

INSTANCE *Naturals*

INSTANCE *Sequences*

LOCAL INSTANCE *IOUtils*

LOCAL INSTANCE *Json*

CONSTANT *File*

CONSTANT *CurrState*

CONSTANT *SuccState*

*FormatOpts*  $\triangleq$   
 $\begin{aligned} &[format \mapsto \text{"TXT"}, \\ & charset \mapsto \text{"UTF-8"}, \\ & openOptions \mapsto \langle \text{"WRITE"}, \text{"CREATE"}, \text{"APPEND"} \rangle] \end{aligned}$

*Delete*  $\triangleq$   
 $\wedge IOExec(\langle \text{"rm"}, \text{"-f"}, File \rangle).exitValue = 0$

*Log(context)*  $\triangleq$   
 LET  
 $\begin{aligned} currState &\triangleq [k \in \{k \in \text{DOMAIN } CurrState : \text{DOMAIN } CurrState[k] \neq \{\}} \mapsto CurrState[k]] \\ succState &\triangleq [k \in \{k \in \text{DOMAIN } SuccState : \text{DOMAIN } SuccState[k] \neq \{\}} \mapsto SuccState[k]] \\ record &\triangleq [context \mapsto context, \\ & currState \mapsto currState, \\ & succState \mapsto [k \in \{k \in \text{DOMAIN } succState : k \in \text{DOMAIN } currState \Rightarrow \\ & currState[k] \neq succState[k]\} \mapsto succState[k]]] \end{aligned}$   
 IN  $Serialize(ToJsonObject(record) \circ \text{"\n"}, File, FormatOpts).exitValue = 0$

*Action(action, context)*  $\triangleq$   
 $\begin{aligned} &\wedge action \\ &\wedge Log(context) \end{aligned}$