

t71\_group\_5  
(TMdk7Sj6Bb1jt56TxPtHJw8xAfBkdnzztgn)

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  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_group\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_group\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_group\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_group\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_group\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((v15\_algstr\_0 X1) \wedge ((v1\_group\_3 \\ & X1 X0) \wedge (m1\_group\_2 X1 X0))) \Rightarrow (\forall X2.((v15\_algstr\_0 X2) \wedge ( \\ & (v1\_group\_3 X2 X0) \wedge (m1\_group\_2 X2 X0))) \Rightarrow (\forall X3.((v15\_algstr\_0 \\ & X3) \wedge ((v1\_group\_3 X3 X0) \wedge (m1\_group\_2 X3 X0))) \Rightarrow (r1\_group\_2 X0 ( \\ & k8\_group\_5 X0 (k8\_group\_4 X0 X1 X2) X3) (k8\_group\_4 X0 (k8\_group\_5 \\ & X0 X1 X3) (k8\_group\_5 X0 X2 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((v1\_group\_3 X1 X0) \wedge (m1\_group\_2 \\ & X1 X0)) \Rightarrow (\forall X2.((v1\_group\_3 X2 X0) \wedge (m1\_group\_2 X2 X0)) \Rightarrow ( \\ & r1\_group\_2 X0 (k8\_group\_5 X0 X1 X2) (k8\_group\_5 X0 X2 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1.((v15\_algstr\_0 X1) \wedge ((v1\_group\_3 \\ & X1 X0) \wedge (m1\_group\_2 X1 X0))) \Rightarrow (\forall X2.((v15\_algstr\_0 X2) \wedge ( \\ & (v1\_group\_3 X2 X0) \wedge (m1\_group\_2 X2 X0))) \Rightarrow ((v1\_group\_3 (k8\_group\_4 \\ & X0 X1 X2) X0) \wedge (m1\_group\_2 (k8\_group\_4 X0 X1 X2) X0)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 \\ & X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge (((v15\_algstr\_0 X1) \wedge \\ & (m1\_group\_2 X1 X0) \wedge (v15\_algstr\_0 X2) \wedge (m1\_group\_2 X2 X0))) \Rightarrow \\ & ((r1\_group\_2 X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 \\ & X0) \wedge ((v3\_group\_1 X0) \wedge (l3\_algstr\_0 X0)))) \wedge ((m1\_group\_2 X1 X0) \wedge \\ & (m1\_group\_2 X2 X0))) \Rightarrow ((v15\_algstr\_0 (k8\_group\_5 X0 X1 X2)) \wedge (m1\_group\_2 \\ & (k8\_group\_5 X0 X1 X2) X0)) \end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. (((\neg v2\_struct\_0 X0) \wedge ((v2\_group\_1 X0) \wedge ((v3\_group\_1 \\ & X0) \wedge (l3\_algstr\_0 X0)))) \Rightarrow (\forall X1. ((v15\_algstr\_0 X1) \wedge ((v1\_group\_3 \\ & X1 X0) \wedge (m1\_group\_2 X1 X0))) \Rightarrow (\forall X2. ((v15\_algstr\_0 X2) \wedge ( \\ & (v1\_group\_3 X2 X0) \wedge (m1\_group\_2 X2 X0))) \Rightarrow (\forall X3. ((v15\_algstr\_0 \\ & X3) \wedge ((v1\_group\_3 X3 X0) \wedge (m1\_group\_2 X3 X0))) \Rightarrow (r1\_group\_2 X0 ( \\ & k8\_group\_5 X0 X1 (k8\_group\_4 X0 X2 X3)) (k8\_group\_4 X0 (k8\_group\_5 \\ & X0 X1 X2) (k8\_group\_5 X0 X1 X3)))))) \end{aligned}$$