

## t4\_scm\_1

(TMRsY25RGbQQqnBA3fMstQBxsrJ2KA2dsd8)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_ami\_3 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v5\_funct\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_compos\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_ami\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k3\_ami\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ami\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_ami\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_ami\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v3\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_setfam\_1 : \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_ami\_3))) \Rightarrow \\
 & (\forall X1.((v1\_ami\_2 X1) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 k1\_ami\_3))) \Rightarrow \\
 & (\forall X2.((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 k1\_ami\_3)) \wedge \\
 & ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 np\_2 k1\_ami\_3)) \wedge \\
 & (v1\_partfun1 X2 (u1\_struct\_0 k1\_ami\_3)))))) \Rightarrow ((k1\_funct\_1 (k2\_extpro\_1 \\
 & np\_2 k1\_ami\_3 (k2\_ami\_3 X0 X1) X2) (k4\_struct\_0 k1\_ami\_3) = k4\_card\_1 \\
 & (k5\_memstr\_0 np\_2 k1\_ami\_3 X2)) \wedge ((k1\_funct\_1 (k2\_extpro\_1 np\_2 \\
 & k1\_ami\_3 (k2\_ami\_3 X0 X1) X2) X0 = k1\_funct\_1 X2 X1) \wedge (\forall X3. \\
 & ((v1\_ami\_2 X3) \wedge (m1\_subset\_1 X3 (u1\_struct\_0 k1\_ami\_3))) \Rightarrow ((X3 \neq \\
 & X0) \Rightarrow (k1\_funct\_1 (k2\_extpro\_1 np\_2 k1\_ami\_3 (k2\_ami\_3 X0 X1) X2) \\
 & X3 = k1\_funct\_1 X2 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & ((v2\_xreal\_0 \ np\_2) \wedge (m2\_subset\_1 \ np\_2 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_2 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_2 \ k1\_numbers)) \end{aligned} \quad (2)$$

Assume the following.

$$\neg v1\_xboole\_0 \ np\_2 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((\neg v1\_xboole\_0 \ X1) \wedge \\ & (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & \ X2 \ X0 \ X1) \Leftrightarrow (m1\_subset\_1 \ X2 \ X1)) \end{aligned} \quad (4)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 \ X0) \wedge ((v4\_relat\_1 \ X0 \ k5\_numbers) \wedge ((v5\_relat\_1 \\ & \ X0 \ (u1\_compos\_1 \ k1\_ami\_3)) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_partfun1 \ X0 \\ & \ k5\_numbers)))))) \Rightarrow (\forall X1. (m2\_subset\_1 \ X1 \ k1\_numbers \ k5\_numbers) \Rightarrow \\ & (\forall X2. (m2\_subset\_1 \ X2 \ k1\_numbers \ k5\_numbers) \Rightarrow (\forall X3. \\ & ((v1\_relat\_1 \ X3) \wedge ((v4\_relat\_1 \ X3 \ (u1\_struct\_0 \ k1\_ami\_3)) \wedge (( \\ & \ v1\_funct\_1 \ X3) \wedge ((v5\_funct\_1 \ X3 \ (k2\_memstr\_0 \ np\_2 \ k1\_ami\_3)) \wedge \\ & \ (v1\_partfun1 \ X3 \ (u1\_struct\_0 \ k1\_ami\_3)))))) \Rightarrow (\forall X4. ((v1\_ami\_2 \\ & \ X4) \wedge (m1\_subset\_1 \ X4 \ (u1\_struct\_0 \ k1\_ami\_3))) \Rightarrow (\forall X5. (( \\ & \ v1\_ami\_2 \ X5) \wedge (m1\_subset\_1 \ X5 \ (u1\_struct\_0 \ k1\_ami\_3))) \Rightarrow ((k5\_memstr\_0 \\ & \ np\_2 \ k1\_ami\_3 \ (k5\_extpro\_1 \ np\_2 \ k1\_ami\_3 \ X0 \ X3 \ X1) = X2) \Rightarrow (((k3\_compos\_1 \\ & \ k1\_ami\_3 \ X0 \ X2 \neq k2\_ami\_3 \ X4 \ X5) \wedge ((k3\_compos\_1 \ k1\_ami\_3 \ X0 \ X2 \neq k3\_ami\_3 \\ & \ X4 \ X5) \wedge ((k3\_compos\_1 \ k1\_ami\_3 \ X0 \ X2 \neq k4\_ami\_3 \ X4 \ X5) \wedge ((k3\_compos\_1 \\ & \ k1\_ami\_3 \ X0 \ X2 \neq k5\_ami\_3 \ X4 \ X5) \wedge (\neg (X4 \neq X5) \wedge (k3\_compos\_1 \ k1\_ami\_3 \\ & \ X0 \ X2 = k6\_ami\_3 \ X4 \ X5)))))) \vee ((k5\_extpro\_1 \ np\_2 \ k1\_ami\_3 \ X0 \ X3 \ ( \\ & \ k2\_nat\_1 \ X1 \ np\_1) = k2\_extpro\_1 \ np\_2 \ k1\_ami\_3 \ (k3\_compos\_1 \ k1\_ami\_3 \\ & \ X0 \ X2) \ (k5\_extpro\_1 \ np\_2 \ k1\_ami\_3 \ X0 \ X3 \ X1)) \wedge (k5\_memstr\_0 \ np\_2 \\ & \ k1\_ami\_3 \ (k5\_extpro\_1 \ np\_2 \ k1\_ami\_3 \ X0 \ X3 \ (k2\_nat\_1 \ X1 \ np\_1)) = \\ & \ k2\_nat\_1 \ X2 \ np\_1))))))))) \end{aligned} \quad (6)$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (7)$$

Assume the following.

$$(v3\_memstr\_0 \ k1\_ami\_3 \ np\_2) \wedge (v1\_extpro\_1 \ k1\_ami\_3 \ np\_2) \quad (8)$$

Assume the following.

$$(v2\_memstr\_0 \ k1\_ami\_3 \ np\_2) \wedge (v1\_extpro\_1 \ k1\_ami\_3 \ np\_2) \quad (9)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (10)$$

Assume the following.

$$(\neg v2\_struct\_0 \ k1\_ami\_3) \wedge (v1\_extpro\_1 \ k1\_ami\_3 \ np\_2) \quad (11)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1\_setfam\_1 \\ & X0) \wedge (((\neg v2\_struct\_0 \ X1) \wedge ((v2\_memstr\_0 \ X1 \ X0) \wedge ((v3\_memstr\_0 \\ & X1 \ X0) \wedge (l1\_extpro\_1 \ X1 \ X0)))) \wedge (((v1\_relat\_1 \ X2) \wedge ((v4\_relat\_1 \\ & X2 \ k5\_numbers) \wedge ((v5\_relat\_1 \ X2 \ (u1\_compos\_1 \ X1)) \wedge (v1\_funct\_1 \\ & X2)))) \wedge (((v1\_relat\_1 \ X3) \wedge ((v4\_relat\_1 \ X3 \ (u1\_struct\_0 \ X1)) \wedge \\ & ((v1\_funct\_1 \ X3) \wedge ((v5\_funct\_1 \ X3 \ (k2\_memstr\_0 \ X0 \ X1)) \wedge (v1\_partfun1 \\ & X3 \ (u1\_struct\_0 \ X1)))))) \wedge (v7\_ordinal1 \ X4)))) \Rightarrow ((v1\_relat\_1 \\ & (k5\_extpro\_1 \ X0 \ X1 \ X2 \ X3 \ X4)) \wedge ((v4\_relat\_1 \ (k5\_extpro\_1 \ X0 \ X1 \ X2 \\ & X3 \ X4) \ (u1\_struct\_0 \ X1)) \wedge ((v1\_funct\_1 \ (k5\_extpro\_1 \ X0 \ X1 \ X2 \ X3 \ X4)) \wedge \\ & ((v5\_funct\_1 \ (k5\_extpro\_1 \ X0 \ X1 \ X2 \ X3 \ X4) \ (k2\_memstr\_0 \ X0 \ X1)) \wedge ( \\ & v1\_partfun1 \ (k5\_extpro\_1 \ X0 \ X1 \ X2 \ X3 \ X4) \ (u1\_struct\_0 \ X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$(v1\_extpro\_1 \ k1\_ami\_3 \ np\_2) \wedge (l1\_extpro\_1 \ k1\_ami\_3 \ np\_2) \quad (14)$$

Assume the following.

$$\forall X0. (m1\_subset\_1 \ X0 \ k4\_ordinal1) \Rightarrow (v7\_ordinal1 \ X0) \quad (15)$$

Assume the following.

$$\forall X0. ((\neg v1\_xboole\_0 \ X0) \wedge (v7\_ordinal1 \ X0)) \Rightarrow ((\neg v1\_xboole\_0 \ X0) \wedge ((v7\_ordinal1 \ X0) \wedge (\neg v1\_setfam\_1 \ X0))) \quad (16)$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_ami\_3)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 X0 \\
& k5\_numbers)))))) \Rightarrow (\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow \\
& (\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow (\forall X3. \\
& ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 k1\_ami\_3)) \wedge (( \\
& v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 np\_2 k1\_ami\_3)) \wedge \\
& (v1\_partfun1 X3 (u1\_struct\_0 k1\_ami\_3)))))) \Rightarrow (\forall X4.((v1\_ami\_2 \\
& X4) \wedge (m1\_subset\_1 X4 (u1\_struct\_0 k1\_ami\_3))) \Rightarrow (\forall X5.(( \\
& v1\_ami\_2 X5) \wedge (m1\_subset\_1 X5 (u1\_struct\_0 k1\_ami\_3))) \Rightarrow (((k5\_memstr\_0 \\
& np\_2 k1\_ami\_3 (k5\_extpro\_1 np\_2 k1\_ami\_3 X0 X3 X1) = X2) \wedge (k3\_compos\_1 \\
& k1\_ami\_3 X0 X2 = k2\_ami\_3 X4 X5)) \Rightarrow ((k5\_memstr\_0 np\_2 k1\_ami\_3 ( \\
& k5\_extpro\_1 np\_2 k1\_ami\_3 X0 X3 (k2\_nat\_1 X1 np\_1)) = k2\_nat\_1 \\
& X2 np\_1) \wedge ((k1\_funct\_1 (k5\_extpro\_1 np\_2 k1\_ami\_3 X0 X3 (k2\_nat\_1 \\
& X1 np\_1)) X4 = k1\_funct\_1 (k5\_extpro\_1 np\_2 k1\_ami\_3 X0 X3 X1) X5) \wedge \\
& (\forall X6.((v1\_ami\_2 X6) \wedge (m1\_subset\_1 X6 (u1\_struct\_0 k1\_ami\_3))) \Rightarrow \\
& ((X6 \neq X4) \Rightarrow (k1\_funct\_1 (k5\_extpro\_1 np\_2 k1\_ami\_3 X0 X3 (k2\_nat\_1 \\
& X1 np\_1)) X6 = k1\_funct\_1 (k5\_extpro\_1 np\_2 k1\_ami\_3 X0 X3 X1) X6))))))))))
\end{aligned}$$