

t30_monoid_1 (TM- ToPe3xuJt1jhxNxa3uuFAAChVFmULWmtL)

October 27, 2020

Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k13_monoid_1 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k8_monoid_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k47_binop_2 : \iota$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_monoid_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_funct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ 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 $k12_monoid_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_monoid_0 : \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (u1_struct_0 (k13_monoid_1 X0) = k9_funct_2 X0 k5_numbers) \wedge \\ & ((r1_funct_2 (k2_zfmisc_1 (u1_struct_0 (k13_monoid_1 X0))) (u1_struct_0 \\ & (k13_monoid_1 X0))) (u1_struct_0 (k13_monoid_1 X0)) (k2_zfmisc_1 \\ & (k9_funct_2 X0 k5_numbers) (k9_funct_2 X0 k5_numbers)) (k9_funct_2 \\ & X0 k5_numbers) (u2_algstr_0 (k13_monoid_1 X0)) (k8_monoid_1 k5_numbers \\ & k5_numbers k5_numbers k47_binop_2 X0)) \wedge (k5_struct_0 (k13_monoid_1 \\ & X0) = k5_monoid_1 k5_numbers X0 k6_numbers) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1_tarSKI X0 X1)\wedge(r1_tarSKI X1 X2))\Rightarrow(r1_tarSKI X0 X2) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1)\Rightarrow(m1_subset_1 X0 X1) \quad (4)$$

Assume the following.

$$m1_subset_1 k1_xboole_0 k4_ordinal1 \quad (5)$$

Assume the following.

$$((v2_xxreal_0 np_1)\wedge(m2_subset_1 np_1 k1_numbers k5_numbers))\wedge((m1_subset_1 np_1 k5_numbers)\wedge(m1_subset_1 np_1 k1_numbers)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(k9_funct_2 X0 X1 = k1_funct_2 X0 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(k7_domain_1 X0 X1 X2 = k2_tarSKI X1 X2) \quad (8)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k5_funct_3 X0 X1 = k4_funct_3 X0 X1 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (11)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1)\wedge(v3_ordinal1 k4_ordinal1) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(m1_subset_1 (k7_domain_1 X0 X1 X2) (k1_zfmisc_1 X0)) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1_funct_1 (k5_funct_3 X0 X1))\wedge((v1_funct_2 \\ & (k5_funct_3 X0 X1) X1 (k2_tarski k1_xboole_0 np_1))\wedge(m1_subset_1 \\ & (k5_funct_3 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X1 (k2_tarski k1_xboole_0 \\ & np_1)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 (k4_funct_3 X0 X1))\wedge(v1_funct_1 (k4_funct_3 X0 X1)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(m1_subset_1 (k2_relset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (16)$$

Assume the following.

$$\forall X0.k13_monoid_1 X0 = k12_monoid_1 k5_monoid_0 X0 \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_relat_1 X2)\wedge(v1_funct_1 \\ & X2))\Rightarrow((X2 = k4_funct_3 X0 X1)\Leftrightarrow((k9_xtuple_0 X2 = X1)\wedge(\forall X3. \\ & (X3 \in X1)\Rightarrow(((X3 \in X0)\Rightarrow(k1_funct_1 X2 X3 = np_1))\wedge((\neg X3 \in X0)\Rightarrow(k1_funct_1 \\ & X2 X3 = k1_xboole_0)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(X2 = k1_funct_2 X0 X1)\Leftrightarrow(\forall X3. \\ & (X3 \in X2)\Leftrightarrow(\exists X4.((v1_relat_1 X4)\wedge(v1_funct_1 X4))\wedge((X3 = \\ & X4)\wedge((k9_xtuple_0 X4 = X0)\wedge(r1_tarski (k10_xtuple_0 X4) X1)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.k2_tarski X0 X1 = k2_tarski X1 X0 \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (21)$$

Theorem 1

$$\forall X0.\forall X1.m1_subset_1 (k5_funct_3 X0 X1) (u1_struct_0 (k13_monoid_1 X1))$$