

l4_mod_4

(TMZsuTEF52UzSxw8FeEnBJXDy756d6hmxcl)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_mod_4 : \iota \Rightarrow \iota$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $g6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $u3_struct_0 : \iota \Rightarrow \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $v36_algstr_0 : \iota \Rightarrow o$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_mod_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((v1_funct_1 \\
 & X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
 & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge (((v1_funct_1 X2) \wedge (\\
 & (v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
 & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X3 X0) \wedge \\
 & (m1_subset_1 X4 X0)))) \Rightarrow (\forall X5. \forall X6. \forall X7. \forall X8. \\
 & \forall X9. (g6_algstr_0 X0 X1 X2 X3 X4 = g6_algstr_0 X5 X6 X7 X8 X9) \Rightarrow \\
 & ((X0 = X5) \wedge ((X1 = X6) \wedge ((X2 = X7) \wedge ((X3 = X8) \wedge (X4 = X9))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. (l3_struct_0 X0) \Rightarrow (m1_subset_1 (u3_struct_0 X0) (u1_struct_0 X0)) \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0. (l3_algstr_0 X0) \Rightarrow & ((v1_funct_1 (u2_algstr_0 X0)) \wedge \\ & ((v1_funct_2 (u2_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u2_algstr_0 \\ X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_algstr_0 X0) \Rightarrow & ((v1_funct_1 (u1_algstr_0 X0)) \wedge \\ & ((v1_funct_2 (u1_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_algstr_0 \\ X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0. (l5_algstr_0 X0) \Rightarrow ((l4_algstr_0 X0) \wedge (l4_struct_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0. (l4_algstr_0 X0) \Rightarrow ((l3_struct_0 X0) \wedge (l3_algstr_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0. (l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0. (l2_struct_0 X0) \Rightarrow (m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow ((v36_algstr_0 (k2_mod_4 X0)) \wedge (l6_algstr_0 (k2_mod_4 X0))) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. & ((l1_algstr_0 X0) \wedge ((m1_subset_1 \\ X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow & (m1_subset_1 \\ & (k1_algstr_0 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0. (l2_struct_0 X0) \Rightarrow (k4_struct_0 X0 = u2_struct_0 X0) \quad (12)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((v4_rlvect_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_algstr_0 X0 X1 (k4_struct_0 X0) = X1)))) \quad (13)$$

Assume the following.

$$\forall X0.(l1_algstr_0 X0) \Rightarrow ((v3_rlvect_1 X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (k1_algstr_0 X0 (k1_algstr_0 X0 X1 X2) X3 = k1_algstr_0 X0 X1 (k1_algstr_0 X0 X2 X3)))))) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow (k2_mod_4 X0 = g6_algstr_0 (u1_struct_0 X0) (u1_algstr_0 X0) (k1_mod_4 (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 X0) (u2_algstr_0 X0)) (k5_struct_0 X0) (k4_struct_0 X0)) \quad (15)$$

Assume the following.

$$\forall X0.(l1_algstr_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_algstr_0 X0 X1 X2 = k5_binop_1 (u1_struct_0 X0) (u1_algstr_0 X0) X1 X2))) \quad (16)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow ((v36_algstr_0 X0) \Rightarrow (X0 = g6_algstr_0 (u1_struct_0 X0) (u1_algstr_0 X0) (u2_algstr_0 X0) (u3_struct_0 X0) (u2_struct_0 X0))) \quad (17)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k2_mod_4 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k2_mod_4 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (k2_mod_4 X0)) \Rightarrow ((k1_algstr_0 (k2_mod_4 X0) (k1_algstr_0 (k2_mod_4 X0) X1 X2) X3 = k1_algstr_0 (k2_mod_4 X0) X1 (k1_algstr_0 (k2_mod_4 X0) X2 X3)) \wedge (k1_algstr_0 (k2_mod_4 X0) X1 (k4_struct_0 (k2_mod_4 X0) = X1))))))$$