

t29\_scmfsa8a  
(TMTCVfQFeughzCr7s6Eh9GJiG4c9NCaeyEX)

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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  $k1\_scmfsa\_2 : \iota$  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  $np\_3 : \iota$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  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  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $r5\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_scmfsa\_m : \iota \Rightarrow \iota$  be given. Let  $r6\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_scmfsa6a : \iota \Rightarrow \iota$  be given. Let  $k8\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_scmfsa\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\ & ((v1\_funct\_1 X0) \wedge (v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)))))) \Rightarrow \\ & (k1\_funct\_1 (k1\_scmfsa\_m X0) (k4\_scmfsa\_2 k6\_numbers) = np\_1) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
& (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X1. \\
& ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v5\_relat\_1 X1 \\
& (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 \\
& k5\_numbers)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow (((r5\_scmfsa7b X2 X0 X1) \wedge (r6\_scmfsa7b X2 X0 X1)) \Rightarrow (( \\
& k5\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 np\_3 k1\_scmfsa\_2 \\
& (k1\_funct\_4 X1 (k2\_scmfsa6a X2)) (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\
& X0) (k2\_nat\_1 (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X1 X2) \\
& (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 X0)) np\_1)) = k5\_card\_1 X2) \wedge (k6\_memstr\_0 \\
& np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 \\
& X1 X2) (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 X0) (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 \\
& (k1\_funct\_4 X1 X2) (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 X0))) = k6\_memstr\_0 \\
& np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 \\
& X1 (k2\_scmfsa6a X2)) (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 X0) (k2\_nat\_1 \\
& (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X1 X2) (k8\_memstr\_0 \\
& np\_3 k1\_scmfsa\_2 X0)) np\_1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
& (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow ((k1\_funct\_1 \\
& X0 (k4\_scmfsa\_2 k6\_numbers) = np\_1) \Rightarrow (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\
& X0 = k1\_scmfsa\_m X0))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X0) \wedge (v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)))))) \Rightarrow \\
& (k1\_scmfsa\_m (k1\_scmfsa\_m X0) = k1\_scmfsa\_m X0)
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
& (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow ((v1\_relat\_1 \\
& (k1\_scmfsa\_m X0)) \wedge ((v4\_relat\_1 (k1\_scmfsa\_m X0) (u1\_struct\_0 \\
& k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 (k1\_scmfsa\_m X0)) \wedge ((v5\_funct\_1 \\
& (k1\_scmfsa\_m X0) (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge (v1\_partfun1 \\
& (k1\_scmfsa\_m X0) (u1\_struct\_0 k1\_scmfsa\_2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\ & ((v1\_funct\_1 X0) \wedge (v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)))))) \Rightarrow \\ & (k1\_scmfsa\_m X0 = k1\_funct\_4 X0 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\ & (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1))) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\ & ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\ & (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X1. \\ & ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v5\_relat\_1 X1 \\ & (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 \\ & k5\_numbers)))))) \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\_scmfsa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\ & X2)))))) \Rightarrow (((r5\_scmfsa7b X2 (k1\_scmfsa\_m X0) X1) \wedge (r6\_scmfsa7b \\ & X2 (k1\_scmfsa\_m X0) X1)) \Rightarrow ((k5\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 \\ & np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X1 (k2\_scmfsa6a X2)) (k1\_funct\_4 \\ & X0 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 \\ & k6\_numbers) np\_1))) (k2\_nat\_1 (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 \\ & (k1\_funct\_4 X1 X2) (k1\_funct\_4 X0 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\ & (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1)))) np\_1) = k5\_card\_1 \\ & X2) \wedge (k6\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 np\_3 k1\_scmfsa\_2 \\ & (k1\_funct\_4 X1 X2) (k1\_funct\_4 X0 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\ & (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1))) (k8\_extpro\_1 \\ & np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X1 X2) (k1\_funct\_4 X0 (k8\_memstr\_0 \\ & np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1)))))) = \\ & k6\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 np\_3 k1\_scmfsa\_2 \\ & (k1\_funct\_4 X1 (k2\_scmfsa6a X2)) (k1\_funct\_4 X0 (k8\_memstr\_0 np\_3 \\ & k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1))) \\ & (k2\_nat\_1 (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X1 X2) (k1\_funct\_4 \\ & X0 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 \\ & k6\_numbers) np\_1)))) np\_1)))))) \end{aligned}$$