

t59\_gfacirc1  
(TMTJC1Z89FCtg66SaSkFChZ5iahvxvzffp7)

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Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_gfacirc1 : \iota$  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  $k22\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k23\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_binarith : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_margrel1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_twoscomp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 (k4\_finseq\_2 np\_2 \\
& k6\_margrel1) k6\_margrel1) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& (k4\_finseq\_2 np\_2 k6\_margrel1) k6\_margrel1)))))) \Rightarrow (\forall X1. \\
& \forall X2. \forall X3. (X3 \neq k4\_tarski (k10\_finseq\_1 X1 X2) X0) \Rightarrow \\
& (\forall X4. (m1\_subset\_1 X4 (k4\_card\_3 (u3\_msualg\_1 (k8\_facirc\_1 \\
& X1 X2 X3 X0) (k10\_facirc\_1 X1 X2 X3 X0)))))) \Rightarrow ((k1\_twoscomp (k8\_facirc\_1 \\
& X1 X2 X3 X0) (k10\_facirc\_1 X1 X2 X3 X0) (k6\_circuit2 (k8\_facirc\_1 \\
& X1 X2 X3 X0) (k10\_facirc\_1 X1 X2 X3 X0) X4) (k9\_facirc\_1 X1 X2 X3 X0) = \\
& k1\_funct\_1 X0 (k10\_finseq\_1 (k1\_funct\_1 X4 (k4\_tarski (k10\_finseq\_1 \\
& X1 X2) X0)) (k1\_funct\_1 X4 X3))) \wedge ((k1\_funct\_1 (k6\_circuit2 (k8\_facirc\_1 \\
& X1 X2 X3 X0) (k10\_facirc\_1 X1 X2 X3 X0) X4) (k4\_tarski (k10\_finseq\_1 \\
& X1 X2) X0) = k1\_funct\_1 X0 (k10\_finseq\_1 (k1\_funct\_1 X4 X1) (k1\_funct\_1 \\
& X4 X2))) \wedge ((k1\_funct\_1 (k6\_circuit2 (k8\_facirc\_1 X1 X2 X3 X0) (k10\_facirc\_1 \\
& X1 X2 X3 X0) X4) X1 = k1\_funct\_1 X4 X1) \wedge ((k1\_funct\_1 (k6\_circuit2 \\
& (k8\_facirc\_1 X1 X2 X3 X0) (k10\_facirc\_1 X1 X2 X3 X0) X4) X2 = k1\_funct\_1 \\
& X4 X2) \wedge (k1\_funct\_1 (k6\_circuit2 (k8\_facirc\_1 X1 X2 X3 X0) (k10\_facirc\_1 \\
& X1 X2 X3 X0) X4) X3 = k1\_funct\_1 X4 X3))))))
\end{aligned}$$

(1)

Assume the following.

$$(v1\_funct\_1\ k4\_gfacirc1) \wedge ((v1\_funct\_2\ k4\_gfacirc1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ k4\_gfacirc1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1)))) \quad (2)$$

Assume the following.

$$\forall X0. ((v1\_funct\_1\ X0) \wedge ((v1\_funct\_2\ X0\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_2\ k6\_margrel1)\ k6\_margrel1)))))) \Rightarrow ((X0 = k4\_gfacirc1) \Leftrightarrow (\forall X1. (m1\_subset\_1\ X1\ k6\_margrel1) \Rightarrow (\forall X2. (m1\_subset\_1\ X2\ k6\_margrel1) \Rightarrow (k1\_funct\_1\ X0\ (k10\_finseq\_1\ X1\ X2) = k2\_binarith\ X1\ (k9\_margrel1\ X2))))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. k23\_gfacirc1\ X0\ X1\ X2 = k10\_facirc\_1\ X0\ X1\ X2\ k4\_gfacirc1 \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. k22\_gfacirc1\ X0\ X1\ X2 = k8\_facirc\_1\ X0\ X1\ X2\ k4\_gfacirc1 \quad (5)$$

**Theorem 1**

$$\forall X0. \forall X1. \forall X2. (X2 \neq k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k4\_gfacirc1) \Rightarrow (\forall X3. (m1\_subset\_1\ X3\ (k4\_card\_3\ (u3\_msualg\_1\ (k22\_gfacirc1\ X0\ X1\ X2)\ (k23\_gfacirc1\ X0\ X1\ X2)))) \Rightarrow (\forall X4. (m1\_subset\_1\ X4\ k6\_margrel1) \Rightarrow (\forall X5. (m1\_subset\_1\ X5\ k6\_margrel1) \Rightarrow (\forall X6. (m1\_subset\_1\ X6\ k6\_margrel1) \Rightarrow (((X4 = k1\_funct\_1\ X3\ X0) \wedge ((X5 = k1\_funct\_1\ X3\ X1) \wedge (X6 = k1\_funct\_1\ X3\ X2))) \Rightarrow ((k1\_funct\_1\ (k6\_circuit2\ (k22\_gfacirc1\ X0\ X1\ X2)\ (k23\_gfacirc1\ X0\ X1\ X2)\ X3)\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k4\_gfacirc1) = k2\_binarith\ X4\ (k9\_margrel1\ X5)) \wedge ((k1\_funct\_1\ (k6\_circuit2\ (k22\_gfacirc1\ X0\ X1\ X2)\ (k23\_gfacirc1\ X0\ X1\ X2)\ X3)\ X0 = X4) \wedge ((k1\_funct\_1\ (k6\_circuit2\ (k22\_gfacirc1\ X0\ X1\ X2)\ (k23\_gfacirc1\ X0\ X1\ X2)\ X3)\ X1 = X5) \wedge (k1\_funct\_1\ (k6\_circuit2\ (k22\_gfacirc1\ X0\ X1\ X2)\ (k23\_gfacirc1\ X0\ X1\ X2)\ X3)\ X2 = X6)))))))))) \quad (6)$$