

t74_gfacirc1 (TM-
TUdLv6agjevRhZE5HFW38k6kjj1WPddVG)

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Let $k3_msafree2 : \iota \Rightarrow \iota$ be given. Let $k31_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_twoscomp : \iota$ be given. Let $k3_gfacirc1 : \iota$ be given. Let $k4_twoscomp : \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k33_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k29_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2_msafree2 : \iota \Rightarrow \iota$ be given. Let $k5_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ 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 $k2_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k29_twoscomp : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. k3_msafree2 (k29_gfacirc1 X0 \\ & X1 X2) = k1_enumset1 (k4_tarski (k10_finseq_1 X0 X1) k3_twoscomp) \\ & (k4_tarski (k10_finseq_1 X1 X2) k3_gfacirc1) (k4_tarski (k10_finseq_1 \\ & X2 X0) k4_twoscomp) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 \\ & X1))) \Rightarrow ((k2_msafree2 (k5_circcomb X0 X1) = k10_xtuple_0 X1) \wedge (k3_msafree2 \\ & (k5_circcomb X0 X1) = k1_tarski (k4_tarski X1 X0))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v1_circcomb X0) \wedge ((v2_circcomb \\ & X0) \wedge (l1_msualg_1 X0)))) \Rightarrow (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v1_circcomb \\ & X1) \wedge ((v2_circcomb X1) \wedge (l1_msualg_1 X1)))) \Rightarrow (k3_msafree2 (k2_circcomb \\ & X0 X1) = k2_xboole_0 (k3_msafree2 X0) (k3_msafree2 X1))) \end{aligned} \tag{3}$$

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.

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

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.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v2_circcomb X0)\wedge(l1_msualg_1 X0)))\wedge((\neg v2_struct_0 X1)\wedge((v2_circcomb X1)\wedge(l1_msualg_1 X1))))\Rightarrow((\neg v2_struct_0 (k2_circcomb X0 X1))\wedge((v1_msualg_1 (k2_circcomb X0 X1))\wedge(v2_circcomb (k2_circcomb X0 X1)))) \quad (7)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v1_circcomb X0)\wedge(l1_msualg_1 X0)))\wedge((\neg v2_struct_0 X1)\wedge((v1_circcomb X1)\wedge(l1_msualg_1 X1))))\Rightarrow((\neg v2_struct_0 (k2_circcomb X0 X1))\wedge((v1_msualg_1 (k2_circcomb X0 X1))\wedge(v1_circcomb (k2_circcomb X0 X1)))) \quad (9)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 X1)))\Rightarrow((\neg v11_struct_0 (k5_circcomb X0 X1))\wedge((v1_msualg_1 (k5_circcomb X0 X1))\wedge((v1_circcomb (k5_circcomb X0 X1))\wedge(v2_circcomb (k5_circcomb X0 X1))))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 X1)))\Rightarrow((\neg v11_struct_0 (k5_circcomb X0 X1))\wedge((v1_msualg_1 (k5_circcomb X0 X1))\wedge(l1_msualg_1 (k5_circcomb X0 X1)))) \quad (12)$$

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.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k33_gfacirc1 X0 X1 X2 = k4_tarski \\ & (k11_finseq_1 (k4_tarski (k10_finseq_1 X0 X1) k3_twoscomp) (k4_tarski \\ & (k10_finseq_1 X1 X2) k3_gfacirc1) (k4_tarski (k10_finseq_1 X2 \\ & X0) k4_twoscomp)) k29_twoscomp \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k31_gfacirc1 X0 X1 X2 = k2_circcomb \\ & (k29_gfacirc1 X0 X1 X2) (k5_circcomb k29_twoscomp (k11_finseq_1 \\ & (k4_tarski (k10_finseq_1 X0 X1) k3_twoscomp) (k4_tarski (k10_finseq_1 \\ & X1 X2) k3_gfacirc1) (k4_tarski (k10_finseq_1 X2 X0) k4_twoscomp))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k29_gfacirc1 X0 X1 X2 = k2_circcomb \\ & (k2_circcomb (k5_circcomb k3_twoscomp (k10_finseq_1 X0 X1)) (\\ & k5_circcomb k3_gfacirc1 (k10_finseq_1 X1 X2))) (k5_circcomb k4_twoscomp \\ & (k10_finseq_1 X2 X0)) \end{aligned} \quad (17)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k3_msafree2 (k31_gfacirc1 X0 \\ & X1 X2) = k2_xboole_0 (k1_enumset1 (k4_tarski (k10_finseq_1 X0 X1) \\ & k3_twoscomp) (k4_tarski (k10_finseq_1 X1 X2) k3_gfacirc1) (k4_tarski \\ & (k10_finseq_1 X2 X0) k4_twoscomp)) (k1_tarski (k33_gfacirc1 X0 \\ & X1 X2)) \end{aligned}$$