

t32\_group\_9  
(TMZaT5AZiQDyNVDmN62rekb9uTnTUfbXb1D)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_group\_1 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v3\_group\_9 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_group\_9 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_group\_9 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_group\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_group\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k19\_group\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k16\_group\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k15\_group\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_group\_1 X1) \wedge \\ & (v3\_group\_1 X1) \wedge ((v3\_group\_9 X1 X0) \wedge (l1\_group\_9 X1 X0)))) \Rightarrow ( \\ & \forall X2. ((v2\_group\_9 X2 X0) \wedge ((v4\_group\_9 X2 X0 X1) \wedge (m1\_group\_9 \\ & X2 X0 X1))) \Rightarrow (\forall X3. ((v2\_group\_9 X3 X0) \wedge ((v4\_group\_9 X3 X0 \\ & X1) \wedge (m1\_group\_9 X3 X0 X1))) \Rightarrow (u1\_struct\_0 (k19\_group\_9 X0 X1 X2 \\ & X3) = k16\_group\_9 X0 X1 X2 X3))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_group\_1 X1) \wedge \\ & (v3\_group\_1 X1) \wedge ((v3\_group\_9 X1 X0) \wedge (l1\_group\_9 X1 X0)))) \Rightarrow ( \\ & \forall X2. ((v2\_group\_9 X2 X0) \wedge ((v4\_group\_9 X2 X0 X1) \wedge (m1\_group\_9 \\ & X2 X0 X1))) \Rightarrow (\forall X3. ((v2\_group\_9 X3 X0) \wedge ((v4\_group\_9 X3 X0 \\ & X1) \wedge (m1\_group\_9 X3 X0 X1))) \Rightarrow (\exists X4. ((v2\_group\_9 X4 X0) \wedge \\ & (v4\_group\_9 X4 X0 X1) \wedge (m1\_group\_9 X4 X0 X1))) \wedge (u1\_struct\_0 X4 = \\ & k2\_group\_2 X1 (k15\_group\_9 X0 X1 X2) (k15\_group\_9 X0 X1 X3)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_group\_1 X1) \wedge \\ & (v3\_group\_1 X1) \wedge ((v3\_group\_9 X1 X0) \wedge (l1\_group\_9 X1 X0)))) \Rightarrow ( \\ & \forall X2. ((v2\_group\_9 X2 X0) \wedge (m1\_group\_9 X2 X0 X1)) \Rightarrow (\forall X3. \\ & ((v2\_group\_9 X3 X0) \wedge (m1\_group\_9 X3 X0 X1)) \Rightarrow ((u1\_struct\_0 X2 = u1\_struct\_0 \\ & X3) \Rightarrow (X2 = X3)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X1)\wedge((v2\_group\_1 X1)\wedge((v3\_group\_1 X1)\wedge((v3\_group\_9 X1 X0)\wedge \\ & l1\_group\_9 X1 X0)))))\wedge((m1\_group\_9 X2 X0 X1)\wedge(m1\_group\_9 X3 X0 \\ & X1)))\Rightarrow((v2\_group\_9 (k19\_group\_9 X0 X1 X2 X3) X0)\wedge(m1\_group\_9 ( \\ & k19\_group\_9 X0 X1 X2 X3) X0 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v2\_struct\_0 X1)\wedge((v2\_group\_1 X1)\wedge \\ & (v3\_group\_1 X1)\wedge((v3\_group\_9 X1 X0)\wedge(l1\_group\_9 X1 X0))))\Rightarrow( \\ & \forall X2.(m1\_group\_9 X2 X0 X1)\Rightarrow(\forall X3.(m1\_group\_9 X3 X0 \\ & X1)\Rightarrow(k16\_group\_9 X0 X1 X2 X3 = k2\_group\_2 X1 (k15\_group\_9 X0 X1 X2) \\ & (k15\_group\_9 X0 X1 X3)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v2\_struct\_0 X1)\wedge((v2\_group\_1 X1)\wedge \\ & (v3\_group\_1 X1)\wedge((v3\_group\_9 X1 X0)\wedge(l1\_group\_9 X1 X0))))\Rightarrow( \\ & \forall X2.(m1\_group\_9 X2 X0 X1)\Rightarrow(k15\_group\_9 X0 X1 X2 = u1\_struct\_0 \\ & X2)) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.((\neg v2\_struct\_0 X1)\wedge((v2\_group\_1 X1)\wedge \\ & (v3\_group\_1 X1)\wedge((v3\_group\_9 X1 X0)\wedge(l1\_group\_9 X1 X0))))\Rightarrow( \\ & \forall X2.((v2\_group\_9 X2 X0)\wedge((v4\_group\_9 X2 X0 X1)\wedge(m1\_group\_9 \\ & X2 X0 X1)))\Rightarrow(\forall X3.((v2\_group\_9 X3 X0)\wedge((v4\_group\_9 X3 X0 \\ & X1)\wedge(m1\_group\_9 X3 X0 X1)))\Rightarrow((v4\_group\_9 (k19\_group\_9 X0 X1 X2 \\ & X3) X0 X1)\wedge(m1\_group\_9 (k19\_group\_9 X0 X1 X2 X3) X0 X1)))) \end{aligned}$$