

t43\_facirc\_1 (TM-  
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October 27, 2020

Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  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  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_msualg\_1 : \iota \Rightarrow \iota$  be given. Let  $u2\_msualg\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. k10\_xtuple\_0 (k10\_finseq\_1 X0 X1) = k2\_tarski X0 X1 \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (v1\_relat\_1 (k10\_finseq\_1 X0 X1)) \wedge (v1\_funct\_1 (k10\_finseq\_1 X0 X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. v1\_finseq\_1 (k10\_finseq\_1 X0 X1) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((\neg v11\_struct\_0 (k5\_circcomb X0 X1)) \wedge ((v1\_msualg\_1 (k5\_circcomb X0 X1)) \wedge (l1\_msualg\_1 (k5\_circcomb X0 X1)))) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow (\forall X2. ((\neg v11\_struct\_0 X2) \wedge ((v1\_msualg\_1 X2) \wedge (l1\_msualg\_1 X2)))) \Rightarrow ((X2 = k5\_circcomb X0 X1) \Leftrightarrow ((u1\_struct\_0 X2 = k2\_xboole\_0 (k10\_xtuple\_0 X1) (k1\_tarski (k4\_tarski X1 X0))) \wedge ((u4\_struct\_0 X2 = k1\_tarski (k4\_tarski X1 X0)) \wedge ((k1\_funct\_1 (u1\_msualg\_1 X2) (k4\_tarski X1 X0) = X1) \wedge (k1\_funct\_1 (u2\_msualg\_1 X2) (k4\_tarski X1 X0) = k4\_tarski X1 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k2\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. (X3 \in X2) \Leftrightarrow ((X3 \in X0) \vee (X3 \in X1))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k2\_tarski X0 X1) \Leftrightarrow (\forall X3. (X3 \in X2) \Leftrightarrow ((X3 = X0) \vee (X3 = X1))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (X2 = X0)) \quad (8)$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.(X0 \in u1\_struct\_0 (k5\_circcomb X2 (k10\_finseq\_1 X0 X1))) \wedge ((X1 \in u1\_struct\_0 (k5\_circcomb X2 (k10\_finseq\_1 X0 X1))) \wedge (k4\_tarski (k10\_finseq\_1 X0 X1) X2 \in u1\_struct\_0 (k5\_circcomb X2 (k10\_finseq\_1 X0 X1))))$$