

## t45\_facirc\_1

(TMPub4Lk94Sga9Xx7FFhcigrYrxhMptAWxM)

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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  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  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  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 \\ & X1) \wedge (v1\_finseq\_1 X1))) \Rightarrow ((\neg v11\_struct\_0 (k4\_circcomb X0 X1 X2)) \wedge \\ & ((v1\_msualg\_1 (k4\_circcomb X0 X1 X2)) \wedge (l1\_msualg\_1 (k4\_circcomb \\ & X0 X1 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ & X1))) \Rightarrow (\forall X2. \forall X3. ((\neg v11\_struct\_0 X3) \wedge ((v1\_msualg\_1 \\ & X3) \wedge (l1\_msualg\_1 X3))) \Rightarrow ((X3 = k4\_circcomb X0 X1 X2) \Leftrightarrow ((u1\_struct\_0 \\ & X3 = k2\_xboole\_0 (k10\_xtuple\_0 X1) (k1\_tarski X2)) \wedge ((u4\_struct\_0 \\ & X3 = k1\_tarski (k4\_tarski X1 X0)) \wedge ((k1\_funct\_1 (u1\_msualg\_1 X3) \\ & (k4\_tarski X1 X0) = X1) \wedge (k1\_funct\_1 (u2\_msualg\_1 X3) (k4\_tarski \\ & X1 X0) = X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (X2 = k2\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ & (X3 \in X2) \Leftrightarrow ((X3 \in X0) \vee (X3 \in X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (X1 = k1\_tarski X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow \\ & (X2 = X0)) \end{aligned} \tag{4}$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1 X2)\wedge((v1\_funct\_1 X2)\wedge(v1\_finseq\_1 X2)))\Rightarrow((X1 \in u1\_struct\_0 (k4\_circcomb X0 X2 X1))\wedge (\forall X3.(X3 \in k10\_xtuple\_0 X2)\Rightarrow(X3 \in u1\_struct\_0 (k4\_circcomb X0 X2 X1))))$$