

l20_group_9 (TMHyAgQdzArjtcndmNEAW- mAnXwew7G7xEJr)

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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 $v4_group_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_group_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v15_algstr_0 : \iota \Rightarrow o$ be given. Let $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ 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 $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_group_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_group_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge ((v3_group_1 \\ & X0) \wedge (l3_algstr_0 X0)))) \Rightarrow (\forall X1.(m1_group_2 X1 X0) \Rightarrow (\forall X2. \\ & (m1_group_2 X2 X0) \Rightarrow ((\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow ((r1_struct_0 X1 X3) \Rightarrow (r1_struct_0 X2 X3))) \Rightarrow (m1_group_2 \\ & X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge ((v3_group_1 \\ & X0) \wedge (l3_algstr_0 X0)))) \Rightarrow (\forall X1.(m1_group_2 X1 X0) \Rightarrow (\forall X2. \\ & (m1_group_2 X2 X0) \Rightarrow ((m1_group_2 X2 X1) \Leftrightarrow (g3_algstr_0 (u1_struct_0 \\ & (k10_group_2 X0 X2 X1)) (u2_algstr_0 (k10_group_2 X0 X2 X1)) = g3_algstr_0 \\ & (u1_struct_0 X2) (u2_algstr_0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((v2_group_1 X1) \wedge (\\ & (v3_group_1 X1) \wedge ((v3_group_9 X1 X0) \wedge (l1_group_9 X1 X0)))))) \Rightarrow (\\ & \forall X2.(m1_group_9 X2 X0 X1) \Rightarrow ((\neg v2_struct_0 X2) \wedge ((v2_group_1 \\ & X2) \wedge ((v3_group_1 X2) \wedge ((v3_group_9 X2 X0) \wedge (l1_group_9 X2 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge (l3_algstr_0 X0))) \Rightarrow (\forall X1.(m1_group_2 X1 X0) \Rightarrow ((\neg v2_struct_0 X1) \wedge ((v2_group_1 X1) \wedge (l3_algstr_0 X1)))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(l1_group_9 X1 X0) \Rightarrow (l3_algstr_0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v2_group_1 X0) \wedge (v3_group_1 X0) \wedge (l3_algstr_0 X0)))) \wedge ((m1_group_2 X1 X0) \wedge (m1_group_2 X2 X0)) \Rightarrow ((v15_algstr_0 (k10_group_2 X0 X1 X2)) \wedge (m1_group_2 (k10_group_2 X0 X1 X2) X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_group_1 X1) \wedge (v3_group_1 X1) \wedge (v3_group_9 X1 X0) \wedge (l1_group_9 X1 X0)))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge ((v2_group_1 X2) \wedge (v3_group_1 X2) \wedge (v3_group_9 X2 X0) \wedge (l1_group_9 X2 X0)))) \Rightarrow ((m1_group_9 X2 X0 X1) \Leftrightarrow ((m1_group_2 X2 X1) \wedge (\forall X3.(m1_subset_1 X3 X0) \Rightarrow (k3_group_9 X0 X2 X3 = k2_partfun1 (u1_struct_0 X1) (u1_struct_0 X1) (k3_group_9 X0 X1 X3) (u1_struct_0 X2))))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_group_1 X1) \wedge (v3_group_1 X1) \wedge (v3_group_9 X1 X0) \wedge (l1_group_9 X1 X0)))) \Rightarrow (\forall X2.(m1_group_9 X2 X0 X1) \Rightarrow ((v4_group_9 X2 X0 X1) \Leftrightarrow (\forall X3.((v15_algstr_0 X3) \wedge (m1_group_2 X3 X1)) \Rightarrow ((X3 = g3_algstr_0 (u1_struct_0 X2) (u2_algstr_0 X2)) \Rightarrow (v1_group_3 X3 X1)))))) \quad (8)$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0) \Rightarrow ((v15_algstr_0 X0) \Rightarrow (X0 = g3_algstr_0 (u1_struct_0 X0) (u2_algstr_0 X0))) \quad (9)$$

Theorem 1

$$\forall X0.\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_group_1 X1) \wedge (v3_group_1 X1) \wedge (v3_group_9 X1 X0) \wedge (l1_group_9 X1 X0)))) \Rightarrow (\forall X2.((v4_group_9 X2 X0 X1) \wedge (m1_group_9 X2 X0 X1)) \Rightarrow ((v15_algstr_0 (g3_algstr_0 (u1_struct_0 X2) (u2_algstr_0 X2))) \wedge ((v1_group_3 (g3_algstr_0 (u1_struct_0 X2) (u2_algstr_0 X2)) X1) \wedge (m1_group_2 (g3_algstr_0 (u1_struct_0 X2) (u2_algstr_0 X2)) X1))))))$$