

## **nonempty-cmd-history**<sup>11,40</sup>

$\forall es:\text{ES}, \text{Config}:\text{AbsInterface}(\text{chain\_config}()), \text{Cmd}:\text{Type}, \text{Sys}:\text{AbsInterface}(\text{chain\_sys}(\text{Cmd})),$   
 $e:\text{E}.$   
 $(0 < \|\text{cmd-history}(e)\|) \Rightarrow (\exists e':\text{E}. (e' \leq_{\text{loc}} e \ \& \ (\uparrow(e' \in_b \text{Sys}(\text{valid}))))))$