

## t40\_fsm\_3

(TMXj3pAYp5sNxnM1onAASx3W7q6kGij3URz)

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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  $l2\_fsm\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_catalan2 : \iota \Rightarrow \iota$  be given. Let  $k9\_flang\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_flang\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_flang\_1 : \iota \Rightarrow \iota$  be given. Let  $v4\_fsm\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_fsm\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_fsm\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_afinsq\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v3\_fsm\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\ & (l2\_fsm\_3 X1 X0 (k4\_subset\_1 (k3\_catalan2 X0) (k9\_flang\_1 X0) ( \\ & k4\_flang\_1 X0 (k2\_flang\_1 X0)))))) \Rightarrow (k6\_fsm\_3 X0 (k4\_subset\_1 ( \\ & k3\_catalan2 X0) (k9\_flang\_1 X0) (k4\_flang\_1 X0 (k2\_flang\_1 X0))) \\ & X1 = k6\_fsm\_3 X0 (k9\_flang\_1 X0) (k4\_fsm\_3 X0 (k4\_subset\_1 (k3\_catalan2 \\ & X0) (k9\_flang\_1 X0) (k4\_flang\_1 X0 (k2\_flang\_1 X0))) X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. k3\_catalan2 X0 = k8\_afinsq\_1 X0 \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge ((m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k8\_afinsq\_1 X0))) \wedge ((\neg v2\_struct\_0 X2) \wedge (l2\_fsm\_3 \\ & X2 X0 X1)))) \Rightarrow ((\neg v2\_struct\_0 (k4\_fsm\_3 X0 X1 X2)) \wedge ((v3\_fsm\_3 (k4\_fsm\_3 \\ & X0 X1 X2) X0 (k9\_flang\_1 X0)) \wedge (v4\_fsm\_3 (k4\_fsm\_3 X0 X1 X2) X0 (k9\_flang\_1 \\ & X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge ((m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k8\_afinsq\_1 X0))) \wedge ((\neg v2\_struct\_0 X2) \wedge ((v8\_struct\_0 \\ & X2) \wedge (l2\_fsm\_3 X2 X0 X1)))))) \Rightarrow ((v8\_struct\_0 (k4\_fsm\_3 X0 X1 X2)) \wedge \\ & (v3\_fsm\_3 (k4\_fsm\_3 X0 X1 X2) X0 (k9\_flang\_1 X0))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.m1\_subset\_1 (k9\_flang\_1 X0) (k1\_zfmisc\_1 (k3\_catalan2 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)))\Rightarrow(m1\_subset\_1 (k4\_subset\_1 \\ X0 X1 X2) (k1\_zfmisc\_1 X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (k8\_afinsq\_1 X0)))\wedge((\neg v2\_struct\_0 X2)\wedge(l2\_fsm\_3 \\ X2 X0 X1))))\Rightarrow((v3\_fsm\_3 (k4\_fsm\_3 X0 X1 X2) X0 (k9\_flang\_1 X0))\wedge \\ (l2\_fsm\_3 (k4\_fsm\_3 X0 X1 X2) X0 (k9\_flang\_1 X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X1 (k3\_catalan2 X0))\Rightarrow(m1\_subset\_1 (k4\_flang\_1 X0 X1) (k1\_zfmisc\_1 (k3\_catalan2 X0))) \quad (8)$$

Assume the following.

$$\forall X0.m1\_subset\_1 (k2\_flang\_1 X0) (k3\_catalan2 X0) \quad (9)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge \\ ((v8\_struct\_0 X1)\wedge(l2\_fsm\_3 X1 X0 (k4\_subset\_1 (k3\_catalan2 X0) \\ (k9\_flang\_1 X0) (k4\_flang\_1 X0 (k2\_flang\_1 X0))))))\Rightarrow(\exists X2. \\ ((\neg v2\_struct\_0 X2)\wedge((v8\_struct\_0 X2)\wedge((v4\_fsm\_3 X2 X0 (k9\_flang\_1 \\ X0))\wedge(l2\_fsm\_3 X2 X0 (k9\_flang\_1 X0))))))\wedge(k6\_fsm\_3 X0 (k4\_subset\_1 \\ (k3\_catalan2 X0) (k9\_flang\_1 X0) (k4\_flang\_1 X0 (k2\_flang\_1 X0))) \\ X1 = k6\_fsm\_3 X0 (k9\_flang\_1 X0) X2))) \end{aligned}$$