

# t95\_gfacirc1

(TMWsVZcrm1yRYN7DtJ9weAH4UbVwv4Kaz4H)

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Let  $k3\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $k37\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_gfacirc1 : \iota$  be given. Let  $k36\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_twoscomp : \iota$  be given. Let  $k3\_gfacirc1 : \iota$  be given. Let  $k4\_twoscomp : \iota$  be given. Let  $k33\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k34\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k31\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $v3\_circcomb : \iota \Rightarrow o$  be given. Let  $k29\_gfacirc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k29\_twoscomp : \iota$  be given. Let  $k11\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. k3\_msafree2 (k34\_gfacirc1 X0 \\ & X1 X2) = k2\_xboole\_0 (k1\_tarski (k4\_tarski (k10\_finseq\_1 X0 X1) \\ & k4\_gfacirc1)) (k1\_tarski (k36\_gfacirc1 X0 X1 X2)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. k3\_msafree2 (k31\_gfacirc1 X0 \\ & X1 X2) = k2\_xboole\_0 (k1\_enumset1 (k4\_tarski (k10\_finseq\_1 X0 X1) \\ & k3\_twoscomp) (k4\_tarski (k10\_finseq\_1 X1 X2) k3\_gfacirc1) (k4\_tarski \\ & (k10\_finseq\_1 X2 X0) k4\_twoscomp)) (k1\_tarski (k33\_gfacirc1 X0 \\ & X1 X2)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. k2\_xboole\_0 (k2\_xboole\_0 X0 \\ & X1) X2 = k2\_xboole\_0 X0 (k2\_xboole\_0 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_circcomb X0) \wedge ((v2\_circcomb \\ & X0) \wedge (l1\_msualg\_1 X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v1\_circcomb \\ & X1) \wedge ((v2\_circcomb X1) \wedge (l1\_msualg\_1 X1)))) \Rightarrow (k3\_msafree2 (k2\_circcomb \\ & X0 X1) = k2\_xboole\_0 (k3\_msafree2 X0) (k3\_msafree2 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg v2\_struct\_0 (k34\_gfacirc1 \\ & X0 X1 X2)) \wedge ((\neg v11\_struct\_0 (k34\_gfacirc1 X0 X1 X2)) \wedge ((v1\_msualg\_1 \\ & (k34\_gfacirc1 X0 X1 X2)) \wedge ((v1\_circcomb (k34\_gfacirc1 X0 X1 X2)) \wedge \\ & ((v2\_circcomb (k34\_gfacirc1 X0 X1 X2)) \wedge ((v3\_circcomb (k34\_gfacirc1 \\ & X0 X1 X2)) \wedge (l1\_msualg\_1 (k34\_gfacirc1 X0 X1 X2))))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg v2\_struct\_0 (k31\_gfacirc1 \\ & X0 X1 X2)) \wedge ((\neg v11\_struct\_0 (k31\_gfacirc1 X0 X1 X2)) \wedge ((v1\_msualg\_1 \\ & (k31\_gfacirc1 X0 X1 X2)) \wedge ((v1\_circcomb (k31\_gfacirc1 X0 X1 X2)) \wedge \\ & ((v2\_circcomb (k31\_gfacirc1 X0 X1 X2)) \wedge ((v3\_circcomb (k31\_gfacirc1 \\ & X0 X1 X2)) \wedge (l1\_msualg\_1 (k31\_gfacirc1 X0 X1 X2))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k37\_gfacirc1 X0 X1 X2 = k2\_circcomb (k34\_gfacirc1 X0 X1 X2) (k31\_gfacirc1 X0 X1 X2) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k31\_gfacirc1 X0 X1 X2 = k2\_circcomb \\ & (k29\_gfacirc1 X0 X1 X2) (k5\_circcomb k29\_twoscomp (k11\_finseq\_1 \\ & (k4\_tarski (k10\_finseq\_1 X0 X1) k3\_twoscomp) (k4\_tarski (k10\_finseq\_1 \\ & X1 X2) k3\_gfacirc1) (k4\_tarski (k10\_finseq\_1 X2 X0) k4\_twoscomp))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k3\_msafree2 (k37\_gfacirc1 X0 \\ & X1 X2) = k2\_xboole\_0 (k2\_xboole\_0 (k2\_xboole\_0 (k1\_tarski (k4\_tarski \\ & (k10\_finseq\_1 X0 X1) k4\_gfacirc1)) (k1\_tarski (k36\_gfacirc1 X0 \\ & X1 X2))) (k1\_enumset1 (k4\_tarski (k10\_finseq\_1 X0 X1) k3\_twoscomp) \\ & (k4\_tarski (k10\_finseq\_1 X1 X2) k3\_gfacirc1) (k4\_tarski (k10\_finseq\_1 \\ & X2 X0) k4\_twoscomp))) (k1\_tarski (k33\_gfacirc1 X0 X1 X2)) \end{aligned}$$