

t45\_scmfsa8c  
(TMGKpdgigvDF5GMNSJ374gCu642sqY3SrnY)

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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  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $v1\_scmfsa\_m : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_scmfsa8a : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_scmfsa6a : \iota \Rightarrow \iota$  be given. Let  $r5\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_scmfsa8b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r6\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k8\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_scmfsa6a : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_compos\_1 :$

$\iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_3 k1\_scmf\_sa\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmf\_sa\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow (\forall X3.((\neg v1\_xboole\_0 X3) \wedge ((v1\_relat\_1 X3) \wedge \\
& ((v4\_relat\_1 X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 (u1\_compos\_1 k1\_scmf\_sa\_2)) \wedge \\
& ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow \\
& (\forall X4.((v1\_ami\_2 X4) \wedge ((\neg v1\_scmf\_sa\_m X4) \wedge (m1\_subset\_1 \\
& X4 (u1\_struct\_0 k1\_scmf\_sa\_2)))) \Rightarrow ((r1\_scmf\_sa8a X1 X0 (k2\_scmf\_sa6a \\
& X3)) \Rightarrow ((k1\_funct\_1 X1 X4 = k6\_numbers) \vee ((r6\_scmf\_sa7b (k1\_scmf\_sa8b \\
& X4 X2 X3) X1 X0) \wedge ((r5\_scmf\_sa7b (k1\_scmf\_sa8b X4 X2 X3) X1 X0) \wedge (k8\_extpro\_1 \\
& np\_3 k1\_scmf\_sa\_2 (k1\_funct\_4 X0 (k1\_scmf\_sa8b X4 X2 X3)) (k8\_memstr\_0 \\
& np\_3 k1\_scmf\_sa\_2 X1) = k2\_nat\_1 (k8\_extpro\_1 np\_3 k1\_scmf\_sa\_2 \\
& (k1\_funct\_4 X0 (k3\_scmf\_sa6a X3 (k4\_compos\_1 k1\_scmf\_sa\_2))) (k8\_memstr\_0 \\
& np\_3 k1\_scmf\_sa\_2 X1)) np\_3)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_3 k1\_scmf\_sa\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmf\_sa\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmf\_sa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow (\forall X3.((\neg v1\_xboole\_0 X3) \wedge ((v1\_relat\_1 X3) \wedge \\
& ((v4\_relat\_1 X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 (u1\_compos\_1 k1\_scmf\_sa\_2)) \wedge \\
& ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow \\
& (\forall X4.((v1\_ami\_2 X4) \wedge ((\neg v1\_scmf\_sa\_m X4) \wedge (m1\_subset\_1 \\
& X4 (u1\_struct\_0 k1\_scmf\_sa\_2)))) \Rightarrow (((k1\_funct\_1 X1 X4 = k6\_numbers) \wedge \\
& (r1\_scmf\_sa8a X1 X0 (k2\_scmf\_sa6a X2)) \Rightarrow ((r6\_scmf\_sa7b (k1\_scmf\_sa8b \\
& X4 X2 X3) X1 X0) \wedge ((r5\_scmf\_sa7b (k1\_scmf\_sa8b X4 X2 X3) X1 X0) \wedge (k8\_extpro\_1 \\
& np\_3 k1\_scmf\_sa\_2 (k1\_funct\_4 X0 (k1\_scmf\_sa8b X4 X2 X3)) (k8\_memstr\_0 \\
& np\_3 k1\_scmf\_sa\_2 X1) = k2\_nat\_1 (k8\_extpro\_1 np\_3 k1\_scmf\_sa\_2 \\
& (k1\_funct\_4 X0 (k3\_scmf\_sa6a X2 (k4\_compos\_1 k1\_scmf\_sa\_2))) (k8\_memstr\_0 \\
& np\_3 k1\_scmf\_sa\_2 X1)) np\_1)))))))))
\end{aligned} \tag{2}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmfsa\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\
& X2)))))) \Rightarrow (\forall X3.((\neg v1\_xboole\_0 X3) \wedge ((v1\_relat\_1 X3) \wedge \\
& ((v4\_relat\_1 X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow \\
& (\forall X4.((v1\_ami\_2 X4) \wedge ((\neg v1\_scmfsa\_m X4) \wedge (m1\_subset\_1 \\
& X4 (u1\_struct\_0 k1\_scmfsa\_2)))) \Rightarrow (((r1\_scmfsa8a X1 X0 (k2\_scmfsa6a \\
& X2)) \wedge (r1\_scmfsa8a X1 X0 (k2\_scmfsa6a X3))) \Rightarrow ((r5\_scmfsa7b (k1\_scmfsa8b \\
& X4 X2 X3) X1 X0) \wedge (r6\_scmfsa7b (k1\_scmfsa8b X4 X2 X3) X1 X0))))))
\end{aligned}$$