

t67_facirc_1

(TMWqcppmeDbPUrRtopA95yUEk74kbLoyhAn)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $k15_facirc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_circcomb : \iota \Rightarrow o$ be given. Let $v2_circcomb : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $r1_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $k5_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $k10_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_facirc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_circcomb : \iota \Rightarrow o$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k4_facirc_1 : \iota$ be given. Let $k3_facirc_1 : \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_circcomb X0) \wedge ((v2_circcomb \\ X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v1_circcomb \\ X1) \wedge ((v2_circcomb X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (r1_circcomb X0 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 X1))) \Rightarrow (v1_relat_1 (k3_msafree2 (k5_circcomb X0 X1))) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge (l1_msualg_1 X1)) \Rightarrow (((r1_circcomb X0 X1) \wedge \\ ((v1_relat_1 (k3_msafree2 X0)) \wedge (v1_relat_1 (k3_msafree2 X1)))) \Rightarrow \\ (v1_relat_1 (k3_msafree2 (k2_circcomb X0 X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (v1_relat_1 (k11_finseq_1 X0 X1 X2)) \wedge (v1_funct_1 (k11_finseq_1 X0 X1 X2)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 \\ X1))) \Rightarrow ((\neg v2_struct_0 (k5_circcomb X0 X1)) \wedge ((\neg v11_struct_0 (\\ k5_circcomb X0 X1)) \wedge (v1_msualg_1 (k5_circcomb X0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 (k10_finseq_1 X0 X1))\wedge(v1_funct_1 (k10_finseq_1 X0 X1)) \quad (6)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v2_circcomb X0)\wedge \\ &(l1_msualg_1 X0)))\wedge((\neg v2_struct_0 X1)\wedge((v2_circcomb X1)\wedge(l1_msualg_1 \\ &X1))))\Rightarrow((\neg v2_struct_0 (k2_circcomb X0 X1))\wedge((v1_msualg_1 (k2_circcomb \\ &X0 X1))\wedge(v2_circcomb (k2_circcomb X0 X1)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.v1_finseq_1 (k11_finseq_1 X0 X1 X2) \quad (8)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v1_circcomb X0)\wedge \\ &(l1_msualg_1 X0)))\wedge((\neg v2_struct_0 X1)\wedge((v1_circcomb X1)\wedge(l1_msualg_1 \\ &X1))))\Rightarrow((\neg v2_struct_0 (k2_circcomb X0 X1))\wedge((v1_msualg_1 (k2_circcomb \\ &X0 X1))\wedge(v1_circcomb (k2_circcomb X0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.v1_finseq_1 (k10_finseq_1 X0 X1) \quad (10)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 \\ &X1)))\Rightarrow((\neg v11_struct_0 (k5_circcomb X0 X1))\wedge((v1_msualg_1 (k5_circcomb \\ &X0 X1))\wedge((v1_circcomb (k5_circcomb X0 X1))\wedge(v2_circcomb (k5_circcomb \\ &X0 X1)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 \\ &X1)))\Rightarrow((\neg v11_struct_0 (k5_circcomb X0 X1))\wedge((v1_msualg_1 (k5_circcomb \\ &X0 X1))\wedge(l1_msualg_1 (k5_circcomb X0 X1)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\wedge \\ &((\neg v2_struct_0 X1)\wedge(l1_msualg_1 X1)))\Rightarrow((\neg v2_struct_0 (k2_circcomb \\ &X0 X1))\wedge((v1_msualg_1 (k2_circcomb X0 X1))\wedge(l1_msualg_1 (k2_circcomb \\ &X0 X1)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg v2_struct_0 (k14_facirc_1 \\ & X0 X1 X2))\wedge((\neg v11_struct_0 (k14_facirc_1 X0 X1 X2))\wedge((v1_msualg_1 \\ & (k14_facirc_1 X0 X1 X2))\wedge((v1_circcomb (k14_facirc_1 X0 X1 X2))\wedge \\ & ((v2_circcomb (k14_facirc_1 X0 X1 X2))\wedge((v3_circcomb (k14_facirc_1 \\ & X0 X1 X2))\wedge(l1_msualg_1 (k14_facirc_1 X0 X1 X2))))))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k15_facirc_1 X0 X1 X2 = k2_circcomb \\ & (k14_facirc_1 X0 X1 X2) (k5_circcomb k4_facirc_1 (k11_finseq_1 \\ & (k4_tarski (k10_finseq_1 X0 X1) k3_facirc_1) (k4_tarski (k10_finseq_1 \\ & X1 X2) k3_facirc_1) (k4_tarski (k10_finseq_1 X2 X0) k3_facirc_1))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k14_facirc_1 X0 X1 X2 = k2_circcomb \\ & (k2_circcomb (k5_circcomb k3_facirc_1 (k10_finseq_1 X0 X1)) (\\ & k5_circcomb k3_facirc_1 (k10_finseq_1 X1 X2))) (k5_circcomb k3_facirc_1 \\ & (k10_finseq_1 X2 X0)) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.k2_tarski X0 X1 = k2_tarski X1 X0 \quad (18)$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.v1_relat_1 (k3_msafree2 (k15_facirc_1 X0 X1 X2))$$