

t35\_facirc\_1  
(TMZHS4Zhw8W53iFbds9LGZr35Si5G9NaJ4f)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v11\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_circcomb : \iota \Rightarrow o$  be given. Let  $v2\_circcomb : \iota \Rightarrow o$  be given. Let  $v3\_circcomb : \iota \Rightarrow o$  be given. Let  $l1\_msualg\_1 : \iota \Rightarrow o$  be given. Let  $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_msafree2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_circcomb : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v6\_circcomb : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $u2\_msualg\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_msafree2 : \iota \Rightarrow o$  be given. Let  $v5\_circcomb : \iota \Rightarrow o$  be given. Let  $k2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_msualg\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. (k1\_xtuple\_0 (k4\_tarski X0 X1) = X0) \wedge (k2\_xtuple\_0 (k4\_tarski X0 X1) = X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_msualg\_1 X0)) \Rightarrow ((v1\_circcomb X0) \Leftrightarrow (\forall X1. (X1 \in u4\_struct\_0 X0) \Rightarrow (k1\_funct\_1 (u2\_msualg\_1 X0) X1 = X1))) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v2\_msafree2 \\ & X0) \wedge ((v5\_circcomb X0) \wedge (l1\_msualg\_1 X0)))))) \Rightarrow (\forall X1.((v4\_msualg\_1 \\ & X1 X0) \wedge ((v4\_msafree2 X1 X0) \wedge (l3\_msualg\_1 X1 X0))) \Rightarrow ((v4\_circcomb \\ & X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k4\_card\_3 (u3\_msualg\_1 X0 \\ & X1))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u4\_struct\_0 X0)) \Rightarrow (k1\_funct\_1 \\ & (k6\_circuit2 X0 X1 X2) (k2\_msualg\_1 X0 X3) = k1\_funct\_1 (k2\_xtuple\_0 \\ & X3) (k3\_relat\_1 (k1\_msualg\_1 X0 X3) X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_msualg\_1 X0) \Rightarrow ((v1\_funct\_1 (u2\_msualg\_1 X0)) \wedge \\ & ((v1\_funct\_2 (u2\_msualg\_1 X0) (u4\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge \\ & (m1\_subset\_1 (u2\_msualg\_1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u4\_struct\_0 \\ & X0) (u1\_struct\_0 X0)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_msualg\_1 X0) \Rightarrow ((v1\_funct\_1 (u1\_msualg\_1 X0)) \wedge \\ & ((v1\_funct\_2 (u1\_msualg\_1 X0) (u4\_struct\_0 X0) (k3\_finseq\_2 ( \\ & u1\_struct\_0 X0))) \wedge (m1\_subset\_1 (u1\_msualg\_1 X0) (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u4\_struct\_0 X0) (k3\_finseq\_2 (u1\_struct\_0 X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_msualg\_1 X0) \Rightarrow ((v2\_circcomb X0) \Leftrightarrow (\forall X1. ( \\ & X1 \in u4\_struct\_0 X0) \Rightarrow (X1 = k4\_tarski (k1\_funct\_1 (u1\_msualg\_1 X0) \\ & X1) (k2\_xtuple\_0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. k4\_tarski X0 X1 = k2\_tarski (k2\_tarski X0 X1) (k1\_tarski X0) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u4\_struct\_0 X0)) \Rightarrow (k2\_msualg\_1 \\ X0 X1 = k3\_funct\_2 (u4\_struct\_0 X0) (u1\_struct\_0 X0) (u2\_msualg\_1 \\ X0) X1)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge (l1\_msualg\_1 \\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u4\_struct\_0 X0)) \Rightarrow (k1\_msualg\_1 \\ X0 X1 = k3\_funct\_2 (u4\_struct\_0 X0) (k3\_finseq\_2 (u1\_struct\_0 X0) \\ (u1\_msualg\_1 X0) X1)) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. k2\_tarski X0 X1 = k2\_tarski X1 X0 \quad (13)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v1\_circcomb \\ X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v2\_msafree2 X0))) \quad (14)$$

Assume the following.

$$\forall X0.(l1\_msualg\_1 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v3\_circcomb \\ X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v5\_circcomb X0))) \quad (15)$$

### Theorem 1

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((\neg v11\_struct\_0 X0) \wedge ((v1\_circcomb \\ X0) \wedge ((v2\_circcomb X0) \wedge ((v3\_circcomb X0) \wedge (l1\_msualg\_1 X0)))))) \Rightarrow \\ (\forall X1.((v4\_msualg\_1 X1 X0) \wedge ((v4\_msafree2 X1 X0) \wedge ((v4\_circcomb \\ X1 X0) \wedge ((v6\_circcomb X1 X0) \wedge (l3\_msualg\_1 X1 X0)))))) \Rightarrow (\forall X2. \\ (m1\_subset\_1 X2 (k4\_card\_3 (u3\_msualg\_1 X0 X1))) \Rightarrow (\forall X3. \\ ((v1\_relat\_1 X3) \wedge ((v1\_funct\_1 X3) \wedge (v1\_finseq\_1 X3))) \Rightarrow (\forall X4. \\ ((v1\_relat\_1 X4) \wedge (v1\_funct\_1 X4)) \Rightarrow ((k4\_tarski X3 X4 \in u4\_struct\_0 \\ X0) \Rightarrow (k1\_funct\_1 (k6\_circuit2 X0 X1 X2) (k4\_tarski X3 X4) = k1\_funct\_1 \\ X4 (k3\_relat\_1 X3 X2)))))) \end{aligned}$$