

t6_instalg1
(TMQ5Y6YJvZDq9K5sKQX1NW8bmnzYVDuEYL2)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_pzfmisc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r8_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k5_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k6_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& \quad X0))) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (\forall X2. (l3_msualg_1 \\
& \quad X2 X0) \Rightarrow (\forall X3. (l3_msualg_1 X3 X0) \Rightarrow (\forall X4. (l3_msualg_1 \\
& \quad X4 X0) \Rightarrow (((g3_msualg_1 X0 (u3_msualg_1 X0 X1) (u4_msualg_1 X0 X1) = \\
& \quad g3_msualg_1 X0 (u3_msualg_1 X0 X3) (u4_msualg_1 X0 X3)) \wedge (g3_msualg_1 \\
& \quad X0 (u3_msualg_1 X0 X2) (u4_msualg_1 X0 X2) = g3_msualg_1 X0 (u3_msualg_1 \\
& \quad X0 X4) (u4_msualg_1 X0 X4))) \Rightarrow (\forall X5. (m2_pboole X5 (u1_struct_0 \\
& \quad X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2)) \Rightarrow (\forall X6. (m2_pboole \\
& \quad X6 (u1_struct_0 X0) (u3_msualg_1 X0 X3) (u3_msualg_1 X0 X4)) \Rightarrow ((\\
& \quad r8_pboole (u1_struct_0 X0) X5 X6) \Rightarrow (\forall X7. (m1_subset_1 X7 \\
& \quad (u4_struct_0 X0)) \Rightarrow (\neg (k3_msualg_1 X0 X7 X1 \neq k1_xboole_0) \wedge ((k3_msualg_1 \\
& \quad X0 X7 X2 \neq k1_xboole_0) \wedge (\exists X8. (m1_subset_1 X8 (k3_msualg_1 \\
& \quad X0 X7 X1)) \wedge (\exists X9. (m1_subset_1 X9 (k3_msualg_1 X0 X7 X3)) \wedge \\
& \quad ((X8 = X9) \wedge (k5_msualg_3 X0 X1 X2 X7 X5 X8 \neq k5_msualg_3 X0 X3 X4 X7 X6 \\
& \quad X9)))))))))))))
\end{aligned}$$

(1)

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & \quad X0))) \Rightarrow (\forall X1.(l3_msualg_1 X1 X0) \Rightarrow (\forall X2.(l3_msualg_1 \\ X2 X0) \Rightarrow ((r1_pzfmisc1 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & \quad X0 X2)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u4_struct_0 X0)) \Rightarrow (\neg(k3_msualg_1 \\ & \quad X0 X3 X1 \neq k1_xboole_0) \wedge (k3_msualg_1 X0 X3 X2 = k1_xboole_0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 \\ & \quad X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge \\ & ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 \\ & \quad X2 X0)))))) \Rightarrow ((r8_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge (l1_msualg_1 \\ & \quad X0)) \wedge ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 X0)) \wedge ((\\ & \quad v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0)))))) \wedge (m2_pboole \\ & \quad X2 (u4_struct_0 X0) (k3_relat_1 (u1_msualg_1 X0) (k6_finseq_2 \\ & \quad (u1_struct_0 X0) X1)) (k3_relat_1 (u2_msualg_1 X0) X1)))) \Rightarrow (\forall X3. \\ & \quad \forall X4.\forall X5.(g3_msualg_1 X0 X1 X2 = g3_msualg_1 X3 X4 X5) \Rightarrow \\ & \quad ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \wedge \\ & (l3_msualg_1 X1 X0)) \Rightarrow (m2_pboole (u4_msualg_1 X0 X1) (u4_struct_0 \\ & \quad X0) (k3_relat_1 (u1_msualg_1 X0) (k6_finseq_2 (u1_struct_0 X0) \\ & \quad (u3_msualg_1 X0 X1))) (k3_relat_1 (u2_msualg_1 X0) (u3_msualg_1 \\ & \quad X0 X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1_struct_0 X0) \wedge (l2_msualg_1 X1 X0)) \Rightarrow \\ & ((v1_relat_1 (u3_msualg_1 X0 X1)) \wedge ((v4_relat_1 (u3_msualg_1 \\ & \quad X0 X1) (u1_struct_0 X0)) \wedge ((v1_funct_1 (u3_msualg_1 X0 X1)) \wedge (v1_partfun1 \\ & \quad (u3_msualg_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & (\forall X3. (m2_pboole X3 X0 X1 X2) \Rightarrow ((v1_relat_1 X3) \wedge ((v4_relat_1 \\ & X3 X0) \wedge ((v1_funct_1 X3) \wedge (v1_partfun1 X3 X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0. (l5_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & (l3_msualg_1 X1 X0) \Rightarrow (l2_msualg_1 X1 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0. (l1_msualg_1 X0) \Rightarrow (l5_struct_0 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (\forall X2. (l3_msualg_1 \\ & X2 X0) \Rightarrow (\forall X3. (m2_pboole X3 (u1_struct_0 X0) (u3_msualg_1 \\ & X0 X1) (u3_msualg_1 X0 X2)) \Rightarrow ((r1_msualg_3 X0 X1 X2 X3) \Leftrightarrow (\forall X4. \\ & (m1_subset_1 X4 (u4_struct_0 X0)) \Rightarrow ((k3_msualg_1 X0 X4 X1 \neq k1_xboole_0) \Rightarrow \\ & (\forall X5. (m1_subset_1 X5 (k3_msualg_1 X0 X4 X1)) \Rightarrow (k1_funct_1 \\ & (k1_msualg_3 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X2) X3 (k2_msualg_1 X0 X4)) (k1_funct_1 (k5_msualg_1 X0 X4 X1) \\ & X5) = k1_funct_1 (k5_msualg_1 X0 X4 X2) (k5_msualg_3 X0 X1 X2 X4 X3 \\ & X5)))))))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (\forall X2. \\ & (l3_msualg_1 X2 X0) \Rightarrow (k5_msualg_1 X0 X1 X2 = k1_funct_1 (u4_msualg_1 \\ & X0 X2) X1))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u4_struct_0 X0)) \Rightarrow (\forall X2. \\ & (l3_msualg_1 X2 X0) \Rightarrow (k3_msualg_1 X0 X1 X2 = k1_funct_1 (k3_relat_1 \\ & (u1_msualg_1 X0) (k6_finseq_2 (u1_struct_0 X0) (u3_msualg_1 X0 \\ & X2))) X1))) \end{aligned} \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & \quad X0))) \Rightarrow (\forall X1.(l3_msualg_1 X1 X0) \Rightarrow (\forall X2.(l3_msualg_1 \\ & \quad X2 X0) \Rightarrow (\forall X3.(l3_msualg_1 X3 X0) \Rightarrow (\forall X4.(l3_msualg_1 \\ & \quad X4 X0) \Rightarrow (((g3_msualg_1 X0 (u3_msualg_1 X0 X1) (u4_msualg_1 X0 X1) = \\ & \quad g3_msualg_1 X0 (u3_msualg_1 X0 X3) (u4_msualg_1 X0 X3)) \wedge ((g3_msualg_1 \\ & \quad X0 (u3_msualg_1 X0 X2) (u4_msualg_1 X0 X2) = g3_msualg_1 X0 (u3_msualg_1 \\ & \quad X0 X4) (u4_msualg_1 X0 X4)) \wedge (r1_pzfmisc1 (u1_struct_0 X0) (u3_msualg_1 \\ & \quad X0 X1) (u3_msualg_1 X0 X2)))))) \Rightarrow (\forall X5.(m2_pboole X5 (u1_struct_0 \\ & \quad X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2)) \Rightarrow (\neg (r1_msualg_3 X0 \\ & \quad X1 X2 X5) \wedge (\forall X6.(m2_pboole X6 (u1_struct_0 X0) (u3_msualg_1 \\ & \quad X0 X3) (u3_msualg_1 X0 X4)) \Rightarrow (\neg (r8_pboole (u1_struct_0 X0) X6 X5) \wedge \\ & \quad (r1_msualg_3 X0 X3 X4 X6)))))))))) \end{aligned}$$