

## t3\_scmpds\_8

(TMUr4pUY5bmW6rJupUr2Yt68kPmcMF2CJT3)

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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  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmpds\_2 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  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  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_compos\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_4 : \iota$  be given. Let  $np\_5 : \iota$  be given. Let  $np\_6 : \iota$  be given. Let  $np\_14 : \iota$  be given. Let  $k8\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_setfam\_1 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
 & ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_memstr\_0 X1 X0)))) \Rightarrow \\
 & (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge \\
 & ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 \\
 & X2 (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\
 & X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 \\
 & X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow ((k6\_memstr\_0 \\
 & X0 X1 X2 = k6\_memstr\_0 X0 X1 X3) \Rightarrow (k8\_memstr\_0 X0 X1 X2 = k8\_memstr\_0 \\
 & X0 X1 X3))))))
 \end{aligned}
 \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmpds\_2)) \wedge \\
& ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge \\
& (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmpds\_2)))))) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow ((k2\_compos\_0 (u1\_compos\_1 \\
& k1\_scmpds\_2) X1 \in k3\_enumset1 k6\_numbers np\_4 np\_5 np\_6 np\_14) \Rightarrow \\
& (k6\_memstr\_0 np\_2 k1\_scmpds\_2 (k2\_extpro\_1 np\_2 k1\_scmpds\_2 \\
& X1 X0) = k6\_memstr\_0 np\_2 k1\_scmpds\_2 X0)))
\end{aligned} \tag{2}$$

Assume the following.

$$m1\_subset\_1 k1\_xboole\_0 k4\_ordinal1 \tag{3}$$

Assume the following.

$$\begin{aligned}
& ((v2\_xxreal\_0 np\_6) \wedge (m2\_subset\_1 np\_6 k1\_numbers k5\_numbers)) \wedge \\
& ((m1\_subset\_1 np\_6 k5\_numbers) \wedge (m1\_subset\_1 np\_6 k1\_numbers))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& ((v2\_xxreal\_0 np\_5) \wedge (m2\_subset\_1 np\_5 k1\_numbers k5\_numbers)) \wedge \\
& ((m1\_subset\_1 np\_5 k5\_numbers) \wedge (m1\_subset\_1 np\_5 k1\_numbers))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& ((v2\_xxreal\_0 np\_4) \wedge (m2\_subset\_1 np\_4 k1\_numbers k5\_numbers)) \wedge \\
& ((m1\_subset\_1 np\_4 k5\_numbers) \wedge (m1\_subset\_1 np\_4 k1\_numbers))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& ((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge \\
& ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers))
\end{aligned} \tag{7}$$

Assume the following.

$$\neg v1\_xboole\_0 np\_2 \tag{8}$$

Assume the following.

$$\begin{aligned}
& ((v2\_xxreal\_0 np\_14) \wedge (m2\_subset\_1 np\_14 k1\_numbers k5\_numbers)) \wedge \\
& ((m1\_subset\_1 np\_14 k5\_numbers) \wedge (m1\_subset\_1 np\_14 k1\_numbers))
\end{aligned} \tag{9}$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \tag{10}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{11}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((\neg v1\_xboole\_0 X0) \wedge ((m1\_subset\_1 X1 X0) \wedge ((m1\_subset\_1 X2 X0) \wedge \\ & ((m1\_subset\_1 X3 X0) \wedge ((m1\_subset\_1 X4 X0) \wedge (m1\_subset\_1 X5 X0)))))) \Rightarrow \\ & (k10\_domain\_1 X0 X1 X2 X3 X4 X5 = k3\_enumset1 X1 X2 X3 X4 X5) \end{aligned} \quad (12)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (13)$$

Assume the following.

$$\begin{aligned} & (v2\_memstr\_0 k1\_scmpds\_2 np\_2) \wedge ((v3\_memstr\_0 k1\_scmpds\_2 np\_2) \wedge \\ & (v1\_extpro\_1 k1\_scmpds\_2 np\_2)) \end{aligned} \quad (14)$$

Assume the following.

$$(\neg v2\_struct\_0 k1\_scmpds\_2) \wedge (v1\_extpro\_1 k1\_scmpds\_2 np\_2) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(l1\_extpro\_1 X1 X0) \Rightarrow ((l1\_memstr\_0 X1 X0) \wedge \\ & (l1\_compos\_1 X1)) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_setfam\_1 X0) \wedge \\ & (((v2\_memstr\_0 X1 X0) \wedge (l1\_extpro\_1 X1 X0)) \wedge ((m1\_subset\_1 X2 ( \\ & u1\_compos\_1 X1)) \wedge ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 \\ & X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 X0 X1)) \wedge ( \\ & v1\_partfun1 X3 (u1\_struct\_0 X1)))))))))) \Rightarrow ((v1\_relat\_1 (k2\_extpro\_1 \\ & X0 X1 X2 X3)) \wedge ((v4\_relat\_1 (k2\_extpro\_1 X0 X1 X2 X3) (u1\_struct\_0 \\ & X1)) \wedge ((v1\_funct\_1 (k2\_extpro\_1 X0 X1 X2 X3)) \wedge ((v5\_funct\_1 (k2\_extpro\_1 \\ & X0 X1 X2 X3) (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 (k2\_extpro\_1 X0 X1 \\ & X2 X3) (u1\_struct\_0 X1)))))) \end{aligned} \quad (17)$$

Assume the following.

$$(v1\_extpro\_1 k1\_scmpds\_2 np\_2) \wedge (l1\_extpro\_1 k1\_scmpds\_2 np\_2) \quad (18)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v7\_ordinal1 X0)) \Rightarrow ((\neg v1\_xboole\_0 \\ & X0) \wedge ((v7\_ordinal1 X0) \wedge (\neg v1\_setfam\_1 X0))) \end{aligned} \quad (20)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmpds\_2)) \wedge \\ & ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge \\ & (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmpds\_2)))))) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow ((k2\_compos\_0 (u1\_compos\_1 \\ & k1\_scmpds\_2) X1 \in k10\_domain\_1 k5\_numbers k6\_numbers np\_4 np\_5 \\ & np\_6 np\_14) \Rightarrow (k8\_memstr\_0 np\_2 k1\_scmpds\_2 X0 = k8\_memstr\_0 \\ & np\_2 k1\_scmpds\_2 (k2\_extpro\_1 np\_2 k1\_scmpds\_2 X1 X0)))) \end{aligned}$$