

es-copies^{11,40}

e copies x

$\equiv_{\text{def}} \exists a:\text{Atom1}$
(loc(e) \parallel a & ($\neg x$ when es-init($es;e$):vartype(loc(e); x) $\parallel a$)
& state when $e \setminus \setminus x:\text{state}@loc(e) \setminus \setminus x \parallel a$
& e receives $\parallel a$
& (\neg state after $e \setminus \setminus x:\text{state}@loc(e) \setminus \setminus x \parallel a$))

clarification:

es-copies($es;e;x$)

$\equiv_{\text{def}} \exists a:\text{Atom1}$
(es-atom($es;es\text{-loc}(es;e);a$)
& (\neg free-from-atom{1}(es-vartype($es;es\text{-loc}(es;e);x$);es-when
($es;x;es\text{-init}(es;e);a$))
& free-from-atom{1}(es-state-without($es;es\text{-loc}$
($es;e$); x);es-state-when-without($es;e;x$); a)
& es-rcv-atom($es;e;a$)
& (\neg free-from-atom{1}(es-state-without($es;es\text{-loc}$
($es;e$); x);es-state-after-without($es;e;x$); a)))