

t19_graph_1
(TMP1e9mDRPbfB5T9o9pRXoE67M5dJccKWpm)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_graph_1 : \iota \Rightarrow o$ be given. Let $r1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_graph_1 : \iota \Rightarrow \iota$ be given. Let $u2_graph_1 : \iota \Rightarrow \iota$ be given. Let $r4_graph_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_graph_1 : \iota \Rightarrow o$ be given. Let $g1_graph_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_graph_1 X2)) \Rightarrow ((r1_graph_1 X0 X1 X2) \Rightarrow ((r4_graph_1 X1 X0) \wedge \\ & (r4_graph_1 X2 X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \wedge \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1))) \Rightarrow ((\neg v2_struct_0 (k5_graph_1 \\ & X0 X1)) \wedge ((v1_graph_1 (k5_graph_1 X0 X1)) \wedge (l1_graph_1 (k5_graph_1 \\ & X0 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_graph_1 X2)) \Rightarrow ((r1_graph_1 X0 X1 X2) \Leftrightarrow ((r1_partfun1 (u2_graph_1 \\ & X1) (u2_graph_1 X2)) \wedge ((r1_partfun1 (u1_graph_1 X1) (u1_graph_1 \\ & X2)) \wedge (g1_graph_1 (u1_struct_0 X0) (u4_struct_0 X0) (u1_graph_1 \\ & X0) (u2_graph_1 X0) = k5_graph_1 X1 X2)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1_graph_1 X0) \Rightarrow ((v1_graph_1 X0) \Rightarrow (X0 = g1_graph_1 \\ & (u1_struct_0 X0) (u4_struct_0 X0) (u1_graph_1 X0) (u2_graph_1 \\ & X0))) \end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_graph_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_graph_1 X1)) \Rightarrow (((r1_partfun1 (u1_graph_1 \\ & X0) (u1_graph_1 X1)) \wedge (r1_partfun1 (u2_graph_1 X0) (u2_graph_1 \\ & X1))) \Rightarrow ((r4_graph_1 X0 (k5_graph_1 X0 X1)) \wedge (r4_graph_1 X1 (k5_graph_1 \\ & X0 X1)))))) \end{aligned}$$