

## l52\_scmfsa9a

(TMd7dzBArhimksoGAAkDD2EiZuKjMoiMcT2)

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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  $k5\_numbers : \iota$  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  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  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  $np\_3 : \iota$  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  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_scmfsa\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $r5\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r6\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_scmfsa\_m : \iota \Rightarrow \iota$  be given. Let  $k6\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
 & X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
 & X0 k5\_numbers)))))) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
 & X1 k5\_numbers) \wedge ((v5\_relat\_1 X1 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge \\
 & (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 k5\_numbers)))))) \Rightarrow (\forall X2. \\
 & ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
 & ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
 & (v1\_partfun1 X2 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X3. \\
 & ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
 & ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
 & (v1\_partfun1 X3 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X4. \\
 & ((\neg v1\_xboole\_0 X4) \wedge ((v1\_relat\_1 X4) \wedge ((v4\_relat\_1 X4 k5\_numbers) \wedge \\
 & ((v5\_relat\_1 X4 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X4) \wedge \\
 & ((v1\_finset\_1 X4) \wedge (v1\_afinsq\_1 X4)))))) \Rightarrow (((k6\_memstr\_0 np\_3 \\
 & k1\_scmfsa\_2 X2 = k6\_memstr\_0 np\_3 k1\_scmfsa\_2 X3) \wedge ((r5\_scmfsa7b \\
 & X4 X2 X0) \wedge (r6\_scmfsa7b X4 X2 X0))) \Rightarrow ((r5\_scmfsa7b X4 X3 X1) \wedge (r6\_scmfsa7b \\
 & X4 X3 X1))))))
 \end{aligned}$$

(1)

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 (u1\_struct\_0 k1\_scmf\_sa\_2)) \wedge \\
& ((v1\_funct\_1 X0) \wedge ((v5\_funct\_1 X0 (k2\_memstr\_0 np\_3 k1\_scmf\_sa\_2)) \wedge \\
& (v1\_partfun1 X0 (u1\_struct\_0 k1\_scmf\_sa\_2)))))) \Rightarrow ((k1\_funct\_1 \\
& X0 (k4\_scmf\_sa\_2 k6\_numbers) = np\_1) \Rightarrow (k6\_memstr\_0 np\_3 k1\_scmf\_sa\_2 \\
& (k1\_scmf\_sa\_m X0) = k6\_memstr\_0 np\_3 k1\_scmf\_sa\_2 X0))
\end{aligned} \tag{2}$$

Assume the following.

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

### Theorem 1

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_3 k1\_scmf\_sa\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmf\_sa\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow ((k1\_funct\_1 X1 (k4\_scmf\_sa\_2 k6\_numbers) = np\_1) \Rightarrow \\
& (((r5\_scmf\_sa7b X2 X1 X0) \wedge (r6\_scmf\_sa7b X2 X1 X0)) \Rightarrow ((r5\_scmf\_sa7b \\
& X2 (k1\_scmf\_sa\_m X1) X0) \wedge (r6\_scmf\_sa7b X2 (k1\_scmf\_sa\_m X1) X0))) \wedge \\
& (((r5\_scmf\_sa7b X2 (k1\_scmf\_sa\_m X1) X0) \wedge (r6\_scmf\_sa7b X2 (k1\_scmf\_sa\_m \\
& X1) X0)) \Rightarrow ((r5\_scmf\_sa7b X2 X1 X0) \wedge (r6\_scmf\_sa7b X2 X1 X0))))))
\end{aligned}$$