t19_circcomb (TMYXYAA7hFjcDAXRFv2AnR9MVuaXnie6JkX)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $r1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_finseq\_2 : \iota \Rightarrow \iota$ be given. Let $k13\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u1\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k6\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5\_struct\_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \wedge ((v1\_relat\_1\ X1) \wedge (v1\_funct\_1\ X1))) \Rightarrow ((r1\_partfun1\ X0\ X1) \Rightarrow (r1\_partfun1\ X1\ X0)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_msualg\_1\ X0) \wedge (l1\_msualg\_1\ X1)) \Rightarrow ((r1\_circcomb\ X0\ X1) \Rightarrow (r1\_circcomb\ X1\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.k3\_finseq\_2\ X0 = k13\_finseq\_1\ X0 \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X1)\wedge (((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X1)\wedge ((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X1))))))\Rightarrow((v1\_relat\_1\ (k3\_relat\_1\ X2\ X3))\wedge((v4\_relat\_1\ (k3\_relat\_1\ X2\ X3)\ X0)\wedge((v1\_funct\_1\ (k3\_relat\_1\ X2\ X3))\wedge(v1\_partfun1\ (k3\_relat\_1\ X2\ X3)\ X0))))) \tag{5}$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0\ (k13\_finseq\_1\ X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\wedge (l3\_msualg\_1\ X1\ X0))\Rightarrow(m2\_pboole\ (u4\_msualg\_1\ X0\ X1)\ (u4\_struct\_0\ X0)\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ (u3\_msualg\_1\ X0\ X1)))\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ (u3\_msualg\_1\ X0\ X1))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l2\_msualg\_1\ X1\ X0))\Rightarrow ((v1\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v4\_relat\_1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (u3\_msualg\_1\ X0\ X1))\wedge(v1\_partfun1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))))) \tag{8}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow((v1\_funct\_1\ (u2\_msualg\_1\ X0))\wedge ((v1\_funct\_2\ (u2\_msualg\_1\ X0)\ (u4\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\wedge (m1\_subset\_1\ (u2\_msualg\_1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u4\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))))) \tag{9}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow((v1\_funct\_1\ (u1\_msualg\_1\ X0))\wedge ((v1\_funct\_2\ (u1\_msualg\_1\ X0)\ (u4\_struct\_0\ X0)\ (k3\_finseq\_2\ (u1\_struct\_0\ X0)))\wedge(m1\_subset\_1\ (u1\_msualg\_1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u4\_struct\_0\ X0)\ (k3\_finseq\_2\ (u1\_struct\_0\ X0))))))) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow (\forall X3.(m2\_pboole\ X3\ X0\ X1\ X2)\Rightarrow((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))) \tag{11}$$

Assume the following.

$$\forall X0.(l5\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{12}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.\ (l3\_msualg\_1\ X1\ X0)\Rightarrow(l2\_msualg\_1\ X1\ X0)) \tag{13}$$

Assume the following.

$$\forall X0.(l1\_msualg\_1\ X0)\Rightarrow(l5\_struct\_0\ X0) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow((v1\_relat\_1\ (k6\_finseq\_2\ X0\ X1))\wedge((v4\_relat\_1\ (k6\_finseq\_2\ X0\ X1)\ (k3\_finseq\_2\ X0))\wedge((v1\_funct\_1\ (k6\_finseq\_2\ X0\ X1))\wedge(v1\_partfun1\ (k6\_finseq\_2\ X0\ X1)\ (k3\_finseq\_2\ X0))))) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.v1\_relat\_1\ (k3\_relat\_1\ X0\ X1) \tag{16}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.\ ((\neg v2\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1))\Rightarrow(\forall X2.(l3\_msualg\_1\ X2\ X0)\Rightarrow(\forall X3.(l3\_msualg\_1\ X3\ X1)\Rightarrow((r2\_circcomb\ X0\ X1\ X2\ X3)\Leftrightarrow((r1\_circcomb\ X0\ X1)\wedge((r1\_partfun1\ (u3\_msualg\_1\ X0\ X2)\ (u3\_msualg\_1\ X1\ X3))\wedge(r1\_partfun1\ (u4\_msualg\_1\ X0\ X2)\ (u4\_msualg\_1\ X1\ X3)))))))) \tag{17}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1)))\Rightarrow(\forall X2.(l3\_msualg\_1\ X2\ X0)\Rightarrow(\forall X3.(l3\_msualg\_1\ X3\ X1)\Rightarrow((r2\_circcomb\ X0\ X1\ X2\ X3)\Rightarrow(r2\_circcomb\ X1\ X0\ X3\ X2)))))$$