

t29_facirc_1 (TM-
RifTBq4ZWHP9cHL7qBdXqdCeRYWdRWnyy)

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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 $k6_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_circcomb \\
& X0) \wedge ((v2_circcomb X0) \wedge ((v3_circcomb X0) \wedge (l1_msualg_1 X0)))))) \Rightarrow \\
& (\forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v1_circcomb \\
& X1) \wedge ((v2_circcomb X1) \wedge ((v3_circcomb X1) \wedge (l1_msualg_1 X1)))))) \Rightarrow \\
& ((r1_xboole_0 (k3_msafree2 X1) (k2_msafree2 X0)) \Rightarrow (\forall X2. \\
& ((v4_msafree2 X2 X0) \wedge ((v4_circcomb X2 X0) \wedge ((v6_circcomb X2 X0) \wedge \\
& (l3_msualg_1 X2 X0)))) \Rightarrow (\forall X3. ((v4_msafree2 X3 X1) \wedge ((v4_circcomb \\
& X3 X1) \wedge ((v6_circcomb X3 X1) \wedge (l3_msualg_1 X3 X1)))) \Rightarrow (\forall X4. \\
& (m1_subset_1 X4 (k4_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb \\
& X0 X1 X2 X3)))) \Rightarrow (\forall X5. (m1_subset_1 X5 (k4_card_3 (u3_msualg_1 \\
& X0 X2)) \Rightarrow ((X5 = k11_card_3 (u3_msualg_1 (k2_circcomb X0 X1) (k3_circcomb \\
& X0 X1 X2 X3)) X4 (u1_struct_0 X0)) \Rightarrow (k11_card_3 (u3_msualg_1 (k2_circcomb \\
& X0 X1) (k3_circcomb X0 X1 X2 X3)) (k6_circuit2 (k2_circcomb X0 X1) \\
& (k3_circcomb X0 X1 X2 X3) X4) (u1_struct_0 X0) = k6_circuit2 X0 X2 \\
& X5)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_circcomb \\
& X0) \wedge ((v2_circcomb X0) \wedge ((v3_circcomb X0) \wedge (l1_msualg_1 X0)))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v1_circcomb \\
& X1) \wedge ((v2_circcomb X1) \wedge ((v3_circcomb X1) \wedge (l1_msualg_1 X1)))))) \Rightarrow \\
& (\forall X2.((v4_msafree2 X2 X0) \wedge ((v4_circcomb X2 X0) \wedge ((v6_circcomb \\
& X2 X0) \wedge (l3_msualg_1 X2 X0)))) \Rightarrow (\forall X3.((v4_msafree2 X3 X1) \wedge \\
& ((v4_circcomb X3 X1) \wedge ((v6_circcomb X3 X1) \wedge (l3_msualg_1 X3 X1)))) \Rightarrow \\
& (k3_circcomb X0 X1 X2 X3 = k3_circcomb X1 X0 X3 X2)))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_circcomb X0) \wedge ((v2_circcomb \\
& X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v1_circcomb \\
& X1) \wedge ((v2_circcomb X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (k2_circcomb X0 X1 = \\
& k2_circcomb X1 X0))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\
& (l3_msualg_1 X1 X0) \Rightarrow ((v6_circcomb X1 X0) \Rightarrow ((v4_msualg_1 X1 X0) \wedge \\
& (v4_msafree2 X1 X0))))
\end{aligned} \tag{4}$$

Theorem 1

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