Knd$\rightarrow$kindcase($k$; $a.V(i,a)$; $l,t.M(l,t)$)$\rightarrow$EState($T(i)$)$\rightarrow$EState($T(i)$))
$\quad\times$ val:(e:$E$$\rightarrow$kindcase(kind($e$); $a.V$(loc(e),a); $l,t.M(l,t)$))
$\quad\times$ $Send$:(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$
$\qquad\quad$(Msg(M) List))
$\quad\times$ $Choose$:(i,a:Id$\rightarrow$ $\mathbb{N}$ $\rightarrow$(x:Id$\rightarrow$$T(i,x)$)$\rightarrow$(?($V(i,a)$)))
$\quad\times$ $time$:($E\rightarrow$ $\mathbb{Q}$)
$\quad\times$ (va:val-axiom(E;V;M;$info$;$pred?$;
$\qquad$ $init$;$Trans$;
$\qquad$ $Choose$;$Send$;val;$time$)
$\quad\times$ Top))

clarification:

E-State{i:l}
$\equiv_{\mathrm{def}}$ E:Type{i}
$\quad\times$ (eq:EqDecider(E)
$\quad\times$ $pred?$:($E\rightarrow$(E + Unit))
$\quad\times$ $info$:($E\rightarrow$((:Id $\times$ Id) + (:(:IdLnk $\times$ E) $\times$ Id)))
$\quad\times$ $oaxioms$:EOrderAxioms{i}(E;
$\qquad\qquad$ $pred?$;
$\qquad\qquad$ $info$)
$\quad\times$ T:(Id$\rightarrow$Id$\rightarrow$Type{i})
$\quad\times$ V:(Id$\rightarrow$Id$\rightarrow$Type{i})
$\quad\times$ M:(IdLnk$\rightarrow$Id$\rightarrow$Type{i})
$\quad\times$ $init$:(i:Id$\rightarrow$EState($T(i)$))
$\quad\times$ $Trans$:(i:Id$\rightarrow$$k$:Knd$\rightarrow$kindcase($k$; $a.V(i,a)$; $l,t.M(l,t)$)$\rightarrow$EState($T(i)$)$\rightarrow$EState($T(i)$))
$\quad\times$ val:(e:$E$$\rightarrow$kindcase(kind($info$;$e$); $a.V$(loc($info$;e),a); $l,t.M(l,t)$))
$\quad\times$ $Send$:(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$
$\qquad\quad$(Msg(M) List))
$\quad\times$ $Choose$:(i:Id$\rightarrow$$a$:Id$\rightarrow$ $\mathbb{N}$ $\rightarrow$(x:Id$\rightarrow$$T(i,x)$)$\rightarrow$(($V(i,a)$) + Unit))
$\quad\times$ $time$:($E\rightarrow$ $\mathbb{Q}$)
$\quad\times$ (va:val-axiom(E;V;M;$info$;$pred?$;

$init$;$Trans$;
$Choose$;$Send$;val;$time$)
$\times$ Top))

http://www.nuprl.org/FDLcontent/p0_963683_/p68_301084_{E-State}.html