

t41_monoid_0
(TMb39FhXBaUk7hEFJLFgRUY76psLTDwrZBQ)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v15_algstr_0 : \iota \Rightarrow o$ be given. Let $m2_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_monoid_0 : \iota$ be given. Let $k3_monoid_0 : \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_numbers : \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ 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 $k44_binop_2 : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m2_monoid_0 X1 X0)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\ & X2) \wedge (m2_monoid_0 X2 X0)) \Rightarrow ((u1_struct_0 X1 = u1_struct_0 X2) \Rightarrow (\\ & g3_algstr_0 (u1_struct_0 X1) (u2_algstr_0 X1) = g3_algstr_0 (u1_struct_0 \\ & X2) (u2_algstr_0 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$k3_monoid_0 = k2_gr_cy_1 \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\ & X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X2. \forall X3. (g3_algstr_0 X0 X1 = g3_algstr_0 \\ & X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. (l3_algstr_0 X0) \Rightarrow (\forall X1. (m2_monoid_0 X1 X0) \Rightarrow (l3_algstr_0 X1)) \tag{4}$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 k44_binop_2) \wedge ((v1_funct_2 k44_binop_2 (k2_zfmisc_1 \\ & k4_numbers k4_numbers) k4_numbers) \wedge (m1_subset_1 k44_binop_2 \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k4_numbers k4_numbers) \\ & k4_numbers)))) \end{aligned} \tag{5}$$

Assume the following.

$$(\neg v2_struct_0\ k3_monoid_0) \wedge ((v15_algstr_0\ k3_monoid_0) \wedge (m2_monoid_0\ k3_monoid_0\ k2_monoid_0)) \quad (6)$$

Assume the following.

$$(\neg v2_struct_0\ k2_monoid_0) \wedge (l3_algstr_0\ k2_monoid_0) \quad (7)$$

Assume the following.

$$(\neg v2_struct_0\ k2_gr_cy_1) \wedge ((v15_algstr_0\ k2_gr_cy_1) \wedge (l3_algstr_0\ k2_gr_cy_1)) \quad (8)$$

Assume the following.

$$k2_gr_cy_1 = g3_algstr_0\ k4_numbers\ k44_binop_2 \quad (9)$$

Assume the following.

$$\forall X0. (l3_algstr_0\ X0) \Rightarrow ((v15_algstr_0\ X0) \Rightarrow (X0 = g3_algstr_0\ (u1_struct_0\ X0)\ (u2_algstr_0\ X0))) \quad (10)$$

Theorem 1

$$\forall X0. ((\neg v2_struct_0\ X0) \wedge ((v15_algstr_0\ X0) \wedge (m2_monoid_0\ X0\ k2_monoid_0))) \Rightarrow ((X0 = k3_monoid_0) \Leftrightarrow (u1_struct_0\ X0 = k4_numbers))$$