

t30_facirc_1

(TMF45kXH7RZmniBaX8zqXNA2HYDjZauadBr)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_circcomb : \iota \Rightarrow o$ be given. Let $v2_circcomb : \iota \Rightarrow o$ be given. Let $v3_circcomb : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $k2_msafree2 : \iota \Rightarrow \iota$ be given. Let $v4_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_card_3 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_card_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k5_facirc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_msafree2 : \iota \Rightarrow o$ be given. Let $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $v3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_circcomb \\
 & X0) \wedge ((v2_circcomb X0) \wedge ((v3_circcomb X0) \wedge (l1_msualg_1 X0)))))) \Rightarrow \\
 & (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v1_circcomb \\
 & X1) \wedge ((v2_circcomb X1) \wedge ((v3_circcomb X1) \wedge (l1_msualg_1 X1)))))) \Rightarrow \\
 & ((r1_xboole_0 (k3_msafree2 X1) (k2_msafree2 X0)) \Rightarrow (\forall X2. \\
 & ((v4_msafree2 X2 X0) \wedge ((v4_circcomb X2 X0) \wedge ((v6_circcomb X2 X0) \wedge \\
 & (l3_msualg_1 X2 X0)))) \Rightarrow (\forall X3. ((v4_msafree2 X3 X1) \wedge ((v4_circcomb \\
 & X3 X1) \wedge ((v6_circcomb X3 X1) \wedge (l3_msualg_1 X3 X1)))) \Rightarrow (\forall X4. \\
 & (m1_subset_1 X4 (k4_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb \\
 & X0 X1 X2 X3)))) \Rightarrow (\forall X5. (m1_subset_1 X5 (k4_card_3 (u3_msualg_1 \\
 & X0 X2)) \Rightarrow ((X5 = k11_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb \\
 & X0 X1 X2 X3)) X4 (u1_struct_0 X0)) \Rightarrow (k11_card_3 (u3_msualg_1 (k2_circcomb \\
 & X0 X1) (k3_circcomb X0 X1 X2 X3)) (k6_circuit2 (k2_circcomb X0 X1) \\
 & (k3_circcomb X0 X1 X2 X3) X4) (u1_struct_0 X0) = k6_circuit2 X0 X2 \\
 & X5)))))))))
 \end{aligned}$$

(1)

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 \\ X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge ((\\ v4_msafree2 X1 X0) \wedge (l3_msualg_1 X1 X0))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (k4_card_3 (u3_msualg_1 X0 X1))) \Rightarrow (\forall X3.(v7_ordinal1 \\ X3) \Rightarrow (k5_facirc_1 X0 X1 X2 (k1_nat_1 X3 np_1) = k6_circuit2 X0 X1 \\ (k5_facirc_1 X0 X1 X2 X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 \\ X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge ((\\ v4_msafree2 X1 X0) \wedge (l3_msualg_1 X1 X0))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (k4_card_3 (u3_msualg_1 X0 X1))) \Rightarrow (k5_facirc_1 X0 X1 X2 k6_numbers = \\ X2))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0 : \iota \Rightarrow o.((X0 k6_numbers) \wedge (\forall X1.(v7_ordinal1 \\ X1) \Rightarrow ((X0 X1) \Rightarrow (X0 (k1_nat_1 X1 np_1)))))) \Rightarrow (\forall X1.(v7_ordinal1 \\ X1) \Rightarrow (X0 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ (l1_msualg_1 X0))) \wedge ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1))) \Rightarrow (\\ (\neg v2_struct_0 (k2_circcomb X1 X0)) \wedge ((\neg v11_struct_0 (k2_circcomb \\ X1 X0)) \wedge (v1_msualg_1 (k2_circcomb X1 X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3.(((\neg v2_struct_0 \\ X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_circcomb X0) \wedge ((v3_circcomb X0) \wedge \\ (l1_msualg_1 X0)))))) \wedge (((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge \\ ((v1_circcomb X1) \wedge ((v3_circcomb X1) \wedge (l1_msualg_1 X1)))))) \wedge (\\ ((v4_msafree2 X2 X0) \wedge ((v4_circcomb X2 X0) \wedge ((v6_circcomb X2 X0) \wedge \\ (l3_msualg_1 X2 X0)))) \wedge ((v4_msafree2 X3 X1) \wedge ((v4_circcomb X3 \\ X1) \wedge ((v6_circcomb X3 X1) \wedge (l3_msualg_1 X3 X1)))))) \Rightarrow ((v3_msualg_1 \\ (k3_circcomb X0 X1 X2 X3) (k2_circcomb X0 X1)) \wedge ((v4_msualg_1 (k3_circcomb \\ X0 X1 X2 X3) (k2_circcomb X0 X1)) \wedge ((v4_circcomb (k3_circcomb X0 \\ X1 X2 X3) (k2_circcomb X0 X1)) \wedge (v6_circcomb (k3_circcomb X0 X1 X2 \\ X3) (k2_circcomb X0 X1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1.(((\neg v2_struct_0 X0) \wedge ((v1_circcomb X0) \wedge \\ (l1_msualg_1 X0))) \wedge ((\neg v2_struct_0 X1) \wedge ((v1_circcomb X1) \wedge (l1_msualg_1 \\ X1)))) \Rightarrow ((\neg v2_struct_0 (k2_circcomb X0 X1)) \wedge ((v1_msualg_1 (k2_circcomb \\ X0 X1)) \wedge (v1_circcomb (k2_circcomb X0 X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_msafree2 X0)\wedge(l1_msualg_1 X0))))\wedge \\ & (((v4_msualg_1 X1 X0)\wedge((v4_msafree2 X1 X0)\wedge(l3_msualg_1 X1 X0)))\wedge \\ & ((m1_subset_1 X2 (k4_card_3 (u3_msualg_1 X0 X1)))\wedge(v7_ordinal1 \\ & X3))))\Rightarrow(m1_subset_1 (k5_facirc_1 X0 X1 X2 X3) (k4_card_3 (u3_msualg_1 \\ & X0 X1))) \end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge(l1_msualg_1 X0))\wedge(((\neg v2_struct_0 X1)\wedge(l1_msualg_1 X1))\wedge \\ & (((v4_msualg_1 X2 X0)\wedge(l3_msualg_1 X2 X0))\wedge((v4_msualg_1 X3 X1)\wedge \\ & (l3_msualg_1 X3 X1))))\Rightarrow((v3_msualg_1 (k3_circcomb X0 X1 X2 X3) \\ & (k2_circcomb X0 X1))\wedge((v4_msualg_1 (k3_circcomb X0 X1 X2 X3) (k2_circcomb \\ & X0 X1))\wedge(l3_msualg_1 (k3_circcomb X0 X1 X2 X3) (k2_circcomb X0 X1)))) \end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\wedge \\ & ((\neg v2_struct_0 X1)\wedge(l1_msualg_1 X1)))\Rightarrow((\neg v2_struct_0 (k2_circcomb \\ & X0 X1))\wedge((v1_msualg_1 (k2_circcomb X0 X1))\wedge(l1_msualg_1 (k2_circcomb \\ & X0 X1)))) \end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(\forall X1. \\ & (l3_msualg_1 X1 X0)\Rightarrow((v6_circcomb X1 X0)\Rightarrow((v4_msualg_1 X1 X0)\wedge \\ & (v4_msafree2 X1 X0)))) \end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_msualg_1 X0)\Rightarrow(((\neg v2_struct_0 X0)\wedge(v1_circcomb \\ & X0))\Rightarrow((\neg v2_struct_0 X0)\wedge(v2_msafree2 X0))) \end{aligned} \tag{12}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_circcomb \\ & X0) \wedge ((v2_circcomb X0) \wedge ((v3_circcomb X0) \wedge (l1_msualg_1 X0)))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v1_circcomb \\ & X1) \wedge ((v2_circcomb X1) \wedge ((v3_circcomb X1) \wedge (l1_msualg_1 X1)))))) \Rightarrow \\ & ((r1_xboole_0 (k3_msafree2 X1) (k2_msafree2 X0)) \Rightarrow (\forall X2. \\ & ((v4_msafree2 X2 X0) \wedge ((v4_circcomb X2 X0) \wedge ((v6_circcomb X2 X0) \wedge \\ & (l3_msualg_1 X2 X0)))) \Rightarrow (\forall X3.((v4_msafree2 X3 X1) \wedge ((v4_circcomb \\ & X3 X1) \wedge ((v6_circcomb X3 X1) \wedge (l3_msualg_1 X3 X1)))) \Rightarrow (\forall X4. \\ & (m1_subset_1 X4 (k4_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb \\ & X0 X1 X2 X3)))) \Rightarrow (\forall X5.(m1_subset_1 X5 (k4_card_3 (u3_msualg_1 \\ & X0 X2)) \Rightarrow ((X5 = k11_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb \\ & X0 X1 X2 X3)) X4 (u1_struct_0 X0)) \Rightarrow (\forall X6.(v7_ordinal1 X6) \Rightarrow \\ & (k11_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb X0 X1 \\ & X2 X3)) (k5_facirc_1 (k2_circcomb X0 X1) (k3_circcomb X0 X1 X2 X3) \\ & X4 X6) (u1_struct_0 X0) = k5_facirc_1 X0 X2 X5 X6)))))))))) \end{aligned}$$