

## t66\_fsm\_1

(TMK2r9tm4TJ1WUGNu4g5mnPgADk9Y7JyEKw)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v8\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v5\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r7\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r4\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k11\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v8\_struct\_0 X2) \wedge ((v7\_fsm\_1 \\ & X2 X0 X1) \wedge (l2\_fsm\_1 X2 X0 X1)))))) \Rightarrow (\forall X3.((\neg v2\_struct\_0 X3) \wedge \\ & ((v8\_struct\_0 X3) \wedge ((v7\_fsm\_1 X3 X0 X1) \wedge (l2\_fsm\_1 X3 X0 X1)))))) \Rightarrow \\ & ((r4\_fsm\_1 X0 X1 X2 X3) \Rightarrow (r7\_fsm\_1 X0 X1 (k11\_fsm\_1 X0 X1 X2) (k11\_fsm\_1 \\ & X0 X1 X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((\neg v2\_struct\_0 X2) \wedge (l2\_fsm\_1 X2 X0 X1)) \Rightarrow (\forall X3. \\ & ((\neg v2\_struct\_0 X3) \wedge (l2\_fsm\_1 X3 X0 X1)) \Rightarrow ((r7\_fsm\_1 X0 X1 X2 X3) \Rightarrow \\ & (r4\_fsm\_1 X0 X1 X2 X3)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v8\_struct\_0 X2) \wedge ((v5\_fsm\_1 \\ & X2 X0 X1) \wedge (l2\_fsm\_1 X2 X0 X1)))))) \Rightarrow (r7\_fsm\_1 X0 X1 X2 (k11\_fsm\_1 X0 \\ & X1 X2))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((\neg v2\_struct\_0 X2) \wedge (l2\_fsm\_1 X2 X0 X1)) \Rightarrow (\forall X3. \\ & ((\neg v2\_struct\_0 X3) \wedge (l2\_fsm\_1 X3 X0 X1)) \Rightarrow (\forall X4.((\neg v2\_struct\_0 \\ & X4) \wedge (l2\_fsm\_1 X4 X0 X1)) \Rightarrow (((r7\_fsm\_1 X0 X1 X2 X3) \wedge (r7\_fsm\_1 X0 X1 \\ & X3 X4)) \Rightarrow (r7\_fsm\_1 X0 X1 X2 X4)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & ((\neg v1\_xboole\_0 X1)\wedge((\neg v2\_struct\_0 X2)\wedge(l2\_fsm\_1 X2 X0 X1))\wedge \\ & ((\neg v2\_struct\_0 X3)\wedge(l2\_fsm\_1 X3 X0 X1))))\Rightarrow((r7\_fsm\_1 X0 X1 X2 \\ & X3)\Rightarrow(r7\_fsm\_1 X0 X1 X3 X2)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 \\ & X1)\wedge((\neg v2\_struct\_0 X2)\wedge((v8\_struct\_0 X2)\wedge(l2\_fsm\_1 X2 X0 X1))))\Rightarrow \\ & ((\neg v2\_struct\_0 (k11\_fsm\_1 X0 X1 X2))\wedge((v8\_struct\_0 (k11\_fsm\_1 \\ & X0 X1 X2))\wedge(v2\_fsm\_1 (k11\_fsm\_1 X0 X1 X2) X0 X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 \\ & X1)\wedge((\neg v2\_struct\_0 X2)\wedge((v8\_struct\_0 X2)\wedge(l2\_fsm\_1 X2 X0 X1))))\Rightarrow \\ & ((v2\_fsm\_1 (k11\_fsm\_1 X0 X1 X2) X0 X1)\wedge(l2\_fsm\_1 (k11\_fsm\_1 X0 X1 \\ & X2) X0 X1)) \end{aligned} \quad (7)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow \\ & (\forall X2.((\neg v2\_struct\_0 X2)\wedge((v8\_struct\_0 X2)\wedge((v5\_fsm\_1 \\ & X2 X0 X1)\wedge((v7\_fsm\_1 X2 X0 X1)\wedge(l2\_fsm\_1 X2 X0 X1))))\Rightarrow(\forall X3. \\ & ((\neg v2\_struct\_0 X3)\wedge((v8\_struct\_0 X3)\wedge((v5\_fsm\_1 X3 X0 X1)\wedge(( \\ & v7\_fsm\_1 X3 X0 X1)\wedge(l2\_fsm\_1 X3 X0 X1))))\Rightarrow((r7\_fsm\_1 X0 X1 X2 X3)\Leftrightarrow \\ & (r4\_fsm\_1 X0 X1 X2 X3)))))) \end{aligned}$$