

t3_circcomb (TMQeFPRX- aQgZ9N1fqJ5BzxjVH5bTQnTBPno)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $r1_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $r1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ 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 $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2. ((v1_relat_1 X2) \wedge \\ (v1_funct_1 X2)) \Rightarrow (((r1_partfun1 X0 X1) \wedge ((r1_partfun1 X1 X2) \wedge \\ (r1_partfun1 X2 X0)))) \Rightarrow (r1_partfun1 (k1_funct_4 X0 X1) X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_msualg_1 X0) \Rightarrow ((v1_funct_1 (u2_msualg_1 X0)) \wedge \\ ((v1_funct_2 (u2_msualg_1 X0) (u4_struct_0 X0) (u1_struct_0 X0)) \wedge \\ (m1_subset_1 (u2_msualg_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 X0) (u1_struct_0 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_msualg_1 X0) \Rightarrow ((v1_funct_1 (u1_msualg_1 X0)) \wedge \\ ((v1_funct_2 (u1_msualg_1 X0) (u4_struct_0 X0) (k3_finseq_2 (u1_struct_0 X0))) \wedge (m1_subset_1 (u1_msualg_1 X0) (k1_zfmisc_1 \\ (k2_zfmisc_1 (u4_struct_0 X0) (k3_finseq_2 (u1_struct_0 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \wedge \\ ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1))) \Rightarrow ((\neg v2_struct_0 (k2_circcomb X0 X1)) \wedge ((v1_msualg_1 (k2_circcomb X0 X1)) \wedge (l1_msualg_1 (k2_circcomb X0 X1)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge ((v1_msualg_1 X2) \wedge (l1_msualg_1 X2))) \Rightarrow ((X2 = k2_circcomb \\ & X0 X1) \Leftrightarrow ((u1_struct_0 X2 = k2_xboole_0 (u1_struct_0 X0) (u1_struct_0 \\ & X1)) \wedge ((u4_struct_0 X2 = k2_xboole_0 (u4_struct_0 X0) (u4_struct_0 \\ & X1)) \wedge ((u1_msualg_1 X2 = k1_funct_4 (u1_msualg_1 X0) (u1_msualg_1 \\ & X1)) \wedge (u2_msualg_1 X2 = k1_funct_4 (u2_msualg_1 X0) (u2_msualg_1 \\ & X1)))))))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_msualg_1 X0) \Rightarrow (\forall X1.(l1_msualg_1 X1) \Rightarrow ((\\ & r1_circcomb X0 X1) \Leftrightarrow ((r1_partfun1 (u1_msualg_1 X0) (u1_msualg_1 \\ & X1)) \wedge (r1_partfun1 (u2_msualg_1 X0) (u2_msualg_1 X1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \end{aligned} \quad (7)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_msualg_1 X2)) \Rightarrow (((r1_circcomb X0 X1) \wedge ((r1_circcomb X1 \\ & X2) \wedge (r1_circcomb X2 X0))) \Rightarrow (r1_circcomb (k2_circcomb X0 X1) X2)))) \end{aligned}$$