

t14_mod_4

(TMTLxdZsh7F1cQUFb9CE5bWi8AiG7DmVyAJ)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_mod_4 : \iota \Rightarrow \iota$ be given. Let $k5_mod_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_mod_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_mod_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v36_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (\neg v1_xboole_0 X1) \Rightarrow \\
 & \quad (\forall X2. (\neg v1_xboole_0 X2) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge \\
 & \quad ((v1_funct_2 X3 (k2_zfmisc_1 X1 X2) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
 & \quad (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) X0)))))) \Rightarrow (\forall X4. (m1_subset_1 \\
 & \quad X4 X1) \Rightarrow (\forall X5. (m1_subset_1 X5 X2) \Rightarrow (k2_binop_1 X1 X2 X0 X3 X4 \\
 & \quad X5 = k2_binop_1 X2 X1 X0 (k1_mod_4 X1 X2 X0 X3) X5 X4))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
 & \quad ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (((v1_funct_1 X3) \wedge ((\\
 & \quad v1_funct_2 X3 (k2_zfmisc_1 X0 X1) X2) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
 & \quad (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) X2)))))) \wedge ((m1_subset_1 X4 X0) \wedge \\
 & \quad (m1_subset_1 X5 X1)))) \Rightarrow (k2_binop_1 X0 X1 X2 X3 X4 X5 = k1_binop_1 \\
 & \quad X3 X4 X5)
 \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow ((\neg v2_struct_0 (k2_mod_4 X0)) \wedge (v36_algstr_0 (k2_mod_4 X0))) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow (\neg v1_xboole_0 (k2_zfmisc_1 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0. (l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (7)$$

Assume the following.

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

Assume the following.

$$\forall X0. (l1_struct_0 X0) \Rightarrow (\forall X1. (l1_vectsp_2 X1 X0) \Rightarrow (l2_algstr_0 X1)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \wedge (((\neg v2_struct_0 X1) \wedge (l1_vectsp_2 X1 X0)) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0)) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0)) (u1_struct_0 X1)))))) \Rightarrow ((v1_funct_1 (k6_mod_4 X0 X1 X2)) \wedge ((v1_funct_2 (k6_mod_4 X0 X1 X2) (k2_zfmisc_1 (u1_struct_0 (k2_mod_4 X0)) (u1_struct_0 (k5_mod_4 X0 X1))) (u1_struct_0 (k5_mod_4 X0 X1))) \wedge (m1_subset_1 (k6_mod_4 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 (k2_mod_4 X0)) (u1_struct_0 (k5_mod_4 X0 X1))) (u1_struct_0 (k5_mod_4 X0 X1))))))))) \quad (10) \end{aligned}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow ((v36_algstr_0 (k2_mod_4 X0)) \wedge (l6_algstr_0 (k2_mod_4 X0))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((\neg v1_xboole_0 X1)\wedge((\neg v1_xboole_0 X2)\wedge((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 (k2_zfmisc_1 X0 X1) X2)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1) X2))))))))\Rightarrow((v1_funct_1 (k1_mod_4 X0 X1 X2 \\ & X3))\wedge((v1_funct_2 (k1_mod_4 X0 X1 X2 X3) (k2_zfmisc_1 X1 X0) X2)\wedge \\ & (m1_subset_1 (k1_mod_4 X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 (\\ & k2_zfmisc_1 X1 X0) X2)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l6_algstr_0 X0))\Rightarrow(\forall X1. \\ & ((\neg v2_struct_0 X1)\wedge(l1_vectsp_2 X1 X0))\Rightarrow(\forall X2.((v1_funct_1 \\ & X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\ & X0)) (u1_struct_0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0)) (u1_struct_0 \\ & X1))))))\Rightarrow(k6_mod_4 X0 X1 X2 = k1_mod_4 (u1_struct_0 X1) (u1_struct_0 \\ & X0) (u1_struct_0 X1) X2))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(\neg v1_xboole_0 X1))\Rightarrow \\ & (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow \\ & (((v1_funct_1 X2)\wedge(v1_funct_2 X2 X0 X1))\Rightarrow((v1_funct_1 X2)\wedge((\\ & \neg v1_xboole_0 X2)\wedge(v1_funct_2 X2 X0 X1)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1_xboole_0 X0)\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))\Rightarrow(v1_xboole_0 X2)) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(v1_funct_1 X0) \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l6_algstr_0 X0))\Rightarrow(\forall X1. \\ & ((\neg v2_struct_0 X1)\wedge(l1_vectsp_2 X1 X0))\Rightarrow(\forall X2.((v1_funct_1 \\ & X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\ & X0)) (u1_struct_0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0)) (u1_struct_0 \\ & X1))))))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4. \\ & (m1_subset_1 X4 (u1_struct_0 (k2_mod_4 X0)))\Rightarrow(\forall X5.(m1_subset_1 \\ & X5 (u1_struct_0 X1))\Rightarrow(\forall X6.(m1_subset_1 X6 (u1_struct_0 \\ & (k5_mod_4 X0 X1)))\Rightarrow(((X3 = X4)\wedge(X5 = X6))\Rightarrow(k2_binop_1 (u1_struct_0 \\ & (k2_mod_4 X0)) (u1_struct_0 (k5_mod_4 X0 X1)) (u1_struct_0 (k5_mod_4 \\ & X0 X1)) (k6_mod_4 X0 X1 X2) X4 X6 = k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\ & X0) (u1_struct_0 X1) X2 X5 X3))))))))) \end{aligned}$$