

t53_circcomb

(TMYd7RqjTA4wnXC2wVANiBPnBALJ9hBiAV8)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v3_card_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_margrel1 : \iota$ 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 $v3_circcomb : \iota \Rightarrow o$ be given. Let $k5_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (k1_xtuple_0 (k4_tarski X0 X1) = X0) \wedge (k2_xtuple_0 (k4_tarski X0 X1) = X1) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 X1))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u4_struct_0 (k5_circcomb X0 X1))) \Rightarrow ((X2 = k4_tarski X1 X0) \wedge ((k1_msualg_1 (k5_circcomb X0 X1) X2 = X1) \wedge (k2_msualg_1 (k5_circcomb X0 X1) X2 = X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (3)$$

Assume the following.

$$\forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow (k3_finseq_1 X0 = k1_card_1 X0) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 \\ X1)))\Rightarrow((\neg v11_struct_0 (k5_circcomb X0 X1))\wedge((v1_msualg_1 (k5_circcomb \\ X0 X1))\wedge(l1_msualg_1 (k5_circcomb X0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_msualg_1 X0)\Rightarrow((v3_circcomb X0)\Leftrightarrow(\forall X1.(\\ X1 \in u4_struct_0 X0)\Rightarrow(\forall X2.((v1_relat_1 X2)\wedge((v1_funct_1 \\ X2)\wedge(v1_finseq_1 X2)))\Rightarrow(\neg(X2 = k1_funct_1 (u1_msualg_1 X0) X1)\wedge \\ (\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 X3 (k4_finseq_2 (k3_finseq_1 \\ X2) k6_margrel1) k6_margrel1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (\\ k2_zfmisc_1 (k4_finseq_2 (k3_finseq_1 X2) k6_margrel1) k6_margrel1))))))\Rightarrow \\ (X1\neq k4_tarski (k1_xtuple_0 X1) X3)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(v3_card_1 X1 X0)\Leftrightarrow(k1_card_1 X1 = X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 \\ X1)))\Rightarrow(\forall X2.((\neg v11_struct_0 X2)\wedge((v1_msualg_1 X2)\wedge(l1_msualg_1 \\ X2)))\Rightarrow((X2 = k5_circcomb X0 X1)\Leftrightarrow((u1_struct_0 X2 = k2_xboole_0 \\ (k10_xtuple_0 X1) (k1_tarski (k4_tarski X1 X0)))\wedge((u4_struct_0 \\ X2 = k1_tarski (k4_tarski X1 X0))\wedge((k1_funct_1 (u1_msualg_1 X2) \\ (k4_tarski X1 X0) = X1)\wedge(k1_funct_1 (u2_msualg_1 X2) (k4_tarski \\ X1 X0) = k4_tarski X1 X0)))))) \end{aligned} \quad (8)$$

Theorem 1

$$\begin{aligned} \forall X0.(v7_ordinal1 X0)\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((\\ v1_funct_1 X1)\wedge((v3_card_1 X1 X0)\wedge(v1_finseq_1 X1))))\Rightarrow(\forall X2. \\ ((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k4_finseq_2 X0 k6_margrel1) \\ k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k4_finseq_2 \\ X0 k6_margrel1) k6_margrel1))))))\Rightarrow(v3_circcomb (k5_circcomb \\ X2 X1)))) \end{aligned}$$