t43_circcomb (TMYL-NXzn5Dp21FC9qAuX7ZzeBF18s9w88Cb)

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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 $r1\_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k13\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ 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 $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(r1\_partfun1\ (k7\_funcop\_1\ X0\ X2)\ (k7\_funcop\_1\ X1\ X3)) \Leftrightarrow ((X2 = X3) \vee (r1\_xboole\_0\ X0\ X1)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_finseq\_1\ X1))) \Rightarrow ((u1\_msualg\_1\ (k5\_circcomb\ X0\ X1) = k13\_funcop\_1\ X1\ X0\ X1) \wedge (u2\_msualg\_1\ (k5\_circcomb\ X0\ X1) = k13\_funcop\_1\ X1\ X0\ (k4\_tarski\ X1\ X0))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4\_tarski\ X0\ X1 = k4\_tarski\ X2\ X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(X0 \neq X1) \Rightarrow (r1\_xboole\_0\ (k1\_tarski\ X0)\ (k1\_tarski\ X1)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_finseq\_1\ X1))) \Rightarrow ((\neg v11\_struct\_0\ (k5\_circcomb\ X0\ X1)) \wedge ((v1\_msualg\_1\ (k5\_circcomb\ X0\ X1)) \wedge (l1\_msualg\_1\ (k5\_circcomb\ X0\ X1)))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k13\_funcop\_1\ X0\ X1\ X2 = k7\_funcop\_1\ (k1\_tarski\ (k4\_tarski\ X0\ X1))\ X2 \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski\ X0\ X1 = k2\_tarski\ (k2\_tarski\ X0\ X1)\ (k1\_tarski\ X0) \tag{7}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(\forall X1.(l1\_msualg\_1\ X1)\Rightarrow((r1\_circcomb\ X0\ X1)\Leftrightarrow((r1\_partfun1\ (u1\_msualg\_1\ X0)\ (u1\_msualg\_1\ X1))\wedge(r1\_partfun1\ (u2\_msualg\_1\ X0)\ (u2\_msualg\_1\ X1))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.k2\_tarski\ X0\ X1 = k2\_tarski\ X1\ X0 \tag{9}$$

Theorem 1

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_finseq\_1\ X2)))\Rightarrow(r1\_circcomb\ (k5\_circcomb\ X0\ X1)\ (k5\_circcomb\ X0\ X2)))$$