

t37_monoid_0 (TMLuAX- duV2F5guV15egLQHBftt6qEY96NKM)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v17_monoid_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $m3_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $m2_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m2_monoid_0 X1 X0)) \Rightarrow (((k4_binop_1 (u1_struct_0 \\ & X0) (u2_algstr_0 X0) \in u1_struct_0 X1) \wedge (v17_monoid_0 X0)) \Rightarrow (v17_monoid_0 \\ & X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \tag{2}$$

Assume the following.

$$\forall X0. (l3_algstr_0 X0) \Rightarrow (\forall X1. (m3_monoid_0 X1 X0) \Rightarrow (m2_monoid_0 X1 X0)) \tag{3}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l4_algstr_0 X0)) \Rightarrow ((v4_vectsp_1 X0) \Rightarrow (k5_struct_0 X0 = k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0))) \tag{4}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \tag{5}$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0) \Rightarrow (\forall X1.(m3_monoid_0 X1 X0) \Rightarrow (l4_algstr_0 X1)) \quad (6)$$

Assume the following.

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

Assume the following.

$$\forall X0.(l3_algstr_0 X0) \Rightarrow (l1_struct_0 X0) \quad (8)$$

Assume the following.

$$\forall X0.(l3_struct_0 X0) \Rightarrow (m1_subset_1 (k5_struct_0 X0) (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow (\forall X1.(l4_algstr_0 X1) \Rightarrow ((m3_monoid_0 X1 X0) \Leftrightarrow ((r1_tarski (u2_algstr_0 X1) (u2_algstr_0 X0)) \wedge (k5_struct_0 X1 = k5_struct_0 X0)))) \quad (10)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v17_monoid_0 X0) \wedge (l4_algstr_0 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge (m3_monoid_0 X1 X0)) \Rightarrow (v17_monoid_0 X1))$$