

## t46\_circcmb3

(TMVeW3vrveLMCtTcDTaUK3cegEhVD4ZQSff)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_circcmb3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $k3\_circcmb3 : \iota \Rightarrow \iota$  be given. Let  $k4\_circcmb3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_msafree2 : \iota \Rightarrow \iota$  be given. Let  $k6\_circcmb3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Assume the following.

$$\forall X0.\forall X1.(\neg X0 \in X1) \Rightarrow (r1\_xboole\_0 (k1\_tarski X0) X1) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X2) \wedge (v1\_finset\_1 \\ & X2)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 k5\_numbers) \Rightarrow (\forall X4.(( \\ & v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 (k4\_finseq\_2 X3 X2) X2) \wedge (m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_finseq\_2 X3 X2) X2)))))) \Rightarrow (\forall X5. \\ & ((v1\_relat\_1 X5) \wedge ((v1\_funct\_1 X5) \wedge ((v3\_card\_1 X5 X3) \wedge (v1\_finseq\_1 \\ & X5)))))) \Rightarrow (\forall X6.(m1\_circcmb3 X6 X2) \Rightarrow (((k10\_xtuple\_0 X5 = k2\_xboole\_0 \\ & X0 X1) \wedge ((r1\_tarski X0 (u1\_struct\_0 X6)) \wedge (r1\_xboole\_0 X1 (k3\_msafree2 \\ & X6)))) \Rightarrow ((k3\_circcmb3 (k4\_circcmb3 X3 X2 X4 X5) \in k2\_msafree2 X6) \vee \\ & (k2\_msafree2 (k6\_circcmb3 X2 X6 (k4\_circcmb3 X3 X2 X4 X5)) = k2\_xboole\_0 \\ & (k2\_msafree2 X6) X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(r1\_tarski (k2\_tarski X0 X1) \\ & X2) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k1\_enumset1\ X0\ X1\ X2 = k2\_xboole\_0\ (k1\_tarski\ X0)\ (k2\_tarski\ X1\ X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k10\_xtuple\_0\ (k11\_finseq\_1\ X0\ X1\ X2) = k1\_enumset1\ X0\ X1\ X2 \quad (5)$$

Assume the following.

$$((v2\_xreal\_0\ np\_3) \wedge (m2\_subset\_1\ np\_3\ k1\_numbers\ k5\_numbers)) \wedge ((m1\_subset\_1\ np\_3\ k5\_numbers) \wedge (m1\_subset\_1\ np\_3\ k1\_numbers)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1\_relat\_1\ (k11\_finseq\_1\ X0\ X1\ X2)) \wedge (v1\_funct\_1\ (k11\_finseq\_1\ X0\ X1\ X2)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.v3\_card\_1\ (k11\_finseq\_1\ X0\ X1\ X2)\ np\_3 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.v1\_finseq\_1\ (k11\_finseq\_1\ X0\ X1\ X2) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0\ X0\ X1 = k2\_xboole\_0\ X1\ X0 \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X3) \wedge \\ & (v1\_finset\_1\ X3)) \Rightarrow (\forall X4.((v1\_funct\_1\ X4) \wedge ((v1\_funct\_2\ X4\ (k4\_finseq\_2\ np\_3\ X3)\ X3) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_3\ X3)\ X3)))))) \Rightarrow (\forall X5.(m1\_circcmb3\ X5\ X3) \Rightarrow \\ & (((X1 \in u1\_struct\_0\ X5) \wedge (X2 \in u1\_struct\_0\ X5)) \Rightarrow ((X0 \in k3\_msafree2\ X5) \vee ((k3\_circcmb3\ (k4\_circcmb3\ np\_3\ X3\ X4\ (k11\_finseq\_1\ X0\ X1\ X2)) \in k2\_msafree2\ X5) \vee (k2\_msafree2\ (k6\_circcmb3\ X3\ X5\ (k4\_circcmb3\ np\_3\ X3\ X4\ (k11\_finseq\_1\ X0\ X1\ X2))) = k2\_xboole\_0\ (k2\_msafree2\ X5)\ (k1\_tarski\ X0)))))) \end{aligned}$$