

t34\_scmfsa8a  
(TMUbz5gWCZ3YTz3xStHnkru8iqnkvpUkJBh)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. 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  $k1\_scmfsa\_2 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  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  $np\_3 : \iota$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  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  $r1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_scmfsa6a : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_compos\_1 : \iota \Rightarrow \iota$  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  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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. Assume

the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\
& \quad k5\_numbers) \wedge ((v5\_relat\_1 X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge \\
& \quad (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\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 X1 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
& \quad (v1\_partfun1 X1 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X2. \\
& ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 \\
& \quad (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 \\
& \quad k5\_numbers)))))) \Rightarrow (((r5\_scmfsa7b X0 (k1\_scmfsa\_m X1) X2) \wedge (r6\_scmfsa7b \\
& \quad X0 (k1\_scmfsa\_m X1) X2)) \Rightarrow ((k5\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 \\
& \quad np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 (k3\_scmfsa6a X0 (k4\_compos\_1 \\
& \quad k1\_scmfsa\_2))) (k1\_funct\_4 X1 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\
& \quad (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1))) (k2\_nat\_1 (k8\_extpro\_1 \\
& \quad np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 X0) (k1\_funct\_4 X1 (k8\_memstr\_0 \\
& \quad np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1)))) \\
& \quad np\_1)) = k5\_card\_1 X0) \wedge ((k6\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 \\
& \quad np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 X0) (k1\_funct\_4 X1 (k8\_memstr\_0 \\
& \quad np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1))) \\
& \quad (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 X0) (k1\_funct\_4 \\
& \quad X1 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 \\
& \quad k6\_numbers) np\_1)))))) = k6\_memstr\_0 np\_3 k1\_scmfsa\_2 (k5\_extpro\_1 \\
& \quad np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 (k3\_scmfsa6a X0 (k4\_compos\_1 \\
& \quad k1\_scmfsa\_2))) (k1\_funct\_4 X1 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 \\
& \quad (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1))) (k2\_nat\_1 (k8\_extpro\_1 \\
& \quad np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 X0) (k1\_funct\_4 X1 (k8\_memstr\_0 \\
& \quad np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1)))) \\
& \quad np\_1))) \wedge ((r1\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 (k3\_scmfsa6a \\
& \quad X0 (k4\_compos\_1 k1\_scmfsa\_2))) (k1\_funct\_4 X1 (k8\_memstr\_0 np\_3 \\
& \quad k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1)))) \wedge \\
& \quad (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 (k3\_scmfsa6a X0 \\
& \quad (k4\_compos\_1 k1\_scmfsa\_2))) (k1\_funct\_4 X1 (k8\_memstr\_0 np\_3 \\
& \quad k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) np\_1)))) = \\
& \quad k2\_nat\_1 (k8\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 X2 X0) (k1\_funct\_4 \\
& \quad X1 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 \\
& \quad k6\_numbers) np\_1)))) np\_1))))))
\end{aligned} \tag{1}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\ & X0 k5\_numbers) \wedge ((v5\_relat\_1 X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge \\ & (v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_afinsq\_1 X0)))))) \Rightarrow ( \\ & \forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\ & ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 X1 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\ & (v1\_partfun1 X1 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 \\ & (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 \\ & k5\_numbers)))))) \Rightarrow (((r5\_scmfsa7b X0 (k1\_scmfsa\_m X1) X2) \wedge (r6\_scmfsa7b \\ & X0 (k1\_scmfsa\_m X1) X2)) \Rightarrow (r1\_extpro\_1 np\_3 k1\_scmfsa\_2 (k1\_funct\_4 \\ & X2 (k3\_scmfsa6a X0 (k4\_compos\_1 k1\_scmfsa\_2))) (k1\_funct\_4 X1 \\ & (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 k6\_numbers) \\ & np\_1)))))) \end{aligned}$$