

l36_facirc_2

(TMTHZXYP5oBsoNuJwHYXhAVPfYYwHKSDqo7)

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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 $k15_facirc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_facirc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_margrel1 : \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_facirc_1 : \iota$ be given. Let $k10_margrel1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. 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 $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_circcomb : \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_circcomb : \iota \Rightarrow o$ be given. Let $v3_circcomb : \iota \Rightarrow o$ be given. Let $v4_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_funct_1 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ 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 $np_2 : \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. (k4_tarski (k10_finseq_1 X0 \\
 & X1) k3_facirc_1 \in k3_msafree2 (k15_facirc_1 X0 X1 X2)) \wedge ((k4_tarski \\
 & (k10_finseq_1 X1 X2) k3_facirc_1 \in k3_msafree2 (k15_facirc_1 X0 \\
 & X1 X2)) \wedge (k4_tarski (k10_finseq_1 X2 X0) k3_facirc_1 \in k3_msafree2 \\
 & (k15_facirc_1 X0 X1 X2)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X0 \in u1_struct_0 (k15_facirc_1 X0 X1 X2)) \wedge ((X1 \in u1_struct_0 (k15_facirc_1 X0 X1 X2)) \wedge (X2 \in u1_struct_0 (k15_facirc_1 X0 X1 X2))) \quad (2)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_msafree2 X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge ((v4_msafree2 X1 X0) \wedge (l3_msualg_1 X1 X0)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k4_card_3 (u3_msualg_1 X0 X1))) \Rightarrow (k1_relset_1 (u1_struct_0 X0) X2 = u1_struct_0 X0)) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v1_circcomb X0) \wedge (l1_msualg_1 X0))) \Rightarrow (k3_msafree2 X0 = u4_struct_0 X0) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v1_circcomb X0) \wedge ((v2_circcomb X0) \wedge ((v3_circcomb X0) \wedge (l1_msualg_1 X0)))))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge ((v4_msafree2 X1 X0) \wedge ((v4_circcomb X1 X0) \wedge ((v6_circcomb X1 X0) \wedge (l3_msualg_1 X1 X0)))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k4_card_3 (u3_msualg_1 X0 X1))) \Rightarrow (\forall X3.((v1_relat_1 X3) \wedge ((v1_funct_1 X3) \wedge (v1_finseq_1 X3))) \Rightarrow (\forall X4.((v1_relat_1 X4) \wedge (v1_funct_1 X4)) \Rightarrow ((k4_tarski X3 X4 \in u4_struct_0 X0) \Rightarrow (k1_funct_1 (k6_circuit2 X0 X1 X2) (k4_tarski X3 X4) = k1_funct_1 X4 (k3_relat_1 X3 X2)))))))) \quad (5)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.\forall X2.((X1 \in k9_xtuple_0 X0) \wedge (X2 \in k9_xtuple_0 X0)) \Rightarrow (k3_relat_1 (k10_finseq_1 X1 X2) X0 = k10_finseq_1 (k1_funct_1 X0 X1) (k1_funct_1 X0 X2))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 (k10_finseq_1 X0 X1)) \wedge (v1_funct_1 (k10_finseq_1 X0 X1)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.v1_relat_1 (k2_zfmisc_1 X0 X1) \quad (9)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (v4_funct_1 (k4_card_3 X0)) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_struct_0 X0) \wedge ((v4_msualg_1 X1 X0) \wedge \\ & (l2_msualg_1 X1 X0))) \Rightarrow ((v1_relat_1 (u3_msualg_1 X0 X1)) \wedge ((v2_relat_1 \\ & (u3_msualg_1 X0 X1)) \wedge (v4_relat_1 (u3_msualg_1 X0 X1) (u1_struct_0 \\ & X0)) \wedge ((v1_funct_1 (u3_msualg_1 X0 X1)) \wedge (v1_partfun1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. v1_finseq_1 (k10_finseq_1 X0 X1) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_struct_0 X0) \wedge (l2_msualg_1 X1 X0)) \Rightarrow \\ & ((v1_relat_1 (u3_msualg_1 X0 X1)) \wedge ((v4_relat_1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0)) \wedge ((v1_funct_1 (u3_msualg_1 X0 X1)) \wedge (v1_partfun1 \\ & (u3_msualg_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0. (l5_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (14)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (l2_msualg_1 X1 X0)) \quad (15)$$

Assume the following.

$$\forall X0. (l1_msualg_1 X0) \Rightarrow (l5_struct_0 X0) \quad (16)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 k3_facirc_1) \wedge ((v1_funct_2 k3_facirc_1 (k4_finseq_2 \\ & np_2 k6_margrel1) k6_margrel1) \wedge (m1_subset_1 k3_facirc_1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k4_finseq_2 np_2 k6_margrel1) k6_margrel1)))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (v3_msualg_1 (k18_facirc_1 \\ & X0 X1 X2) (k15_facirc_1 X0 X1 X2)) \wedge ((v4_msafree2 (k18_facirc_1 \\ & X0 X1 X2) (k15_facirc_1 X0 X1 X2)) \wedge ((v4_circcomb (k18_facirc_1 \\ & X0 X1 X2) (k15_facirc_1 X0 X1 X2)) \wedge ((v6_circcomb (k18_facirc_1 \\ & X0 X1 X2) (k15_facirc_1 X0 X1 X2)) \wedge (l3_msualg_1 (k18_facirc_1 X0 \\ & X1 X2) (k15_facirc_1 X0 X1 X2)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg v2_struct_0 (k15_facirc_1 \\ & X0 X1 X2))\wedge((\neg v11_struct_0 (k15_facirc_1 X0 X1 X2))\wedge((v1_msualg_1 \\ & (k15_facirc_1 X0 X1 X2))\wedge((v1_circcomb (k15_facirc_1 X0 X1 X2))\wedge \\ & ((v2_circcomb (k15_facirc_1 X0 X1 X2))\wedge((v3_circcomb (k15_facirc_1 \\ & X0 X1 X2))\wedge(l1_msualg_1 (k15_facirc_1 X0 X1 X2))))))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_funct_1 X0)\wedge((v1_funct_2 X0 (k4_finseq_2 np_2 \\ & k6_margrel1) k6_margrel1)\wedge(m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k4_finseq_2 np_2 k6_margrel1) k6_margrel1))))))\Rightarrow((X0 = k3_facirc_1)\Leftrightarrow \\ & (\forall X1.(m1_subset_1 X1 k6_margrel1)\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 k6_margrel1)\Rightarrow(k1_funct_1 X0 (k10_finseq_1 X1 X2) = k10_margrel1 \\ & X1 X2)))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.(v4_funct_1 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow(\quad (21)$$

$$(v1_relat_1 X1)\wedge(v1_funct_1 X1)))$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(\forall X1. \\ & (l3_msualg_1 X1 X0)\Rightarrow((v6_circcomb X1 X0)\Rightarrow((v4_msualg_1 X1 X0)\wedge \\ & (v4_msafree2 X1 X0)))) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \quad (23)$$

$$X0))\Rightarrow(v1_relat_1 X1))$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow(((\neg v2_struct_0 X0)\wedge(v1_circcomb \quad (24)$$

$$X0))\Rightarrow((\neg v2_struct_0 X0)\wedge(v2_msafree2 X0)))$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge(v1_funct_1 X1))))\Rightarrow(\forall X2.(m1_subset_1 X2 (k4_card_3 \quad (25)$$

$$X1))\Rightarrow(v4_relat_1 X2 X0)) \end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X3 (\\ & k4_card_3 (u3_msualg_1 (k15_facirc_1 X0 X1 X2) (k18_facirc_1 X0 \\ & X1 X2)))) \Rightarrow (\forall X4.(m1_subset_1 X4 k6_margrel1) \Rightarrow (\forall X5. \\ & (m1_subset_1 X5 k6_margrel1) \Rightarrow (\forall X6.(m1_subset_1 X6 k6_margrel1) \Rightarrow \\ & (((X4 = k1_funct_1 X3 X0) \wedge ((X5 = k1_funct_1 X3 X1) \wedge (X6 = k1_funct_1 \\ & X3 X2))) \Rightarrow ((k1_funct_1 (k6_circuit2 (k15_facirc_1 X0 X1 X2) (k18_facirc_1 \\ & X0 X1 X2) X3) (k4_tarski (k10_finseq_1 X0 X1) k3_facirc_1) = k10_margrel1 \\ & X4 X5) \wedge ((k1_funct_1 (k6_circuit2 (k15_facirc_1 X0 X1 X2) (k18_facirc_1 \\ & X0 X1 X2) X3) (k4_tarski (k10_finseq_1 X1 X2) k3_facirc_1) = k10_margrel1 \\ & X5 X6) \wedge (k1_funct_1 (k6_circuit2 (k15_facirc_1 X0 X1 X2) (k18_facirc_1 \\ & X0 X1 X2) X3) (k4_tarski (k10_finseq_1 X2 X0) k3_facirc_1) = k10_margrel1 \\ & X6 X4))))))))) \end{aligned}$$