

t61_monoid_0
(TMdzYy9uk8MwbsRdG4r67HTGyUHtzZMvjud)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k10_monoid_0 : \iota \Rightarrow \iota$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k11_monoid_0 : \iota \Rightarrow \iota$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_monoid_0 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k13_finseq_1 : \iota \Rightarrow \iota$ be given. Let $g3_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $m1_monoid_0 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v2_monoid_0 : \iota \Rightarrow o$ be given. Let $v16_monoid_0 : \iota \Rightarrow o$ be given. Let $v17_monoid_0 : \iota \Rightarrow o$ be given. Let $v22_algstr_0 : \iota \Rightarrow o$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. (\neg v1_xboole_0 X0) \Rightarrow (k4_binop_1 (u1_struct_0 (k9_monoid_0 X0)) (u2_algstr_0 (k9_monoid_0 X0)) = k1_xboole_0) \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l4_algstr_0 X0)) \Rightarrow ((v4_vectsp_1 X0) \Rightarrow (k5_struct_0 X0 = k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0))) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X3) \wedge (((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \wedge ((v1_funct_1 X5) \wedge ((v1_funct_2 X5 X2 X3) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 X2 X3))))))) \Rightarrow (r1_funct_2 X0 X1 X2 X3 X4 X4) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.k3_finseq_2 X0 = k13_finseq_1 X0 \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 \\ X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ X0 X0) X0))))))\Rightarrow(\forall X2.\forall X3.(g3_algstr_0 X0 X1 = g3_algstr_0 \\ X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\neg v1_xboole_0 (k13_finseq_1 X0) \quad (6)$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0)\Rightarrow(\forall X1.(m1_monoid_0 X1 X0)\Rightarrow \\ (l4_algstr_0 X1)) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0)\Rightarrow((\neg v2_struct_0 (k9_monoid_0 X0))\wedge \\ ((v15_algstr_0 (k9_monoid_0 X0))\wedge((v1_group_1 (k9_monoid_0 \\ X0))\wedge((v3_group_1 (k9_monoid_0 X0))\wedge((v2_monoid_0 (k9_monoid_0 \\ X0))\wedge((v16_monoid_0 (k9_monoid_0 X0))\wedge((v17_monoid_0 (k9_monoid_0 \\ X0))\wedge(l3_algstr_0 (k9_monoid_0 X0)))))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0)\Rightarrow((v1_funct_1 (k11_monoid_0 X0))\wedge \\ ((v1_funct_2 (k11_monoid_0 X0) (k2_zfmisc_1 (k3_finseq_2 X0) \\ (k3_finseq_2 X0)) (k3_finseq_2 X0))\wedge(m1_subset_1 (k11_monoid_0 \\ X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k3_finseq_2 X0) (\\ k3_finseq_2 X0)) (k3_finseq_2 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0)\Rightarrow((\neg v2_struct_0 (k10_monoid_0 X0))\wedge \\ ((v22_algstr_0 (k10_monoid_0 X0))\wedge((v4_vectsp_1 (k10_monoid_0 \\ X0))\wedge(m1_monoid_0 (k10_monoid_0 X0) (k9_monoid_0 X0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(k11_monoid_0 X0 = u2_algstr_0 (\\ k9_monoid_0 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\
& ((v15_algstr_0 X1) \wedge ((v1_group_1 X1) \wedge ((v3_group_1 X1) \wedge ((v2_monoid_0 \\
& X1) \wedge ((v16_monoid_0 X1) \wedge ((v17_monoid_0 X1) \wedge (l3_algstr_0 X1)))))) \Rightarrow \\
& ((X1 = k9_monoid_0 X0) \Leftrightarrow ((u1_struct_0 X1 = k3_finseq_2 X0) \wedge (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X1)) \Rightarrow (k6_algstr_0 X1 X2 X3 = k7_finseq_1 X2 X3))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l3_algstr_0 X0) \Rightarrow (\forall X1.(l4_algstr_0 X1) \Rightarrow ((\\
& m1_monoid_0 X1 X0) \Leftrightarrow (g3_algstr_0 (u1_struct_0 X1) (u2_algstr_0 \\
& X1) = g3_algstr_0 (u1_struct_0 X0) (u2_algstr_0 X0))))
\end{aligned} \tag{13}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow ((u1_struct_0 (k10_monoid_0 X0) = \\
& k3_finseq_2 X0) \wedge ((r1_funct_2 (k2_zfmisc_1 (u1_struct_0 (k10_monoid_0 \\
& X0)) (u1_struct_0 (k10_monoid_0 X0))) (u1_struct_0 (k10_monoid_0 \\
& X0)) (k2_zfmisc_1 (k3_finseq_2 X0) (k3_finseq_2 X0)) (k3_finseq_2 \\
& X0) (u2_algstr_0 (k10_monoid_0 X0) (k11_monoid_0 X0)) \wedge (k5_struct_0 \\
& (k10_monoid_0 X0) = k1_xboole_0)))
\end{aligned}$$