

## t6\_facirc\_1

(TMaf1zBjufkNmjX315wpsTg1v4yqN2itGVC)

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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  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k3\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $v1\_facirc\_1 : \iota \Rightarrow o$  be given. Let  $k2\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_circcomb : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (v1\_relat\_1 X1) \Rightarrow ((v1\_facirc\_1 X0) \vee (r1\_xboole\_0 X0 X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_msualg\_1 X1)) \Rightarrow (((r1\_circcomb X0 X1) \wedge \\ & (r1\_xboole\_0 (k3\_msafree2 X1) (k2\_msafree2 X0))) \Rightarrow ((r1\_tarski \\ & (k2\_msafree2 X0) (k2\_msafree2 (k2\_circcomb X0 X1))) \wedge (k2\_msafree2 \\ & (k2\_circcomb X0 X1) = k2\_xboole\_0 (k2\_msafree2 X0) (k7\_subset\_1 \\ & (u1\_struct\_0 X1) (k2\_msafree2 X1) (k3\_msafree2 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v1\_circcomb X0) \wedge ((v2\_circcomb \\ & X0) \wedge (l1\_msualg\_1 X0)))) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v1\_circcomb \\ & X1) \wedge ((v2\_circcomb X1) \wedge (l1\_msualg\_1 X1)))) \Rightarrow (r1\_circcomb X0 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_xboole\_0 X0 X1) \Rightarrow (r1\_xboole\_0 X1 X0) \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_circcomb X0) \wedge ((v2\_circcomb \\ & X0) \wedge (l1\_msualg\_1 X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v1\_circcomb \\ & X1) \wedge ((v2\_circcomb X1) \wedge (l1\_msualg\_1 X1)))) \Rightarrow ((v1\_relat\_1 (k3\_msafree2 \\ & X1)) \Rightarrow ((v1\_facirc\_1 (k2\_msafree2 X0)) \vee ((r1\_tarski (k2\_msafree2 \\ & X0) (k2\_msafree2 (k2\_circcomb X0 X1))) \wedge (k2\_msafree2 (k2\_circcomb \\ & X0 X1) = k2\_xboole\_0 (k2\_msafree2 X0) (k7\_subset\_1 (u1\_struct\_0 \\ & X1) (k2\_msafree2 X1) (k3\_msafree2 X0)))))) \end{aligned}$$