

# t125\_scmpds\_6

## (TMKhtxHikNhwaEWDx4vdnSJrDr5yt6eN5Re)

October 27, 2020

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  $k1\_scmpds\_2 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  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  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $r1\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  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  $v1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_compos\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0\ np\_2) \wedge (m2\_subset\_1\ np\_2\ k1\_numbers\ k5\_numbers)) \wedge \\ & ((m1\_subset\_1\ np\_2\ k5\_numbers) \wedge (m1\_subset\_1\ np\_2\ k1\_numbers)) \end{aligned} \quad (1)$$

Assume the following.

$$\neg v1\_xboole\_0\ np\_2 \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_setfam\_1\ X0) \wedge (((\neg v2\_struct\_0 \\ & X1) \wedge ((v2\_memstr\_0\ X1\ X0) \wedge ((v3\_memstr\_0\ X1\ X0) \wedge (l1\_memstr\_0\ X1 \\ & X0)))) \wedge ((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ (u1\_struct\_0\ X1)) \wedge \\ & (v1\_funct\_1\ X2) \wedge (v5\_funct\_1\ X2\ (k2\_memstr\_0\ X0\ X1)))))) \Rightarrow (k8\_memstr\_0 \\ & X0\ X1\ (k8\_memstr\_0\ X0\ X1\ X2) = k8\_memstr\_0\ X0\ X1\ X2) \end{aligned} \quad (4)$$

Assume the following.

$$(v2\_memstr\_0\ k1\_scmpds\_2\ np\_2) \wedge ((v3\_memstr\_0\ k1\_scmpds\_2\ np\_2) \wedge (v1\_extpro\_1\ k1\_scmpds\_2\ np\_2)) \quad (5)$$

Assume the following.

$$(\neg v2\_struct\_0\ k1\_scmpds\_2) \wedge (v1\_extpro\_1\ k1\_scmpds\_2\ np\_2) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_setfam\_1\ X0) \wedge (((\neg v2\_struct\_0\ X1) \wedge ((v2\_memstr\_0\ X1\ X0) \wedge ((v3\_memstr\_0\ X1\ X0) \wedge (l1\_memstr\_0\ X1\ X0)))) \wedge ((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ (u1\_struct\_0\ X1)) \wedge (v1\_funct\_1\ X2) \wedge ((v5\_funct\_1\ X2\ (k2\_memstr\_0\ X0\ X1)) \wedge (v1\_partfun1\ X2\ (u1\_struct\_0\ X1)))))) \Rightarrow ((v1\_relat\_1\ (k8\_memstr\_0\ X0\ X1\ X2)) \wedge ((v4\_relat\_1\ (k8\_memstr\_0\ X0\ X1\ X2)\ (u1\_struct\_0\ X1)) \wedge ((v1\_funct\_1\ (k8\_memstr\_0\ X0\ X1\ X2)) \wedge ((v5\_funct\_1\ (k8\_memstr\_0\ X0\ X1\ X2)\ (k2\_memstr\_0\ X0\ X1)) \wedge (v1\_partfun1\ (k8\_memstr\_0\ X0\ X1\ X2)\ (u1\_struct\_0\ X1)))))) \quad (7) \end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. (l1\_extpro\_1\ X1\ X0) \Rightarrow ((l1\_memstr\_0\ X1\ X0) \wedge (l1\_compos\_1\ X1)) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_setfam\_1\ X0) \wedge (((\neg v2\_struct\_0\ X1) \wedge ((v2\_memstr\_0\ X1\ X0) \wedge ((v3\_memstr\_0\ X1\ X0) \wedge (l1\_memstr\_0\ X1\ X0)))) \wedge ((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ (u1\_struct\_0\ X1)) \wedge (v1\_funct\_1\ X2) \wedge ((v5\_funct\_1\ X2\ (k2\_memstr\_0\ X0\ X1)))))) \Rightarrow ((v1\_relat\_1\ (k8\_memstr\_0\ X0\ X1\ X2)) \wedge ((v4\_relat\_1\ (k8\_memstr\_0\ X0\ X1\ X2)\ (u1\_struct\_0\ X1)) \wedge ((v1\_funct\_1\ (k8\_memstr\_0\ X0\ X1\ X2)) \wedge ((v5\_funct\_1\ (k8\_memstr\_0\ X0\ X1\ X2)\ (k2\_memstr\_0\ X0\ X1)))))) \quad (9) \end{aligned}$$

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\
& X0 k5\_numbers) \wedge ((v5\_relat\_1 X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge \\
& (v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_afinsq\_1 X0)))))) \Rightarrow ( \\
& \forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge \\
& ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge \\
& (v1\_partfun1 X1 (u1\_struct\_0 k1\_scmpds\_2)))))) \Rightarrow (\forall X2. \\
& ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 \\
& (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 \\
& k5\_numbers)))))) \Rightarrow ((r1\_scmpds\_6 X0 X1 X2) \Leftrightarrow (\forall X3.(m1\_subset\_1 \\
& X3 k5\_numbers) \Rightarrow (k5\_memstr\_0 np\_2 k1\_scmpds\_2 (k5\_extpro\_1 np\_2 \\
& k1\_scmpds\_2 (k1\_funct\_4 X2 (k10\_compos\_1 k1\_scmpds\_2 X0)) (k8\_memstr\_0 \\
& np\_2 k1\_scmpds\_2 X1) X3) \in k9\_xtuple\_0 (k10\_compos\_1 k1\_scmpds\_2 \\
& X0))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \tag{12}$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge (v7\_ordinal1 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v7\_ordinal1 X0) \wedge (\neg v1\_setfam\_1 X0))) \tag{13}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmpds\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow ((r1\_scmpds\_6 X2 X1 X0) \Leftrightarrow (r1\_scmpds\_6 X2 (k8\_memstr\_0 \\
& np\_2 k1\_scmpds\_2 X1) X0)))
\end{aligned}$$