

## ecl-machine2-realizes<sup>11,40</sup>

$\forall i:\text{Id}, ds:\text{fpf}(\text{Id}; x.\text{Type}), da:\text{fpf}(\text{Knd}; k.\text{Type}), T:\text{Type}, ks:(\text{Knd List}), upd:\text{update-spec}(ds;$   
 $\quad\quad\quad da$   
 $\quad\quad\quad ),$

$a:(\mathbb{N} \rightarrow (k:\{\text{Knd} \mid (k \in ks)\} \rightarrow \text{decl-state}(ds) \rightarrow \text{ma-valtype}(da; k) \rightarrow T \rightarrow \mathbb{B})).$   
 $(\neg(\uparrow \text{fpf-dom}(\text{id-deq}; \text{mkid}\{\text{ecl:ut2}\}; ds)))$   
 $\Rightarrow \text{normal-type}\{i:l\}$   
 $\quad (T)$   
 $\Rightarrow \text{normal-ds}\{i:l\}$   
 $\quad (ds)$   
 $\Rightarrow \text{normal-da}\{i:l\}$   
 $\quad (da)$   
 $\Rightarrow \text{L.all}(ks; \text{Knd}; k.(\uparrow \text{isrcv}(k)) \Rightarrow (i = \text{destination}(\text{lnk}(k)) \in \text{Id}))$   
 $\Rightarrow \text{update-spec-decl}(upd; ds)$   
 $\Rightarrow \text{R-realizes}\{i:l\}$   
 $\quad (\text{ecl-machine2}(i; ds; da; \text{mkid}\{\text{ecl:ut2}\}; T; ks; a; upd);$   
 $\quad \text{es.l.all}$   
 $\quad (\text{update-spec-vars}(upd);$   
 $\quad \text{Id};$   
 $\quad z.(\text{es-decls}(es; i; \text{fpf-join}(\text{id-deq}; ds; \text{fpf-single}(\text{mkid}\{\text{ecl:ut2}\}; T)); da)$   
 $\quad \Rightarrow (\text{subtype\_rel}(\text{es-vartype}(es; i; z); \text{fpf-ap}(ds; \text{id-deq}; z))$   
 $\quad \quad c \wedge ((\uparrow \text{bor}(\neg_b \text{null}(ks)); \text{es-isconst}(es; i; z)))$   
 $\quad \quad \Rightarrow \text{alle-at}(es;$   
 $\quad \quad \quad i;$   
 $\quad \quad \quad e. \forall e' \geq e. \text{es-after}(es; z; e')$   
 $\quad \quad \quad =$   
 $\quad \quad \quad \text{es-trans-state-from}\{i:l\}(es; ks;$   
 $\quad \quad \quad \quad \lambda k, s, v, z'. \text{list\_accum}$   
 $\quad \quad \quad \quad (z', nf. \text{let } n, f = nf$   
 $\quad \quad \quad \quad \text{in}$   
 $\quad \quad \quad \quad \text{if } a$   
 $\quad \quad \quad \quad \quad (n$   
 $\quad \quad \quad \quad \quad \quad , k$   
 $\quad \quad \quad \quad \quad \quad , s$   
 $\quad \quad \quad \quad \quad \quad , v$   
 $\quad \quad \quad \quad \quad \quad , s(\text{mkid}\{\text{ecl:ut2}\}))$   
 $\quad \quad \quad \quad \text{then } f(s, v)$   
 $\quad \quad \quad \quad \text{else } z'$   
 $\quad \quad \quad \quad \text{fi};$   
 $\quad \quad \quad \quad z';$   
 $\quad \quad \quad \text{fpf-cap}(upd;$   
 $\quad \quad \quad \quad \text{product-deq}$   
 $\quad \quad \quad \quad (\text{Knd};$

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Id;
Kind-deq;
id-deq);
<k, z>;
[]);es-when(es;
           z;
           e
           );e')
∈ fpf-ap(ds; id-deq; z))))))

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