

t45\_gfacirc1  
(TMS4V2tzMPV6rnZdE9PS1TvjYqn58Mp9geN)

October 27, 2020

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  $k2\_twoscomp : \iota$  be given. Let  $k3\_gfacirc1 : \iota$  be given. Let  $k2\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $k19\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $r1\_circcomb : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $v1\_circcomb : \iota \Rightarrow o$  be given. Let  $v2\_circcomb : \iota \Rightarrow o$  be given. Let  $k17\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k5\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k11\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k6\_margrel1 : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $k25\_twoscomp : \iota$  be given. Let  $v3\_circcomb : \iota \Rightarrow o$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_msualg\_1 X1)) \Rightarrow ((r1\_circcomb X0 X1) \Rightarrow ( \\ & k2\_msafree2 (k2\_circcomb X0 X1) = k2\_xboole\_0 (k4\_xboole\_0 (k2\_msafree2 \\ & X0) (k3\_msafree2 X1)) (k4\_xboole\_0 (k2\_msafree2 X1) (k3\_msafree2 \\ & X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_circcomb X0) \wedge ((v2\_circcomb \\ & X0) \wedge (l1\_msualg\_1 X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v1\_circcomb \\ & X1) \wedge ((v2\_circcomb X1) \wedge (l1\_msualg\_1 X1)))) \Rightarrow (r1\_circcomb X0 X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\neg(X0\neq k4\_tarski (k10\_finseq\_1 \\ & X1 X2) k3\_twoscomp)\wedge((X1\neq k4\_tarski (k10\_finseq\_1 X2 X0) k2\_twoscomp)\wedge \\ & ((X2\neq k4\_tarski (k10\_finseq\_1 X0 X1) k3\_gfacirc1)\wedge(k2\_msafree2 \\ & (k17\_gfacirc1 X0 X1 X2)\neq k1\_enumset1 X0 X1 X2))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 \\ & X1)))\Rightarrow((k2\_msafree2 (k5\_circcomb X0 X1) = k10\_xtuple\_0 X1)\wedge(k3\_msafree2 \\ & (k5\_circcomb X0 X1) = k1\_tarski (k4\_tarski X1 X0))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k3\_msafree2 (k17\_gfacirc1 X0 \\ & X1 X2) = k1\_enumset1 (k4\_tarski (k10\_finseq\_1 X0 X1) k3\_gfacirc1) \\ & (k4\_tarski (k10\_finseq\_1 X1 X2) k3\_twoscomp) (k4\_tarski (k10\_finseq\_1 \\ & X2 X0) k2\_twoscomp) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(k4\_xboole\_0 X0 X1 = k1\_xboole\_0)\Leftrightarrow(r1\_tarski X0 X1) \quad (6)$$

Assume the following.

$$\forall X0.k2\_xboole\_0 X0 k1\_xboole\_0 = X0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k10\_xtuple\_0 (k11\_finseq\_1 X0 X1 X2) = k1\_enumset1 X0 X1 X2 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski X0 X0 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k6\_subset\_1 X0 X1 = k4\_xboole\_0 X0 X1 \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 (k4\_finseq\_2 np\_2 \\
& k6\_margrel1) k6\_margrel1) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& (k4\_finseq\_2 np\_2 k6\_margrel1) k6\_margrel1)))))) \Rightarrow (\forall X1. \\
& ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (k4\_finseq\_2 np\_2 k6\_margrel1) \\
& k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_finseq\_2 \\
& np\_2 k6\_margrel1) k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 \\
& X2) \wedge ((v1\_funct\_2 X2 (k4\_finseq\_2 np\_2 k6\_margrel1) k6\_margrel1) \wedge \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_finseq\_2 np\_2 \\
& k6\_margrel1) k6\_margrel1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\
& ((v1\_funct\_2 X3 (k4\_finseq\_2 np\_3 k6\_margrel1) k6\_margrel1) \wedge \\
& (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_finseq\_2 np\_3 \\
& k6\_margrel1) k6\_margrel1)))))) \Rightarrow (\forall X4. \forall X5. \forall X6. \\
& k6\_subset\_1 (k1\_enumset1 X4 X5 X6) (k1\_tarski (k4\_tarski (k11\_finseq\_1 \\
& (k4\_tarski (k10\_finseq\_1 X4 X5) X0) (k4\_tarski (k10\_finseq\_1 X5 \\
& X6) X1) (k4\_tarski (k10\_finseq\_1 X6 X4) X2)) X3)) = k1\_enumset1 X4 \\
& X5 X6)))
\end{aligned} \tag{11}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (v1\_relat\_1 (k11\_finseq\_1 X0 X1 X2)) \wedge (v1\_funct\_1 (k11\_finseq\_1 X0 X1 X2)) \tag{12}$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((\neg v2\_struct\_0 (k5\_circcomb X0 X1)) \wedge ((\neg v11\_struct\_0 (k5\_circcomb X0 X1)) \wedge (v1\_msualg\_1 (k5\_circcomb X0 X1)))) \tag{13}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. v1\_finseq\_1 (k11\_finseq\_1 X0 X1 X2) \tag{14}$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((\neg v11\_struct\_0 (k5\_circcomb X0 X1)) \wedge ((v1\_msualg\_1 (k5\_circcomb X0 X1)) \wedge ((v1\_circcomb (k5\_circcomb X0 X1)) \wedge (v2\_circcomb (k5\_circcomb X0 X1))))) \tag{15}$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((\neg v11\_struct\_0 (k5\_circcomb X0 X1)) \wedge ((v1\_msualg\_1 (k5\_circcomb X0 X1)) \wedge (l1\_msualg\_1 (k5\_circcomb X0 X1)))) \tag{16}$$

Assume the following.

$$(v1\_funct\_1\ k3\_twoscomp) \wedge ((v1\_funct\_2\ k3\_twoscomp\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ k3\_twoscomp\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1)))) \quad (17)$$

Assume the following.

$$(v1\_funct\_1\ k3\_gfacirc1) \wedge ((v1\_funct\_2\ k3\_gfacirc1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ k3\_gfacirc1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1)))) \quad (18)$$

Assume the following.

$$(v1\_funct\_1\ k2\_twoscomp) \wedge ((v1\_funct\_2\ k2\_twoscomp\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ k2\_twoscomp\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1)))) \quad (19)$$

Assume the following.

$$(v1\_funct\_1\ k25\_twoscomp) \wedge ((v1\_funct\_2\ k25\_twoscomp\ (k4\_finseq\_2\ np\_3\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ k25\_twoscomp\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_3\ k6\_margrel1)\ k6\_margrel1)))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(\neg v2\_struct\_0\ (k17\_gfacirc1\ X0\ X1\ X2)) \wedge ((\neg v11\_struct\_0\ (k17\_gfacirc1\ X0\ X1\ X2)) \wedge ((v1\_msualg\_1\ (k17\_gfacirc1\ X0\ X1\ X2)) \wedge ((v1\_circcomb\ (k17\_gfacirc1\ X0\ X1\ X2)) \wedge ((v2\_circcomb\ (k17\_gfacirc1\ X0\ X1\ X2)) \wedge ((v3\_circcomb\ (k17\_gfacirc1\ X0\ X1\ X2)) \wedge (l1\_msualg\_1\ (k17\_gfacirc1\ X0\ X1\ X2))))))) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski\ X0\ X1 = k2\_tarski\ (k2\_tarski\ X0\ X1)\ (k1\_tarski\ X0) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k19\_gfacirc1\ X0\ X1\ X2 = k2\_circcomb\ (k17\_gfacirc1\ X0\ X1\ X2)\ (k5\_circcomb\ k25\_twoscomp\ (k11\_finseq\_1\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k3\_gfacirc1)\ (k4\_tarski\ (k10\_finseq\_1\ X1\ X2)\ k3\_twoscomp)\ (k4\_tarski\ (k10\_finseq\_1\ X2\ X0)\ k2\_twoscomp))) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k17\_gfacirc1\ X0\ X1\ X2 = k2\_circcomb\ (k2\_circcomb\ (k5\_circcomb\ k3\_gfacirc1\ (k10\_finseq\_1\ X0\ X1))\ (k5\_circcomb\ k3\_twoscomp\ (k10\_finseq\_1\ X1\ X2)))\ (k5\_circcomb\ k2\_twoscomp\ (k10\_finseq\_1\ X2\ X0)) \quad (24)$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.\neg(X0\neq k4\_tarski(k10\_finseq\_1 X1 X2) k3\_twoscomp)\wedge((X1\neq k4\_tarski(k10\_finseq\_1 X2 X0) k2\_twoscomp)\wedge((X2\neq k4\_tarski(k10\_finseq\_1 X0 X1) k3\_gfacirc1)\wedge(k2\_msafree2(k19\_gfacirc1 X0 X1 X2)\neq k1\_enumset1 X0 X1 X2)))$$