

t39_monoid_0

(TMXFKh4oVHE18zDVqmfxoLHSibvw3DVpb1d)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $m2_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_monoid_0 : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_membered : \iota \Rightarrow o$ 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 $k33_binop_2 : \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m2_monoid_0 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\forall X5. \\ & (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (((X2 = X4) \wedge (X3 = X5)) \Rightarrow (k6_algstr_0 \\ & X1 X2 X3 = k6_algstr_0 X0 X4 X5)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \wedge ((m1_subset_1 X2 X0) \wedge \\ & (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \tag{2}$$

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.

$$v3_membered\ k1_numbers \quad (4)$$

Assume the following.

$$\begin{aligned} & (\neg v2_struct_0\ k2_monoid_0) \wedge ((v15_algstr_0\ k2_monoid_0) \wedge ((\\ & \quad v1_group_1\ k2_monoid_0) \wedge ((v3_group_1\ k2_monoid_0) \wedge ((v5_group_1 \\ & \quad k2_monoid_0) \wedge ((v13_monoid_0\ k2_monoid_0) \wedge (v16_monoid_0\ k2_monoid_0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1\ k33_binop_2) \wedge ((v1_funct_2\ k33_binop_2\ (k2_zfmisc_1 \\ & \quad k1_numbers\ k1_numbers)\ k1_numbers) \wedge (m1_subset_1\ k33_binop_2 \\ & \quad (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ k1_numbers\ k1_numbers) \\ & \quad \quad k1_numbers)))) \end{aligned} \quad (6)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_funct_1\ X0) \wedge ((v1_funct_2\ X0\ (k2_zfmisc_1\ k1_numbers \\ & \quad k1_numbers)\ k1_numbers) \wedge (m1_subset_1\ X0\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ & \quad k2_zfmisc_1\ k1_numbers\ k1_numbers)\ k1_numbers)))) \Rightarrow ((X0 = k33_binop_2) \Leftrightarrow \\ & \quad (\forall X1. (v1_xreal_0\ X1) \Rightarrow (\forall X2. (v1_xreal_0\ X2) \Rightarrow (k1_binop_1 \\ & \quad \quad X0\ X1\ X2 = k9_binop_2\ X1\ X2)))) \end{aligned} \quad (8)$$

Assume the following.

$$k2_monoid_0 = g3_algstr_0\ k1_numbers\ k33_binop_2 \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_algstr_0\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (u1_struct_0 \\ & \quad X0)) \Rightarrow (\forall X2. (m1_subset_1\ X2\ (u1_struct_0\ X0)) \Rightarrow (k6_algstr_0 \\ & \quad X0\ X1\ X2 = k5_binop_1\ (u1_struct_0\ X0)\ (u2_algstr_0\ X0)\ X1\ X2))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0. (v3_membered\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ X0) \Rightarrow (v1_xreal_0\ X1)) \quad (11)$$

Assume the following.

$$\forall X0. (l3_algstr_0\ X0) \Rightarrow ((v15_algstr_0\ X0) \Rightarrow (X0 = g3_algstr_0\ (u1_struct_0\ X0)\ (u2_algstr_0\ X0))) \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (m2_monoid_0 X0 k2_monoid_0)) \Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\ & (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (((X1 = X3) \wedge (X2 = X4)) \Rightarrow \\ & (k6_algstr_0 X0 X1 X2 = k9_binop_2 X3 X4)))))) \end{aligned}$$