

## t42\_circcmb3

(TMH75ZWX9b2NJ81BuNnxtfTkDEjoJuRboNV)

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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  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v2\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. k1\_enumset1 X0 X1 X2 = k1\_enumset1 X1 X0 X2 \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg(\neg X0 \in X1) \wedge ((\neg X2 \in X1) \wedge (\neg r1\_xboole\_0 (k2\_tarski X0 X2) X1)) \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X2)\wedge(v1\_finset\_1 \\
& X2))\Rightarrow(\forall X3.(m1\_subset\_1 X3 k5\_numbers)\Rightarrow(\forall X4.(( \\
& v1\_funct\_1 X4)\wedge((v1\_funct\_2 X4 (k4\_finseq\_2 X3 X2) X2)\wedge(m1\_subset\_1 \\
& X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k4\_finseq\_2 X3 X2) X2))))\Rightarrow(\forall X5. \\
& ((v1\_relat\_1 X5)\wedge((v1\_funct\_1 X5)\wedge((v3\_card\_1 X5 X3)\wedge(v1\_finseq\_1 \\
& X5))))\Rightarrow(\forall X6.(m1\_circcmb3 X6 X2)\Rightarrow(((k10\_xtuple\_0 X5 = k2\_xboole\_0 \\
& X0 X1)\wedge((r1\_tarski X0 (u1\_struct\_0 X6))\wedge(r1\_xboole\_0 X1 (k3\_msafree2 \\
& X6))))\Rightarrow((k3\_circcmb3 (k4\_circcmb3 X3 X2 X4 X5) \in k2\_msafree2 X6)\vee \\
& (k2\_msafree2 (k6\_circcmb3 X2 X6 (k4\_circcmb3 X3 X2 X4 X5) = k2\_xboole\_0 \\
& (k2\_msafree2 X6) X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski (k1\_tarski X0) X1)\Leftrightarrow(X0 \in X1) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k1\_enumset1 X0 X1 X2 = k2\_xboole\_0 \\
(k1\_tarski X0) (k2\_tarski X1 X2) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k10\_xtuple\_0 (k11\_finseq\_1 \\
X0 X1 X2) = k1\_enumset1 X0 X1 X2 \tag{6}$$

Assume the following.

$$((v2\_xxreal\_0 np\_3)\wedge(m2\_subset\_1 np\_3 k1\_numbers k5\_numbers))\wedge \\
((m1\_subset\_1 np\_3 k5\_numbers)\wedge(m1\_subset\_1 np\_3 k1\_numbers)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1\_relat\_1 (k11\_finseq\_1 X0 \\
X1 X2))\wedge(v1\_funct\_1 (k11\_finseq\_1 X0 X1 X2)) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.v3\_card\_1 (k11\_finseq\_1 X0 X1 \\
X2) np\_3 \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.v1\_finseq\_1 (k11\_finseq\_1 X0 \\
X1 X2) \tag{10}$$

**Theorem 1**

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