

## t14\_scmpds\_7

(TMZzme54wA4e7dNpiMJksXYUvzqDCgZi9Li)

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  $v2\_scmpds\_4 : \iota \Rightarrow o$  be given. Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k8\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\
 & X0 k5\_numbers) \wedge ((v5\_relat\_1 X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge \\
 & (v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_afinsq\_1 X0)))))) \Rightarrow ( \\
 & (v2\_scmpds\_4 X0) \Leftrightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
 & X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
 & X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
 & k1\_scmpds\_2)))))) \Rightarrow (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 \\
 & X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 k1\_scmpds\_2)) \wedge \\
 & (v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 k5\_numbers)))))) \Rightarrow (r2\_scmpds\_6 \\
 & X0 X1 X2)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmpds\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow (\forall X3.((v1\_ami\_2 X3) \wedge (m1\_subset\_1 X3 (u1\_struct\_0 \\
& k1\_scmpds\_2))) \Rightarrow ((r2\_scmpds\_6 X2 X1 X0) \Rightarrow (k1\_funct\_1 (k6\_scmpds\_4 \\
& X2 (k8\_memstr\_0 np\_2 k1\_scmpds\_2 X1) X0) X3 = k1\_funct\_1 (k5\_extpro\_1 \\
& np\_2 k1\_scmpds\_2 (k1\_funct\_4 X0 (k10\_compos\_1 k1\_scmpds\_2 X2)) \\
& (k8\_memstr\_0 np\_2 k1\_scmpds\_2 X1) (k8\_extpro\_1 np\_2 k1\_scmpds\_2 \\
& (k1\_funct\_4 X0 (k10\_compos\_1 k1\_scmpds\_2 X2)) (k8\_memstr\_0 np\_2 \\
& k1\_scmpds\_2 X1))) X3))))))
\end{aligned} \tag{2}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmpds\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2) \wedge (v2\_scmpds\_4 X2)))))) \Rightarrow (\forall X3.((v1\_ami\_2 X3) \wedge (m1\_subset\_1 \\
& X3 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow (k1\_funct\_1 (k6\_scmpds\_4 X2 ( \\
& k8\_memstr\_0 np\_2 k1\_scmpds\_2 X1) X0) X3 = k1\_funct\_1 (k5\_extpro\_1 \\
& np\_2 k1\_scmpds\_2 (k1\_funct\_4 X0 (k10\_compos\_1 k1\_scmpds\_2 X2)) \\
& (k8\_memstr\_0 np\_2 k1\_scmpds\_2 X1) (k8\_extpro\_1 np\_2 k1\_scmpds\_2 \\
& (k1\_funct\_4 X0 (k10\_compos\_1 k1\_scmpds\_2 X2)) (k8\_memstr\_0 np\_2 \\
& k1\_scmpds\_2 X1))) X3))))))
\end{aligned}$$