

## t20\_scmfsa10

(TMWzHnZr9P8NYvtJrBJ8V9E4UrLPrgxCyGJ)

October 27, 2020

Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_compos\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmfsa\_2 : \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $k3\_compos\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k2\_compos\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k8\_scmfsa\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_compos\_0 : \iota \Rightarrow o$  be given. Let  $k4\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $v2\_compos\_0 : \iota \Rightarrow o$  be given. Let  $v3\_compos\_0 : \iota \Rightarrow o$  be given. Let  $v5\_compos\_0 : \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 (u1\_compos\_1 k1\_scmfsa\_2)) \Rightarrow & (\neg(k2\_compos\_0 \\ & (u1\_compos\_1 k1\_scmfsa\_2) X0 = np\_3) \wedge (\forall X1.((v1\_ami\_2 \\ & X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow (\forall X2. \\ & ((v1\_ami\_2 X2) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ & (X0 \neq k8\_scmfsa\_2 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ (\forall X1.((v1\_ami\_2 X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ (k2\_compos\_0 (u1\_compos\_1 k1\_scmfsa\_2) (k8\_scmfsa\_2 X0 X1) = np\_3)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ (\forall X1.((v1\_ami\_2 X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2))) \Rightarrow \\ (k5\_xtuple\_0 (k8\_scmfsa\_2 X0 X1) = k1\_xboole\_0)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v1\_xboole\_0 X0) \wedge (v1\_compos\_0 X0)) \wedge \\ (m1\_subset\_1 X1 X0)) \Rightarrow (k2\_compos\_0 X0 X1 = k4\_xtuple\_0 X1) \end{aligned} \quad (4)$$

Assume the following.

$$\exists X0.(m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge (v1\_ami\_2 X0) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_compos\_1 X0) \Rightarrow & ((v1\_compos\_0 (u1\_compos\_1 X0)) \wedge \\ & ((v2\_compos\_0 (u1\_compos\_1 X0)) \wedge ((v3\_compos\_0 (u1\_compos\_1 \\ & X0)) \wedge (v5\_compos\_0 (u1\_compos\_1 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(l1\_extpro\_1 X1 X0) \Rightarrow ((l1\_memstr\_0 X1 X0) \wedge (l1\_compos\_1 X1)) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 \\ k1\_scmfsa\_2))) \wedge ((v1\_ami\_2 X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 \\ k1\_scmfsa\_2)))) \Rightarrow (m1\_subset\_1 (k8\_scmfsa\_2 X0 X1) (u1\_compos\_1 \\ k1\_scmfsa\_2)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v1\_xboole\_0 X0) \wedge (v1\_compos\_0 X0)) \wedge \\ (m1\_subset\_1 X1 X0)) \Rightarrow (m1\_subset\_1 (k2\_compos\_0 X0 X1) (k1\_compos\_0 \\ X0)) \end{aligned} \quad (9)$$

Assume the following.

$$(v1\_extpro\_1 k1\_scmfsa\_2 np\_3) \wedge (l1\_extpro\_1 k1\_scmfsa\_2 np\_3) \quad (10)$$

Assume the following.

$$\forall X0.k4\_xtuple\_0 X0 = k1\_xtuple\_0 (k1\_xtuple\_0 X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Leftrightarrow (\forall X2.(X2 \in X0) \Rightarrow (X2 \in X1)) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_compos\_0 X0)) \Rightarrow (\forall X1. \\ (m1\_subset\_1 X1 (k1\_compos\_0 X0)) \Rightarrow (k3\_compos\_0 X0 X1 = ReplSep \\ (toset (\lambda X2 : \iota.m1\_subset\_1 X2 X0) (\lambda X2 : \iota.k2\_compos\_0 \\ X0 X2 = X1) (\lambda X2 : \iota.k5\_xtuple\_0 X2)))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (X2 = X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1)\Leftrightarrow((r1\_tarski\ X0\ X1)\wedge(r1\_tarski\ X1\ X0)) \quad (15)$$

Assume the following.

$$\forall X0.(v5\_compos\_0\ X0)\Rightarrow(\neg v1\_xboole\_0\ X0) \quad (16)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(m1\_subset\_1\ X0\ (k1\_compos\_0\ (u1\_compos\_1\ k1\_scmfsa\_2)))\Rightarrow \\ &((X0 = np\_3)\Rightarrow(k3\_compos\_0\ (u1\_compos\_1\ k1\_scmfsa\_2)\ X0 = k1\_tarski \\ &\quad k1\_xboole\_0)) \end{aligned}$$