

t2\_scm\_comp  
(TMLHYErIx3KpdC6qjQdn8rFig9UpstniQ9T)

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Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_scm\_comp : \iota$  be given. Let  $k7\_dtconstr : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $np\_4 : \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $np\_0 : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_5 : \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_dtconstr : \iota \Rightarrow o$  be given. Let  $l1\_lang1 : \iota \Rightarrow o$  be given. Let  $v1\_lang1 : \iota \Rightarrow o$  be given. Let  $v1\_dtconstr : \iota \Rightarrow o$  be given. Let  $v3\_dtconstr : \iota \Rightarrow o$  be given. Let  $v3\_bintree1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (k4\_tarski X0 X1 \in k2\_zfmisc\_1 X2 X3) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X3)) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_4) \wedge (m2\_subset\_1 np\_4 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_4 k5\_numbers) \wedge (m1\_subset\_1 np\_4 k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_3) \wedge (m2\_subset\_1 np\_3 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_3 k5\_numbers) \wedge (m1\_subset\_1 np\_3 k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \text{ np\_1}) \wedge (m2\_subset\_1 \text{ np\_1 } k1\_numbers \text{ k5\_numbers})) \wedge \\ & ((m1\_subset\_1 \text{ np\_1 } k5\_numbers) \wedge (m1\_subset\_1 \text{ np\_1 } k1\_numbers)) \end{aligned} \quad (7)$$

Assume the following.

$$v1\_xboole\_0 \text{ np\_0} \quad (8)$$

Assume the following.

$$\neg r1\_xxreal\_0 \text{ np\_5 } \text{ np\_4} \quad (9)$$

Assume the following.

$$\neg r1\_xxreal\_0 \text{ np\_5 } \text{ np\_3} \quad (10)$$

Assume the following.

$$\neg r1\_xxreal\_0 \text{ np\_5 } \text{ np\_2} \quad (11)$$

Assume the following.

$$\neg r1\_xxreal\_0 \text{ np\_5 } \text{ np\_1} \quad (12)$$

Assume the following.

$$\neg r1\_xxreal\_0 \text{ np\_5 } \text{ np\_0} \quad (13)$$

Assume the following.

$$\neg r1\_xxreal\_0 \text{ np\_1 } \text{ np\_0} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (15)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (16)$$

Assume the following.

$$k7\_dtconstr \text{ k1\_scm\_comp} = k2\_zfmisc\_1 \text{ np\_1 } \text{ np\_5} \quad (17)$$

Assume the following.

$$\begin{aligned} \text{ np\_5} = & \text{ ReplSep } (\text{ toset } (\lambda X0 : \iota. m2\_subset\_1 X0 \text{ k1\_numbers } \text{ k5\_numbers})) \\ & (\lambda X0 : \iota. \neg r1\_xxreal\_0 \text{ np\_5 } X0) (\lambda X0 : \iota. X0) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \text{ np\_1} = & \text{ ReplSep } (\text{ toset } (\lambda X0 : \iota. m2\_subset\_1 X0 \text{ k1\_numbers } \text{ k5\_numbers})) \\ & (\lambda X0 : \iota. \neg r1\_xxreal\_0 \text{ np\_1 } X0) (\lambda X0 : \iota. X0) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v2\_dtconstr X0) \wedge (l1\_lang1 X0))) \Rightarrow \\ &((\neg v1\_xboole\_0 (k7\_dtconstr X0)) \wedge (m1\_subset\_1 (k7\_dtconstr \\ &X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \end{aligned} \quad (20)$$

Assume the following.

$$m2\_subset\_1 k6\_numbers k1\_numbers k5\_numbers \quad (21)$$

Assume the following.

$$\begin{aligned} (&\neg v2\_struct\_0 k1\_scm\_comp) \wedge ((v1\_lang1 k1\_scm\_comp) \wedge ((v1\_dtconstr \\ &k1\_scm\_comp) \wedge ((v2\_dtconstr k1\_scm\_comp) \wedge ((v3\_dtconstr k1\_scm\_comp) \wedge \\ &((v3\_bintree1 k1\_scm\_comp) \wedge (l1\_lang1 k1\_scm\_comp)))))) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (23)$$

**Theorem 1**

$$\begin{aligned} (&m2\_subset\_1 (k4\_tarski k6\_numbers k6\_numbers) (u1\_struct\_0 \\ &k1\_scm\_comp) (k7\_dtconstr k1\_scm\_comp)) \wedge ((m2\_subset\_1 (k4\_tarski \\ &k6\_numbers np\_1) (u1\_struct\_0 k1\_scm\_comp) (k7\_dtconstr k1\_scm\_comp)) \wedge \\ &((m2\_subset\_1 (k4\_tarski k6\_numbers np\_2) (u1\_struct\_0 k1\_scm\_comp) \\ &(k7\_dtconstr k1\_scm\_comp)) \wedge ((m2\_subset\_1 (k4\_tarski k6\_numbers \\ &np\_3) (u1\_struct\_0 k1\_scm\_comp) (k7\_dtconstr k1\_scm\_comp)) \wedge \\ &(m2\_subset\_1 (k4\_tarski k6\_numbers np\_4) (u1\_struct\_0 k1\_scm\_comp) \\ &(k7\_dtconstr k1\_scm\_comp)))))) \end{aligned}$$