

## t31\_fsm\_2

(TMZcmevZxwEBTJxYjUniqQtzSHip81MF5Rf)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v5\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_ordinal1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u4\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_real\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_square\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_absvalue : \iota \Rightarrow \iota$  be given. Let  $r3\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_fsm\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l3\_fsm\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$

be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l2\_fsm\_2 X0 (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers) (k1\_ordinal1 k1\_numbers))) \Rightarrow (((v1\_fsm\_2 X0 (k2\_zfmisc\_1 \\
& k1\_numbers k1\_numbers)) \wedge ((u1\_struct\_0 X0 = k1\_ordinal1 k1\_numbers) \wedge \\
& ((u1\_fsm\_2 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0 = k1\_numbers) \wedge \\
& ((u2\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0 = k1\_numbers) \wedge \\
& ((u4\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) (k1\_ordinal1 \\
& k1\_numbers) X0 = k6\_partfun1 (u1\_struct\_0 X0)) \wedge ((\forall X1.( \\
& m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\
& ((\neg(r1\_xreal\_0 X1 k6\_numbers) \wedge (r1\_xreal\_0 X2 k6\_numbers)) \Rightarrow \\
& (k3\_funct\_2 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers)) (u1\_struct\_0 X0) (u1\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers) X0) (k1\_domain\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers) (u2\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) \\
& (k1\_domain\_1 k1\_numbers k1\_numbers X1 X2)) = np\_1)))) \wedge ((\forall X1.( \\
& m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\
& ((r1\_xreal\_0 X1 k6\_numbers) \wedge (r1\_xreal\_0 X2 k6\_numbers)) \Rightarrow \\
& (((X1 \neq k6\_numbers) \wedge (X2 \neq k6\_numbers)) \vee (k3\_funct\_2 (k2\_zfmisc\_1 \\
& (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers)) (u1\_struct\_0 \\
& X0) (u1\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) (k1\_domain\_1 \\
& (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers) (u2\_fsm\_1 \\
& (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) (k1\_domain\_1 k1\_numbers \\
& k1\_numbers X1 X2)) = k6\_numbers)))))) \wedge ((\forall X1.(m1\_subset\_1 \\
& X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow (\neg(\neg \\
& r1\_xreal\_0 k6\_numbers X1) \wedge ((\neg r1\_xreal\_0 k6\_numbers X2) \wedge (k3\_funct\_2 \\
& (k2\_zfmisc\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers)) \\
& (u1\_struct\_0 X0) (u1\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\
& X0) (k1\_domain\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\
& (u2\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) (k1\_domain\_1 \\
& k1\_numbers k1\_numbers X1 X2)) \neq k1\_real\_1 np\_1)))))) \Rightarrow ( \\
& \forall X1.(m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 \\
& X2 k1\_numbers) \Rightarrow (r3\_fsm\_2 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\
& (k1\_ordinal1 k1\_numbers) X0 (k1\_domain\_1 k1\_numbers k1\_numbers \\
& X1 X2) (k2\_square\_1 (k2\_absvalue X1) (k2\_absvalue X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \neg v1\_xboole\_0 (k1\_ordinal1 X0) \tag{3}$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge(\neg v1\_xboole\_0 X1))\Rightarrow (\neg v1\_xboole\_0 (k2\_zfmisc\_1 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(l1\_fsm\_2 X1 X0)\Rightarrow(m1\_subset\_1 (u1\_fsm\_2 X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Rightarrow(m1\_subset\_1 X2 X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow(\forall X2.(l2\_fsm\_2 X2 X0 X1)\Rightarrow((l1\_fsm\_2 X2 X0)\wedge(l3\_fsm\_1 X2 X0 X1))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k1\_numbers)\wedge(m1\_subset\_1 X1 k1\_numbers))\Rightarrow(m1\_subset\_1 (k2\_square\_1 X0 X1) k1\_numbers) \quad (9)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(m1\_subset\_1 (k2\_absvalue X0) k1\_numbers) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge((m1\_subset\_1 X2 X0)\wedge(m1\_subset\_1 X3 X1))))\Rightarrow(m1\_subset\_1 (k1\_domain\_1 X0 X1 X2 X3) (k2\_zfmisc\_1 X0 X1)) \quad (11)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow(\forall X2.((\neg v2\_struct\_0 X2)\wedge((v1\_fsm\_2 X2 X0)\wedge((v5\_fsm\_2 X2 X0)\wedge(l2\_fsm\_2 X2 X0 X1))))\Rightarrow(\forall X3.(m1\_subset\_1 X3 X0)\Rightarrow(\forall X4.(m1\_subset\_1 X4 X1)\Rightarrow((X4 = k2\_fsm\_2 X0 X1 X2 X3)\Leftrightarrow(r3\_fsm\_2 X0 X1 X2 X3 X4)))))) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(v1\_xboole\_0 X1)) \quad (13)$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_fsm\_2 X0 (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers)) \wedge ((v5\_fsm\_2 X0 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \wedge \\
& (l2\_fsm\_2 X0 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) (k1\_ordinal1 \\
& k1\_numbers)))))) \Rightarrow (((u1\_struct\_0 X0 = k1\_ordinal1 k1\_numbers) \wedge \\
& ((u1\_fsm\_2 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0 = k1\_numbers) \wedge \\
& ((u2\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0 = k1\_numbers) \wedge \\
& ((u4\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) (k1\_ordinal1 \\
& k1\_numbers) X0 = k6\_partfun1 (u1\_struct\_0 X0)) \wedge ((\forall X1.( \\
& m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\
& ((\neg(r1\_xreal\_0 X1 k6\_numbers) \wedge (r1\_xreal\_0 X2 k6\_numbers)) \Rightarrow \\
& (k3\_funct\_2 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers)) (u1\_struct\_0 X0) (u1\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers) X0) (k1\_domain\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers) (u2\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) \\
& (k1\_domain\_1 k1\_numbers k1\_numbers X1 X2)) = np\_1)))))) \wedge ((\forall X1.( \\
& m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\
& ((r1\_xreal\_0 X1 k6\_numbers) \wedge (r1\_xreal\_0 X2 k6\_numbers)) \Rightarrow \\
& (((X1 \neq k6\_numbers) \wedge (X2 \neq k6\_numbers)) \vee (k3\_funct\_2 (k2\_zfmisc\_1 \\
& (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers)) (u1\_struct\_0 \\
& X0) (u1\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) (k1\_domain\_1 \\
& (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers) (u2\_fsm\_1 \\
& (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) (k1\_domain\_1 k1\_numbers \\
& k1\_numbers X1 X2)) = k6\_numbers)))))) \wedge (\forall X1.(m1\_subset\_1 \\
& X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow (\neg(\neg \\
& r1\_xreal\_0 k6\_numbers X1) \wedge ((\neg r1\_xreal\_0 k6\_numbers X2) \wedge (k3\_funct\_2 \\
& (k2\_zfmisc\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers)) \\
& (u1\_struct\_0 X0) (u1\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\
& X0) (k1\_domain\_1 (u1\_struct\_0 X0) (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\
& (u2\_fsm\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) X0) (k1\_domain\_1 \\
& k1\_numbers k1\_numbers X1 X2)) \neq k1\_real\_1 np\_1)))))) \Rightarrow (\forall X1.( \\
& m1\_subset\_1 X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\
& (k2\_fsm\_2 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) (k1\_ordinal1 k1\_numbers) \\
& X0 (k1\_domain\_1 k1\_numbers k1\_numbers X1 X2) = k2\_square\_1 (k2\_absvalue \\
& X1) (k2\_absvalue X2))))))
\end{aligned}$$