

event-structure-theory^{0,22}

ABS: event_system_typename() **event_system_typename**

STM: event_system_typename_wf

ABS: EventsWithOrder **EOrder**

STM: EOrder_wf

ABS: EventsWithState **EState**

STM: EState_wf

STM: EState-subtype-EOrder

ABS: EventsWithKinds **EKind**

STM: EKind_wf

ABS: EventsWithValues **EVal**

STM: EVal_wf

ABS: ESAtomAxiom $\{i:l\}(T;V)$ **ESAtomAxiom**

ABS: ESMachineAxiom($E;T;V;M;loc;knd;val;when;after;sndr;Trans;Send;Choose$) **ESMachineAxiom**

STM: ESMachineAxiom_wf

STM: ESAtomAxiom_wf

STM: ESAtomAxiomTrivial

ABS: ES0 **event-system0**

STM: event-system0_wf

ABS: old_event_system $\{i:l\}()$ **old_event_system**

ABS: $e = e'$ **es-eq-E**

STM: es-eq-E_wf

STM: assert-es-eq-E

STM: decidable_es-E_equal

ABS: es-LnkTag-deq **es-LnkTag-deq**

STM: es-LnkTag-deq_wf

ABS: $\text{case}(\text{kind}(e))\text{act}(a) \Rightarrow f(a)\text{rcv}(l, tg) \Rightarrow g(l; tg)$ **es-kindcase**
 STM: es-kindcase_wf
 ABS: $\text{msgtype}(m)$ **es-msgtype**
 STM: es-msgtype_wf
 STM: es-valtype-kindtype
 ABS: $\text{state}@i \setminus x$ **es-state-without**
 STM: es-state-without_wf
 STM: es-state-eta
 STM: event_system-level-subtype
 ABS: $\text{mk-es0}(E; eq; T; V; M; loc; k; v; w; a; snds; sndr; i; f; prd; cl; p; q)$ **mk-es0**
 STM: mk-es0_wf
 ABS: $\text{mk-eval}(E; eq; prd; info; oax; T; w; a; sax; V; v)$ **mk-eval**
 STM: mk-eval_wf
 ABS: $\text{AtomFreeDecls}(X)$ **EVal-atom-free**
 STM: EVal-atom-free_wf
 STM: EVal-to-ES
 ABS: $\text{EVal_to_ES}\{i:l\}(e, p)$ **EVal_to_ES**
 STM: EVal_to_ES_wf
 ABS: $\text{state when } e \setminus x$ **es-state-when-without**
 STM: es-state-when-without_wf
 ABS: $\text{state after } e \setminus x$ **es-state-after-without**
 STM: es-state-after-without_wf
 ABS: $e \leq e'$ **es-causle**
 STM: es-causle_wf
 STM: es-locl-trans
 STM: es-le-trans
 STM: es-le-trans2

STM: es-le-trans3
STM: es-index-zero
STM: es-causle-trans
STM: es-causle_transitivity
STM: es-le-causle
STM: es-le-total
STM: es-locl-swellfnd
STM: es-causl-wellfnd
STM: es-le-not-locl
STM: es-causal-antireflexive
STM: es-causl-locl
STM: es-causle-le
STM: es-pred-locl
STM: es-le-self
STM: es-pred-le
STM: es-pred-causl
STM: es-sender-causl
STM: es-sender-causle
STM: es-first-implies
STM: es-loc-rcv
STM: es-isrcv-loc
STM: es-hasloc
STM: es-loc-sender
STM: same-sender-index
STM: es-le-iff
STM: es-first-le
STM: es-le-antisymmetric

STM: es-first-unique
 STM: es-causl-iff
 STM: implies-es-pred
 STM: es-le-pred
 STM: implies-es-pred2
 STM: es-pred-one-one
 STM: decidable__es-locl
 STM: es-next
 ABS: $e <_{\text{loc}} e'$ **es-bless**
 STM: es-bless_wf
 STM: assert-es-bless
 STM: decidable__es-le
 ABS: $\text{es-ble}\{i:l\}(es;e;e')$ **es-ble**
 STM: es-ble_wf
 STM: assert-es-ble
 STM: decidable__es-causl
 ABS: $\text{es-bc}\{i:l\}(es;e;e')$ **es-bc**
 STM: es-bc_wf
 STM: assert-es-bc
 ABS: $\exists e=k(v).P(e;v)$ **es-ek**
 ABS: $\exists e:\text{rvc}(l,tg,v).P(e;v)$ **es-er**
 ABS: $\text{mval}(m)$ **es-mval**
 STM: es-mval_wf
 STM: es-mval-valtype
 STM: es-msg-rcvd
 ABS: $\text{before}(e)$ **es-before**
 STM: es-before_wf

STM: es-before_wf2
STM: member-es-before
STM: lbefore-es-before
STM: lbefore-es-before-iff
ABS: es-init($es;e$) **es-init**
STM: es-init_wf
STM: es-init-le
STM: es-first-init
STM: es-loc-init
ABS: $[e, e']$ **es-interval**
STM: es-interval_wf
STM: member-es-interval
STM: lbefore-es-interval
STM: hd-es-interval
STM: es-interval-non-zero
STM: es-interval-nil
STM: es-interval-is-nil
STM: es-interval-last
STM: es-interval-less
STM: es-interval-less-sq
STM: es-interval-eq
STM: es-interval-eq2
STM: es-interval-length-one-one
STM: es-interval-one-one
STM: es-interval-iseq
STM: es-interval-partition
STM: es-interval-select

STM: es-interval_wf2
 ABS: haslnk($l;e$) **es-haslnk**
 STM: es-haslnk_wf
 STM: assert-es-haslnk
 ABS: rcvs($l;before(e')$) **es-rcvs**
 STM: es-rcvs_wf
 STM: member-es-rcvs
 ABS: snds($l;before(e)$) **es-snds**
 STM: es-snds_wf
 STM: member-es-snds
 ABS: snds($l, before(e,n)$) **es-snds-index**
 STM: es-snds-index_wf
 STM: member-es-snds-index
 STM: firstn-before
 STM: es-before-decomp
 STM: last-es-snds-index
 ABS: emsg(e) **es-msg**
 STM: es-msg_wf
 STM: es-msg_wf2
 STM: es-msg-member-sends
 ABS: msgs($l;before(e')$) **es-msgs**
 STM: es-msgs_wf
 STM: haslink_wf2
 STM: member-es-msgs
 STM: es-fifo-nil
 STM: es-fifo
 STM: es-after-pred

STM: decl-state-exists
 STM: decl-state-subtype
 ABS: $@i$ always. $P(x)$ **alle-at1**
 STM: alle-at1_wf
 ABS: $@i$ always. $P(x_1;x_2)$ **alle-at2**
 STM: alle-at2_wf
 STM: alle-at-iff
 STM: alle-at-not-first
 STM: es-invariant1
 STM: es-invariant2
 STM: es-constant1
 ABS: $\exists e@i.P(e)$ **existse-at**
 STM: existse-at_wf
 STM: change-lemma
 STM: es-first-exists
 STM: change-since-init
 ABS: $\exists e \leq e'.P(e)$ **existse-le**
 STM: existse-le_wf
 ABS: $\exists e < e'.P(e)$ **existse-before**
 STM: existse-before_wf
 STM: existse-before-iff
 STM: decidable__existse-before
 STM: existse-le-iff
 STM: decidable__existse-le
 ABS: $\forall e' \geq e.P(e')$ **alle-ge**
 STM: alle-ge_wf
 ABS: $\forall e < e'. P(e)$ **alle-lt**

STM: alle-lt_wf
 STM: alle-lt-iff
 STM: decidable__alle-lt
 ABS: $\forall e \leq e'. P(e)$ **alle-le**
 STM: alle-le_wf
 STM: alle-le-iff
 STM: decidable__alle-le
 ABS: $\forall e \in [e_1, e_2]. P(e)$ **alle-between1**
 STM: alle-between1_wf
 STM: alle-between1-true
 STM: alle-between1-false
 STM: alle-between1_functionality_wrt_iff
 STM: decidable__alle-between1
 ABS: $\exists e \in [e_1, e_2]. P(e)$ **existse-between1**
 STM: existse-between1_wf
 STM: existse-between1-true
 STM: existse-between1-false
 STM: existse-between1_functionality_wrt_iff
 STM: decidable__existse-between1
 ABS: $\forall e \in [e_1, e_2]. P(e)$ **alle-between2**
 STM: alle-between2_wf
 STM: alle-between2-true
 STM: alle-between2-false
 STM: alle-between2_functionality_wrt_iff
 STM: decidable__alle-between2
 ABS: $\exists e \in [e_1, e_2]. P(e)$ **existse-between2**
 STM: existse-between2_wf

STM: existse-between2-false

STM: existse-between2-true

STM: existse-between2_functionality_wrt_iff

STM: decidable__existse-between2

ABS: $\exists e \in (e_1, e_2]. P(e)$ **existse-between3**

STM: existse-between3_wf

STM: existse-between3-false

STM: existse-between3-true

STM: existse-between3_functionality_wrt_iff

STM: decidable__existse-between3

STM: es-subinterval

STM: last-change

ABS: e is first@ i s.t. $e.P(e)$ **es-first-at**

STM: es-first-at_wf

STM: es-first-before

STM: es-first-before2

ABS: $es\text{-first-at-since}(es; i; e; e.R(e); e.P(e))$ **es-first-at-since**

STM: es-first-at-since_wf

STM: previous-event-exists

STM: es-first-at-since-iff

ABS: $es\text{-first-at-since}'(es; i; e; e.R(e); e.P(e))$ **es-first-at-since'**

STM: es-first-at-since'_wf

ABS: $\forall e = \text{rcv}(l, tg). P(e)$ **alle-rcv**

STM: alle-rcv_wf

ABS: $\exists e = \text{rcv}(l, tg). P(e)$ **existse-rcv**

STM: existse-rcv_wf

STM: es-bound-list

STM: es-bound-list2
 STM: es-machine-axiom
 STM: atom-free-es-kindtype
 STM: atom-free-es-Msg
 STM: atom-free-es-valtype
 STM: atom-free-es-vartype
 STM: atom-free-es-state
 STM: atom-free-es-state-without
 ABS: e receives a **es-rcv-atom**
 STM: es-rcv-atom_wf
 ABS: e sends a **es-send-atom**
 STM: es-send-atom_wf
 ABS: e sends a to i **es-send-atom-to**
 STM: es-send-atom-to_wf
 ABS: e leaks x to e' **es-leaks**
 ABS: e copies x **es-copies**
 STM: state-after-pred
 STM: implies-es-atom-axiom
 ABS: $i \gg a$ **es-atom**
 STM: es-atom_wf
 STM: es-copies_wf
 STM: es-leaks_wf
 STM: es-atom-axiom
 STM: es-atom-lemma1
 STM: es-atom-lemma2
 ABS: $@i$ stable $state.P(state)$ **es-stable**
 STM: es-stable_wf

STM: stable-implies
 STM: stable-implies2
 STM: stable-implies3
 STM: stable-implies4
 STM: last-state-change
 STM: last-state-change2
 STM: last-state-change3
 ABS: $\text{es-frame}(es;i;L;x;T)$ **es-frame**
 STM: es-frame_wf
 STM: es-stable-1
 STM: es-stable-2
 STM: es-stable-3
 STM: es-constant-1
 ABS: $\text{es-responsive}(es;l_1;tg_1;l_2;tg_2)$ **es-responsive**
 STM: es-responsive_wf
 STM: es-responsive-bijection
 ABS: only $k(v):B$ sends $[tg, f(s;v)] : T$ on l **es-only-sender**
 STM: es-only-sender_wf
 ABS: $@i x$ has type T **es-type**
 STM: vartype-es-type
 STM: vartype-es-state-sub
 STM: es-state-subtype
 STM: state-after-pred-ds
 STM: es-when-first
 STM: init-p-implies
 ABS: $\text{usends1-p}(es;ds;k;T;l;tg;B;f)$ **usends1-p**
 STM: usends1-p_wf

ABS: $\text{pre-init1-p}(es; i; x; X; x_0; a; T; P)$ **pre-init1-p**
 STM: pre-init1-p_wf
 ABS: $\text{weak-precond-send-p}(es; T; A; l; tg; a; ds; P; f)$ **weak-precond-send-p**
 STM: $\text{weak-precond-send-p_wf}$
 ABS: $@i \text{locl}(a)$ occurs once **once-p**
 STM: once-p_wf
 ABS: $\text{locl}(a)$ sends $[tg, f\{A \rightarrow T\}(x)]$ on link l once **send-once-p**
 STM: send-once-p_wf
 STM: $\text{es-interval-induction}$
 STM: $\text{es-interval-induction2}$
 ABS: $\text{PossibleEvent}(poss)$ **possible-event**
 STM: possible-event_wf
 ABS: $\text{pe-es}(e)$ **pe-es**
 STM: pe-es_wf
 ABS: $\text{pe-e}(p)$ **pe-e**
 STM: pe-e_wf
 ABS: $\text{pe-state}(p)$ **pe-state**
 STM: pe-state_wf
 ABS: $\text{pe-loc}(p)$ **pe-loc**
 STM: pe-loc_wf
 ABS: $K(P)@e$ **es-knows**
 STM: es-knows_wf
 STM: es-knows-true
 STM: es-knows-knows
 STM: es-knows-not
 STM: es-knows-trans
 STM: es-knows-valid

ABS: $e_1 \leq e_2$ **poss-le**

STM: poss-le_wf

STM: es-knows-stable

ABS: $e:s.P(s)@j$ **es-simul**

STM: es-simul_wf

ABS: $es; i; ds; da$ **es-decls**

STM: es-decls_wf

STM: es-decls-iff

STM: es-decls-join-single

ABS: with decls ds $dasends$ on l from e include $f(e)$ and only these for tags in tgs

es-sends-iff

STM: es-sends-iff_wf

ABS: state $dk:A$ sends $[tg, e.f(e):B]$ on l **es-kind-sends-iff**

STM: es-kind-sends-iff_wf

STM: es-sends-iff_functionality

ABS: $es; i; x; ds; e.P(e); s.f(s)$ **es-update-iff**

STM: es-update-iff_wf

ABS: $es; l; tg; B; ds; e.P(e); e.f(e)$ **es-sends-iff2**

STM: es-sends-iff2_wf

STM: es-sends-iff2_functionality

ABS: $ds; da$ **event-info**

STM: event-info_wf

ABS: $es; e$ **es-info**

STM: es-info_wf

ABS: $es\text{-hist}\{i:l\}(es; e_1; e_2)$ **es-hist**

STM: es-hist_wf

STM: member-es-hist
 STM: null-es-hist
 STM: es-hist-iseq
 STM: es-hist-partition
 STM: es-hist-last
 STM: last-es-hist
 STM: es-hist-is-append
 STM: es-hist-is-concat
 STM: iseg-es-hist
 STM: es-hist-one-one
 ABS: $es\text{-trans-state-from}\{i:l\}(es;ks;g;z;e_1;e_2)$ **es-trans-state-from**
 STM: es-trans-state-from_wf
 ABS: $e_2 = \text{first } e \geq e_1.P(e)$ **es-first-since**
 STM: es-first-since_wf
 STM: es-first-since_functionality_wrt_iff
 STM: alle-between1-not-first-since
 STM: alle-between2-not-first-since
 STM: es-increasing-sequence
 STM: es-increasing-sequence2
 ABS: $[e_1;e_2] \sim ([a,b].p(a;b))*[a,b].q(a;b)$ **es-pstar-q**
 STM: es-pstar-q_wf
 STM: es-pstar-q-trivial
 STM: es-pstar-q-le
 STM: es-pstar-q_functionality_wrt_implies
 STM: es-pstar-q_functionality_wrt_rev_implies
 STM: es-pstar-q_functionality_wrt_iff
 STM: es-pstar-q-partition

ABS: $[e_1, e_2] \sim ([a, b].p(a; b)) + \mathbf{es-pplus}$
 STM: es-pplus_wf
 STM: es-pplus_functionality_wrt_implies
 STM: es-pplus_functionality_wrt_rev_implies
 STM: es-pplus_functionality_wrt_iff
 STM: es-pplus-trivial
 STM: es-pplus-le
 STM: es-pplus-alle-between2
 STM: es-pplus-partition
 STM: es-pplus-first-since
 STM: es-pplus-first-since-exit
 ABS: $\mathit{data}(T)$ **data**
 STM: data_wf
 ABS: $\mathit{secret-table}(T)$ **secret-table**
 STM: secret-table_wf
 ABS: $\|tab\|$ **st-length**
 STM: st-length_wf
 ABS: $\mathit{ptr}(tab)$ **st-ptr**
 STM: st-ptr_wf
 ABS: $\mathit{st-atom}(tab; n)$ **st-atom**
 STM: st-atom_wf
 ABS: $\mathit{atoms-distinct}(tab)$ **st-atoms-distinct**
 STM: st-atoms-distinct_wf
 ABS: $\mathit{next}(tab)$ **st-next**
 STM: st-next_wf
 ABS: $\mathit{key}(tab; n)$ **st-key**
 STM: st-key_wf

ABS: $\text{data}(tab;n)$ **st-data**

STM: st-data_wf

STM: st-ptr-wf2

ABS: $\text{st-lookup}(tab;x)$ **st-lookup**

STM: st-lookup_wf

STM: st-lookup-property

STM: st-lookup-outl

STM: st-lookup-distinct

ABS: $\text{st-key-match}(tab;k_1;k_2)$ **st-key-match**

STM: st-key-match_wf

ABS: $\text{decrypt}(tab;kval)$ **st-decrypt**

STM: st-decrypt_wf

ABS: $\text{encrypt}(tab;keyv)$ **st-encrypt**

STM: st-encrypt_wf

STM: st-length-encrypt

STM: st-atom-encrypt

ABS: $?[x]$ **cond-to-list**

STM: cond-to-list_wf

ABS: $\text{es-secret-server}\{\$stable:ut2, \$encrypt:ut2, \$decrypt:ut2\}$
 $(es; T; L; \hat{i})$

es-secret-server

STM: es-secret-server_wf

STM: ss-ptr-non-decreasing

STM: ss-table-length

STM: ss-atom-constant

STM: ss-atoms-distinct

STM: ss-encrypt-unique

ABS: es-seq($es;S$) **es-seq**

STM: es-seq_wf

STM: send-minimal-lemma

STM: better-send-minimal-lemma