

t35_circcomb

(TMGd74FXjBXJHFNRyap8oVUmwRRX3WjSahF)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v2_msafree2 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_msafree2 : \iota \Rightarrow \iota$ be given. Let $k2_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k11_card_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k6_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow ((r1_circcomb X0 X1) \Rightarrow (\\ & k2_circcomb X0 X1 = k2_circcomb X1 X0))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 \\ & X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg \\ & v11_struct_0 X1) \wedge ((v2_msafree2 X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (\forall X2. \\ & ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_msafree2 X2) \wedge (\\ & l1_msualg_1 X2)))) \Rightarrow (((r1_tarski (k2_msafree2 X0) (k2_msafree2 \\ & X1)) \wedge (X2 = k2_circcomb X0 X1)) \Rightarrow (\forall X3.((v4_msualg_1 X3 X0) \wedge \\ & ((v4_msafree2 X3 X0) \wedge (l3_msualg_1 X3 X0))) \Rightarrow (\forall X4.((v4_msualg_1 \\ & X4 X1) \wedge ((v4_msafree2 X4 X1) \wedge (l3_msualg_1 X4 X1))) \Rightarrow (\forall X5. \\ & ((v4_msualg_1 X5 X2) \wedge ((v4_msafree2 X5 X2) \wedge (l3_msualg_1 X5 X2))) \Rightarrow \\ & (((r2_circcomb X0 X1 X3 X4) \wedge (X5 = k3_circcomb X0 X1 X3 X4)) \Rightarrow (\forall X6. \\ & (m1_subset_1 X6 (k4_card_3 (u3_msualg_1 X2 X5))) \Rightarrow (\forall X7. \\ & (m1_subset_1 X7 (k4_card_3 (u3_msualg_1 X0 X3))) \Rightarrow (\forall X8. \\ & (m1_subset_1 X8 (k4_card_3 (u3_msualg_1 X1 X4))) \Rightarrow (((X7 = k11_card_3 \\ & (u3_msualg_1 X2 X5) X6 (u1_struct_0 X0)) \wedge (X8 = k11_card_3 (u3_msualg_1 \\ & X2 X5) X6 (u1_struct_0 X1))) \Rightarrow (k6_circuit2 X2 X5 X6 = k1_funct_4 (\\ & k6_circuit2 X1 X4 X8) (k6_circuit2 X0 X3 X7)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.((v4_msualg_1 \\ & X2 X0) \wedge (l3_msualg_1 X2 X0)) \Rightarrow (\forall X3.((v4_msualg_1 X3 X1) \wedge \\ & (l3_msualg_1 X3 X1)) \Rightarrow ((r2_circcomb X0 X1 X2 X3) \Rightarrow (k3_circcomb X0 \\ & X1 X2 X3 = k3_circcomb X1 X0 X3 X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge (\\ & l1_msualg_1 X1))) \Rightarrow (\forall X2.(l3_msualg_1 X2 X0) \Rightarrow (\forall X3. \\ & (l3_msualg_1 X3 X1) \Rightarrow ((r2_circcomb X0 X1 X2 X3) \Rightarrow (r2_circcomb X1 \\ & X0 X3 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (\forall X2.(l3_msualg_1 \\ & X2 X0) \Rightarrow (\forall X3.(l3_msualg_1 X3 X1) \Rightarrow ((r2_circcomb X0 X1 X2 X3) \Leftrightarrow \\ & ((r1_circcomb X0 X1) \wedge ((r1_partfun1 (u3_msualg_1 X0 X2) (u3_msualg_1 \\ & X1 X3)) \wedge (r1_partfun1 (u4_msualg_1 X0 X2) (u4_msualg_1 X1 X3))))))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 \\ & X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg \\ & v11_struct_0 X1) \wedge ((v2_msafree2 X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (\forall X2. \\ & ((\neg v2_struct_0 X2) \wedge ((\neg v11_struct_0 X2) \wedge ((v2_msafree2 X2) \wedge (\\ & l1_msualg_1 X2)))) \Rightarrow (((r1_tarski (k2_msafree2 X1) (k2_msafree2 \\ & X0)) \wedge (X2 = k2_circcomb X0 X1)) \Rightarrow (\forall X3.((v4_msualg_1 X3 X0) \wedge \\ & ((v4_msafree2 X3 X0) \wedge (l3_msualg_1 X3 X0)) \Rightarrow (\forall X4.((v4_msualg_1 \\ & X4 X1) \wedge ((v4_msafree2 X4 X1) \wedge (l3_msualg_1 X4 X1)) \Rightarrow (\forall X5. \\ & ((v4_msualg_1 X5 X2) \wedge ((v4_msafree2 X5 X2) \wedge (l3_msualg_1 X5 X2))) \Rightarrow \\ & (((r2_circcomb X0 X1 X3 X4) \wedge (X5 = k3_circcomb X0 X1 X3 X4)) \Rightarrow (\forall X6. \\ & (m1_subset_1 X6 (k4_card_3 (u3_msualg_1 X2 X5))) \Rightarrow (\forall X7. \\ & (m1_subset_1 X7 (k4_card_3 (u3_msualg_1 X0 X3))) \Rightarrow (\forall X8. \\ & (m1_subset_1 X8 (k4_card_3 (u3_msualg_1 X1 X4))) \Rightarrow (((X7 = k11_card_3 \\ & (u3_msualg_1 X2 X5) X6 (u1_struct_0 X0)) \wedge (X8 = k11_card_3 (u3_msualg_1 \\ & X2 X5) X6 (u1_struct_0 X1))) \Rightarrow (k6_circuit2 X2 X5 X6 = k1_funct_4 (\\ & k6_circuit2 X0 X3 X7) (k6_circuit2 X1 X4 X8)))))))))) \end{aligned}$$