

## t6\_scmfsa8b

(TMU2r2ic7eVXXsSatrTP4MLzsAgi2JrPJFX)

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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  $r5\_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_scmfsa\_m : \iota \Rightarrow \iota$  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  $k16\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_scmfsa\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k6\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 k5\_numbers) \wedge ((v5\_relat\_1 X1 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge \\
& (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 k5\_numbers)))) \Rightarrow (\forall X2. \\
& ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
& (v1\_partfun1 X2 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X3. \\
& ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge \\
& ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge \\
& (v1\_partfun1 X3 (u1\_struct\_0 k1\_scmfsa\_2)))))) \Rightarrow (\forall X4. \\
& ((\neg v1\_xboole\_0 X4) \wedge ((v1\_relat\_1 X4) \wedge ((v4\_relat\_1 X4 k5\_numbers) \wedge \\
& ((v5\_relat\_1 X4 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X4) \wedge \\
& ((v1\_finset\_1 X4) \wedge (v1\_afinsq\_1 X4)))))) \Rightarrow (((k6\_memstr\_0 np\_3 \\
& k1\_scmfsa\_2 X2 = k6\_memstr\_0 np\_3 k1\_scmfsa\_2 X3) \wedge (r5\_scmfsa7b \\
& X4 X2 X0)) \Rightarrow (r5\_scmfsa7b X4 X3 X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1\_relat\_1 X1)\wedge((v4\_relat\_1 \\ & X1 X0)\wedge((v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0))))\wedge((v1\_relat\_1 \\ & X2)\wedge((v4\_relat\_1 X2 X0)\wedge(v1\_funct\_1 X2))))\Rightarrow((v1\_relat\_1 (k1\_funct\_4 \\ & X1 X2))\wedge((v4\_relat\_1 (k1\_funct\_4 X1 X2) X0)\wedge((v1\_funct\_1 (k1\_funct\_4 \\ & X1 X2))\wedge(v1\_partfun1 (k1\_funct\_4 X1 X2) X0)))) \end{aligned} \quad (2)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1\_relat\_1 X1)\wedge((v5\_relat\_1 \\ & X1 X0)\wedge(v1\_funct\_1 X1)))\wedge((v1\_relat\_1 X2)\wedge((v5\_relat\_1 X2 X0)\wedge \\ & (v1\_funct\_1 X2))))\Rightarrow((v1\_relat\_1 (k1\_funct\_4 X1 X2))\wedge((v5\_relat\_1 \\ & (k1\_funct\_4 X1 X2) X0)\wedge(v1\_funct\_1 (k1\_funct\_4 X1 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\wedge(( \\ & v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)))\Rightarrow((v1\_relat\_1 (k1\_funct\_4 X0 \\ & X1))\wedge(v1\_funct\_1 (k1\_funct\_4 X0 X1))) \end{aligned} \quad (5)$$

Assume the following.

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

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\ & X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\ & X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\ & X1 (u1\_struct\_0 k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\ & X1 (k2\_memstr\_0 np\_3 k1\_scmfsa\_2)) \wedge (v1\_partfun1 X1 (u1\_struct\_0 \\ & k1\_scmfsa\_2)))))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 \\ & X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\ & k1\_scmfsa\_2)) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_finset\_1 X2) \wedge (v1\_afinsq\_1 \\ & X2)))))) \Rightarrow (\forall X3.((\neg v1\_xboole\_0 X3) \wedge ((v1\_relat\_1 X3) \wedge \\ & ((v4\_relat\_1 X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge \\ & ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow \\ & ((r5\_scmfsa7b X2 (k1\_scmfsa\_m X1) X0) \Leftrightarrow (r5\_scmfsa7b X2 (k1\_funct\_4 \\ & X1 (k8\_memstr\_0 np\_3 k1\_scmfsa\_2 (k16\_funcop\_1 (k4\_scmfsa\_2 \\ & k6\_numbers) np\_1)) (k1\_funct\_4 X0 X3)))))) \end{aligned}$$