

t38_circcomb (TMUBd- nVykd7V3XSVN8vq4nDb7pXSnTrtNYo)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $k2_msafree2 : \iota \Rightarrow \iota$ be given. Let $k4_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k13_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\forall X0. \forall X1. (X0 \neq k1_xboole_0) \Rightarrow (k10_xtuple_0 (k2_funcop_1 X0 X1) = k1_tarski X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. k4_xboole_0 (k2_xboole_0 X0 X1) X1 = k4_xboole_0 X0 X1 \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge (v1_finseq_1 X2))) \Rightarrow ((u1_msualg_1 (k4_circcomb X0 X2 X1) = k13_funcop_1 X2 X0 X2) \wedge (u2_msualg_1 (k4_circcomb X0 X2 X1) = k13_funcop_1 X2 X0 X1)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.k6_subset_1 X0 X1 = k4_xboole_0 X0 X1 \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (6)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.((v1_relat_1 X1)\wedge((v1_funct_1 \\ &X1)\wedge(v1_finseq_1 X1)))\Rightarrow((\neg v2_struct_0 (k4_circcomb X0 X1 X2))\wedge \\ &((\neg v11_struct_0 (k4_circcomb X0 X1 X2))\wedge(v1_msualg_1 (k4_circcomb \\ &X0 X1 X2)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\neg v1_xboole_0 (k1_tarski X0) \quad (8)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (9)$$

Assume the following.

$$\begin{aligned} &\forall X0.(l1_msualg_1 X0)\Rightarrow((v1_funct_1 (u2_msualg_1 X0))\wedge \\ &((v1_funct_2 (u2_msualg_1 X0) (u4_struct_0 X0) (u1_struct_0 X0))\wedge \\ &(m1_subset_1 (u2_msualg_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\ &X0) (u1_struct_0 X0)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.((v1_relat_1 X1)\wedge((v1_funct_1 \\ &X1)\wedge(v1_finseq_1 X1)))\Rightarrow((\neg v11_struct_0 (k4_circcomb X0 X1 X2))\wedge \\ &((v1_msualg_1 (k4_circcomb X0 X1 X2))\wedge(l1_msualg_1 (k4_circcomb \\ &X0 X1 X2)))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1_relat_1 (k13_funcop_1 X0 X1 X2))\wedge(v1_funct_1 (k13_funcop_1 X0 X1 X2)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k13_funcop_1 X0 X1 X2 = k7_funcop_1 (k1_tarski (k4_tarski X0 X1)) X2 \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 \\ X1)))\Rightarrow(\forall X2.\forall X3.((\neg v11_struct_0 X3)\wedge((v1_msualg_1 \\ X3)\wedge(l1_msualg_1 X3)))\Rightarrow((X3 = k4_circcomb X0 X1 X2)\Leftrightarrow((u1_struct_0 \\ X3 = k2_xboole_0 (k10_xtuple_0 X1) (k1_tarski X2))\wedge((u4_struct_0 \\ X3 = k1_tarski (k4_tarski X1 X0))\wedge((k1_funct_1 (u1_msualg_1 X3) \\ (k4_tarski X1 X0) = X1)\wedge(k1_funct_1 (u2_msualg_1 X3) (k4_tarski \\ X1 X0) = X2)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(k3_msafree2 \\ X0 = k2_relset_1 (u1_struct_0 X0) (u2_msualg_1 X0)) \quad (15)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(k2_msafree2 \\ X0 = k6_subset_1 (u1_struct_0 X0) (k2_relset_1 (u1_struct_0 X0) \\ (u2_msualg_1 X0))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (17)$$

Theorem 1

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v1_relat_1 X2)\wedge((v1_funct_1 \\ X2)\wedge(v1_finseq_1 X2)))\Rightarrow((k2_msafree2 (k4_circcomb X0 X2 X1) = \\ k6_subset_1 (k10_xtuple_0 X2) (k1_tarski X1))\wedge(k3_msafree2 (\\ k4_circcomb X0 X2 X1) = k1_tarski X1)) \end{aligned}$$