

## has-changed<sup>11,40</sup>

$\forall T:\text{Type}, eq:\text{EqDecider}(T), es:\text{event\_system}\{i:l\}, x:\text{Id}, e:\{e:\text{es-E}(es) \mid$   
 $\text{es-dtype}(es; \text{loc}(e); x; T)\} .$   
 $(\exists e':\text{es-E}(es). (\text{es-le}(es; e'; e) \wedge (\neg(\text{es-when}(es; x; e') = \text{es-when}(es; x; e) \in T))))$   
 $\Rightarrow (\uparrow x \text{ changed before } e)$