

t46_monoid_0
(TMQgCT9xrkr7qi7LDccY5mWeafoSDHeUZ)

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Let $k5_monoid_0 : \iota$ be given. Let $g4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k47_binop_2 : \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k4_monoid_0 : \iota$ be given. Let $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $m2_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_monoid_0 : \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $m5_monoid_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $v22_algstr_0 : \iota \Rightarrow o$ be given. Let $v15_algstr_0 : \iota \Rightarrow o$ be given. Let $v17_monoid_0 : \iota \Rightarrow o$ be given. Let $k3_monoid_0 : \iota$ be given. Let $u3_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$k4_monoid_0 = g3_algstr_0 \ k5_numbers \ k47_binop_2 \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 \ X0) \wedge ((v1_group_1 \ X0) \wedge (m2_monoid_0 \ X0 \ k2_monoid_0))) \Rightarrow (k4_binop_1 \ (u1_struct_0 \ X0) \ (u2_algstr_0 \ X0) = k6_numbers) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 \ X0) \wedge (l4_algstr_0 \ X0)) \Rightarrow ((v4_vectsp_1 \ X0) \Rightarrow (k5_struct_0 \ X0 = k4_binop_1 \ (u1_struct_0 \ X0) \ (u2_algstr_0 \ X0))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_funct_1 \ X1) \wedge ((v1_funct_2 \ X1 \ (k2_zfmisc_1 \ X0 \ X0) \ X0) \wedge (m1_subset_1 \ X1 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ X0) \ X0)))))) \Rightarrow (\forall X2. \forall X3. (g3_algstr_0 \ X0 \ X1 = g3_algstr_0 \ X2 \ X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((l3_algstr_0 X0)\wedge(m2_monoid_0 X1 X0))\Rightarrow (\forall X2.(m5_monoid_0 X2 X0 X1)\Rightarrow(m2_monoid_0 X2 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0)\Rightarrow(\forall X1.(m1_monoid_0 X1 X0)\Rightarrow (l4_algstr_0 X1)) \quad (6)$$

Assume the following.

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

Assume the following.

$$(\neg v2_struct_0 k5_monoid_0)\wedge((v22_algstr_0 k5_monoid_0)\wedge((v4_vectsp_1 k5_monoid_0)\wedge(m1_monoid_0 k5_monoid_0 k4_monoid_0))) \quad (8)$$

Assume the following.

$$(\neg v2_struct_0 k4_monoid_0)\wedge((v15_algstr_0 k4_monoid_0)\wedge((v1_group_1 k4_monoid_0)\wedge((v17_monoid_0 k4_monoid_0)\wedge(m5_monoid_0 k4_monoid_0 k2_monoid_0 k3_monoid_0)))) \quad (9)$$

Assume the following.

$$(v1_funct_1 k47_binop_2)\wedge((v1_funct_2 k47_binop_2 (k2_zfmisc_1 k5_numbers k5_numbers) k5_numbers)\wedge(m1_subset_1 k47_binop_2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k5_numbers k5_numbers) k5_numbers)))) \quad (10)$$

Assume the following.

$$(\neg v2_struct_0 k3_monoid_0)\wedge((v15_algstr_0 k3_monoid_0)\wedge(m2_monoid_0 k3_monoid_0 k2_monoid_0)) \quad (11)$$

Assume the following.

$$(\neg v2_struct_0 k2_monoid_0)\wedge(l3_algstr_0 k2_monoid_0) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0) X0))))\Rightarrow((v15_algstr_0 (g3_algstr_0 X0 X1))\wedge(l3_algstr_0 (g3_algstr_0 X0 X1))) \quad (13)$$

Assume the following.

$$\forall X0.(l3_struct_0 X0)\Rightarrow(k5_struct_0 X0 = u3_struct_0 X0) \quad (14)$$

Assume the following.

$$k47_binop_2 = u2_algstr_0 k4_monoid_0 \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3_algstr_0 X0) \Rightarrow (\forall X1.(l4_algstr_0 X1) \Rightarrow ((\\ m1_monoid_0 X1 X0) \Leftrightarrow (g3_algstr_0 (u1_struct_0 X1) (u2_algstr_0 \\ X1) = g3_algstr_0 (u1_struct_0 X0) (u2_algstr_0 X0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.(l4_algstr_0 X0) \Rightarrow ((v22_algstr_0 X0) \Rightarrow (X0 = g4_algstr_0 \\ (u1_struct_0 X0) (u2_algstr_0 X0) (u3_struct_0 X0))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3_algstr_0 X0) \Rightarrow ((v15_algstr_0 X0) \Rightarrow (X0 = g3_algstr_0 \\ (u1_struct_0 X0) (u2_algstr_0 X0))) \end{aligned} \quad (18)$$

Theorem 1 $k5_monoid_0 = g4_algstr_0 k5_numbers k47_binop_2 k6_numbers$.