

t47_monoid_0

(TMKp9Wx79U5cMS8mLKX1xfjBg4Z5riMCTgq)

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Let $k47_binop_2 : \iota$ be given. Let $k1_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k33_binop_2 : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k44_binop_2 : \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $m2_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m5_monoid_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_monoid_0 : \iota$ be given. Let $k2_gr_cy_1 : \iota$ 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 $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_monoid_0 : \iota$ be given. Let $v15_algstr_0 : \iota \Rightarrow o$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v5_group_1 : \iota \Rightarrow o$ be given. Let $v13_monoid_0 : \iota \Rightarrow o$ be given. Let $v16_monoid_0 : \iota \Rightarrow o$ be given. Let $k4_monoid_0 : \iota$ be given. Let $v17_monoid_0 : \iota \Rightarrow o$ be given. Let $k4_numbers : \iota$ be given. Let $k1_numbers : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m2_monoid_0 X1 X0)) \Rightarrow (u2_algstr_0 X1 = k1_realset1 \\ & (u2_algstr_0 X0) (u1_struct_0 X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l3_algstr_0 X0) \wedge (m2_monoid_0 X1 X0)) \Rightarrow \\ & (\forall X2. (m5_monoid_0 X2 X0 X1) \Leftrightarrow (m2_monoid_0 X2 X1)) \end{aligned} \tag{2}$$

Assume the following.

$$k3_monoid_0 = k2_gr_cy_1 \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\ & X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X2. \forall X3. (g3_algstr_0 X0 X1 = g3_algstr_0 \\ & X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \end{aligned} \tag{4}$$

Assume the following.

$$(\neg v2_struct_0\ k2_monoid_0) \wedge ((v15_algstr_0\ k2_monoid_0) \wedge ((v1_group_1\ k2_monoid_0) \wedge ((v3_group_1\ k2_monoid_0) \wedge ((v5_group_1\ k2_monoid_0) \wedge ((v13_monoid_0\ k2_monoid_0) \wedge (v16_monoid_0\ k2_monoid_0))))))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((l3_algstr_0\ X0) \wedge (m2_monoid_0\ X1\ X0)) \Rightarrow (\forall X2.(m5_monoid_0\ X2\ X0\ X1) \Rightarrow (m2_monoid_0\ X2\ X0)) \quad (6)$$

Assume the following.

$$(\neg v2_struct_0\ k4_monoid_0) \wedge ((v15_algstr_0\ k4_monoid_0) \wedge ((v1_group_1\ k4_monoid_0) \wedge ((v17_monoid_0\ k4_monoid_0) \wedge (m5_monoid_0\ k4_monoid_0\ k2_monoid_0\ k3_monoid_0)))) \quad (7)$$

Assume the following.

$$(v1_funct_1\ k44_binop_2) \wedge ((v1_funct_2\ k44_binop_2\ (k2_zfmisc_1\ k4_numbers\ k4_numbers)\ k4_numbers) \wedge (m1_subset_1\ k44_binop_2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ k4_numbers\ k4_numbers)\ k4_numbers)))) \quad (8)$$

Assume the following.

$$(\neg v2_struct_0\ k3_monoid_0) \wedge ((v15_algstr_0\ k3_monoid_0) \wedge (m2_monoid_0\ k3_monoid_0\ k2_monoid_0)) \quad (9)$$

Assume the following.

$$(v1_funct_1\ k33_binop_2) \wedge ((v1_funct_2\ k33_binop_2\ (k2_zfmisc_1\ k1_numbers\ k1_numbers)\ k1_numbers) \wedge (m1_subset_1\ k33_binop_2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ k1_numbers\ k1_numbers)\ k1_numbers)))) \quad (10)$$

Assume the following.

$$(\neg v2_struct_0\ k2_monoid_0) \wedge (l3_algstr_0\ k2_monoid_0) \quad (11)$$

Assume the following.

$$(\neg v2_struct_0\ k2_gr_cy_1) \wedge ((v15_algstr_0\ k2_gr_cy_1) \wedge (l3_algstr_0\ k2_gr_cy_1)) \quad (12)$$

Assume the following.

$$k2_gr_cy_1 = g3_algstr_0\ k4_numbers\ k44_binop_2 \quad (13)$$

Assume the following.

$$k47_binop_2 = u2_algstr_0 k4_monoid_0 \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge ((v15_algstr_0 X0) \wedge ((v1_group_1 \\ X0) \wedge ((v17_monoid_0 X0) \wedge (m5_monoid_0 X0 k2_monoid_0 k3_monoid_0)))))) \Rightarrow \\ ((X0 = k4_monoid_0) \Leftrightarrow (u1_struct_0 X0 = k5_numbers)) \end{aligned} \quad (15)$$

Assume the following.

$$k2_monoid_0 = g3_algstr_0 k1_numbers k33_binop_2 \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. (l3_algstr_0 X0) \Rightarrow ((v15_algstr_0 X0) \Rightarrow (X0 = g3_algstr_0 \\ (u1_struct_0 X0) (u2_algstr_0 X0))) \end{aligned} \quad (17)$$

Theorem 1

$$(k47_binop_2 = k1_realset1 k33_binop_2 k5_numbers) \wedge (k47_binop_2 = k1_realset1 k44_binop_2 k5_numbers)$$