

t56_monoid_1 (TM-
LqUazDu4wuU4Pp4qLVVSZ6wA5R3HKJUCC)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $k23_monoid_1 : \iota \Rightarrow \iota$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k22_monoid_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ 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 $g4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $u3_struct_0 : \iota \Rightarrow \iota$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $v22_algstr_0 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $k21_monoid_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 X0))) \Rightarrow (k23_monoid_1 X0 = k22_monoid_1 X0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge ((v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))) \wedge (m1_subset_1 X2 X0)) \Rightarrow (\forall X3. \\ & \forall X4. \forall X5. (g4_algstr_0 X0 X1 X2 = g4_algstr_0 X3 X4 X5) \Rightarrow \\ & ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (l3_struct_0 X0) \Rightarrow (m1_subset_1 (u3_struct_0 X0) (u1_struct_0 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_algstr_0 X0) \Rightarrow ((v1_funct_1 (u2_algstr_0 X0)) \wedge \\ & ((v1_funct_2 (u2_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u2_algstr_0 \\ & X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow ((l3_struct_0 X0) \wedge (l3_algstr_0 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 \\ X0))) \Rightarrow ((\neg v2_struct_0 (k23_monoid_1 X0)) \wedge ((v22_algstr_0 (k23_monoid_1 \\ X0)) \wedge ((v4_vectsp_1 (k23_monoid_1 X0)) \wedge (l4_algstr_0 (k23_monoid_1 \\ X0))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (((v1_group_1 \\ X0) \Rightarrow (k22_monoid_1 X0 = g4_algstr_0 (k1_zfmisc_1 (u1_struct_0 \\ X0)) (k21_monoid_1 (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 \\ X0) (u2_algstr_0 X0)) (k6_domain_1 (u1_struct_0 X0) (k4_binop_1 \\ (u1_struct_0 X0) (u2_algstr_0 X0)))))) \wedge ((\neg v1_group_1 X0) \Rightarrow (k22_monoid_1 \\ X0 = g3_algstr_0 (k1_zfmisc_1 (u1_struct_0 X0)) (k21_monoid_1 \\ (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 X0) (u2_algstr_0 \\ X0))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l3_struct_0 X0) \Rightarrow (k5_struct_0 X0 = u3_struct_0 X0) \quad (8)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow ((v22_algstr_0 X0) \Rightarrow (X0 = g4_algstr_0 \\ (u1_struct_0 X0) (u2_algstr_0 X0) (u3_struct_0 X0))) \quad (9)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 \\ X0))) \Rightarrow (k5_struct_0 (k23_monoid_1 X0) = k6_domain_1 (u1_struct_0 \\ X0) (k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0))) \end{aligned}$$