

# t2\_circcomb (TM- JaHHkU8mDX3wQmiAPsQiwrydBcsgT8y8)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $k13\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_card\_3 : \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v5\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_card\_3 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v4\_card\_3 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Rightarrow (k3\_xboole\_0 X0 X1 = X0) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.\forall X2. \\ k3\_relat\_1 X0 (k2\_funcop\_1 X1 X2) = k2\_funcop\_1 (k8\_relat\_1 X0 X1) \\ X2) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (k8\_relat\_1 X0 (k10\_xtuple\_0 X0) = k9\_xtuple\_0 X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1 X1)\Rightarrow(k8\_relat\_1 X1 X0 = k8\_relat\_1 X1 (k3\_xboole\_0 (k10\_xtuple\_0 X1) X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Leftrightarrow(m1\_subset\_1 X2 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 X1 X0)\Rightarrow(\forall X2.(m2\_finseq\_2 X2 X0 X1)\Leftrightarrow(m1\_subset\_1 X2 X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Leftrightarrow(m1\_finseq\_1 X1 X0) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.k7\_funcop\_1 X0 X1 = k2\_funcop\_1 X0 X1 \quad (9)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (10)$$

Assume the following.

$$\forall X0.k3\_finseq\_2 X0 = k13\_finseq\_1 X0 \quad (11)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k5\_numbers)\Rightarrow(\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow(k4\_card\_3 (k7\_funcop\_1 (k2\_finseq\_1 X0) X1) = k4\_finseq\_2 X0 X1)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.v1\_relat\_1 (k2\_zfmisc\_1 X0 X1) \quad (13)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1)\wedge(v3\_ordinal1 k4\_ordinal1) \quad (14)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0)\Rightarrow(v5\_finset\_1 (k1\_zfmisc\_1 X0)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1 (k2\_funcop\_1 X0 X1))\wedge((v4\_relat\_1 (k2\_funcop\_1 X0 X1) X0)\wedge((v1\_funct\_1 (k2\_funcop\_1 X0 X1))\wedge(v1\_partfun1 (k2\_funcop\_1 X0 X1) X0))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.v4\_relat\_1 (k2\_funcop\_1 X0 X1) X0 \quad (17)$$

Assume the following.

$$v5\_card\_3 k4\_ordinal1 \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Rightarrow((v1\_funct\_1 X1)\wedge((v1\_finseq\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))))) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge((v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0))))\Rightarrow((v1\_relat\_1 (k6\_finseq\_2 X0 X1))\wedge((v4\_relat\_1 (k6\_finseq\_2 X0 X1) (k3\_finseq\_2 X0))\wedge((v1\_funct\_1 (k6\_finseq\_2 X0 X1))\wedge(v1\_partfun1 (k6\_finseq\_2 X0 X1) (k3\_finseq\_2 X0)))))) \quad (21)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (22)$$

Assume the following.

$$\forall X0.m1\_finseq\_2 (k3\_finseq\_2 X0) X0 \quad (23)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 X0)))\Rightarrow(m2\_subset\_1 (k3\_finseq\_1 X0) k1\_numbers k5\_numbers) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 X0)\wedge((v1\_funct\_1 X1)\wedge(v1\_partfun1 X1 X0))))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 (k3\_finseq\_2 X0))\wedge((v1\_funct\_1 X2)\wedge(v1\_partfun1 X2 (k3\_finseq\_2 X0))))))\Rightarrow((X2 = k6\_finseq\_2 X0 X1)\Leftrightarrow(\forall X3.(m2\_finseq\_2 X3 X0 (k3\_finseq\_2 X0))\Rightarrow(k1\_funct\_1 X2 X3 = k4\_card\_3 (k3\_relat\_1 X3 X1)))))) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1)))\Rightarrow((m1\_finseq\_1 X1 X0)\Leftrightarrow(r1\_tarski (k10\_xtuple\_0 X1) X0)) \quad (26)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 X0)))\Rightarrow(\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers)\Rightarrow((X1 = k3\_finseq\_1 X0)\Leftrightarrow(k2\_finseq\_1 X1 = k9\_xtuple\_0 X0))) \quad (27)$$

Assume the following.

$$\forall X0.\forall X1.k2\_funcop\_1 X0 X1 = k2\_zfmisc\_1 X0 (k1\_tarski X1) \quad (28)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k13\_finseq\_1 X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(m2\_finseq\_1 X2 X0)) \quad (29)$$

Assume the following.

$$\forall X0.(v5\_finset\_1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow(v1\_finset\_1 X1)) \quad (30)$$

Assume the following.

$$\forall X0.(v5\_card\_3 X0)\Rightarrow((\neg v1\_finset\_1 X0)\wedge(v4\_card\_3 X0)) \quad (31)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(v1\_finset\_1 X0) \quad (32)$$

**Theorem 1**

$$\forall X0.\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow(\forall X2.(m2\_finseq\_1 X2 X0)\Rightarrow(k1\_funct\_1 (k6\_finseq\_2 X0 (k7\_funcop\_1 X0 X1)) X2 = k4\_finseq\_2 (k3\_finseq\_1 X2) X1))$$