t29_circcomb (TMYsQscDDcRH4U1sKyvom32qbesq7E9xfnb)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_msafree2 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_card\_3 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11\_card\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_circuit1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2\_relat\_1 : \iota \Rightarrow o$ be given. Let $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_funct\_1 : \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $l2\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_finseq\_1 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_numbers : \iota$ be given. Let $l5\_struct\_0 : \iota \Rightarrow o$ be given. Let $k3\_finseq\_2 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge (v1\_funct\_1\ X1)) \Rightarrow (\forall X2.k3\_relat\_1\ X1\ (k5\_relat\_1\ X0\ X2) = k3\_relat\_1\ (k6\_relat\_1\ X2\ X1)\ X0)) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((\neg v11\_struct\_0\ X1) \wedge (l1\_msualg\_1\ X1))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u4\_struct\_0\ X1)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u4\_struct\_0\ (k2\_circcomb\ X0\ X1))) \Rightarrow ((X2 = X3) \Rightarrow ((k1\_msualg\_1\ (k2\_circcomb\ X0\ X1)\ X3 = k1\_msualg\_1\ X1\ X2) \wedge (k2\_msualg\_1\ (k2\_circcomb\ X0\ X1)\ X3 = k2\_msualg\_1\ X1\ X2))))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0) \Leftrightarrow (m1\_finseq\_1\ X1\ X0) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X0)\wedge((v2\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0)))\wedge(m1\_subset\_1\ X1\ (k4\_card\_3\ X0)))\Rightarrow(k11\_card\_3\ X0\ X1\ X2 = k5\_relat\_1\ X1\ X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge(v5\_relat\_1\ X1\ X0))\Rightarrow(k6\_relat\_1\ X0\ X1 = X1) \tag{5}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\Rightarrow(v4\_funct\_1\ (k4\_card\_3\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge((v4\_msualg\_1\ X1\ X0)\wedge(l2\_msualg\_1\ X1\ X0)))\Rightarrow((v1\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v2\_relat\_1\ (u3\_msualg\_1\ X0\ X1))\wedge((v4\_relat\_1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (u3\_msualg\_1\ X0\ X1))\wedge(v1\_partfun1\ (u3\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0)))))) \tag{7}$$

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.

$$\forall X0.\forall X1.(m1\_finseq\_2\ X1\ X0)\Rightarrow(\forall X2.(m2\_finseq\_2\ X2\ X0\ X1)\Rightarrow(m2\_finseq\_1\ X2\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0)\Rightarrow((v1\_funct\_1\ X1)\wedge((v1\_finseq\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ X0))))) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1\ X1\ X0)\Rightarrow((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1))) \tag{11}$$

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.

$$\forall X0.m1\_finseq\_2\ (k3\_finseq\_2\ X0)\ X0 \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge (l1\_msualg\_1\ X0)))\wedge(m1\_subset\_1\ X1\ (u4\_struct\_0\ X0)))\Rightarrow(m2\_finseq\_2\ (k1\_msualg\_1\ X0\ X1)\ (u1\_struct\_0\ X0)\ (k3\_finseq\_2\ (u1\_struct\_0\ X0))) \tag{16}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u4\_struct\_0\ X0))\Rightarrow(k3\_circuit1\ X0\ X1\ X2\ X3 = k3\_relat\_1\ (k1\_msualg\_1\ X0\ X3)\ X2)))) \tag{17}$$

Assume the following.

$$\forall X0.(v4\_funct\_1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow((v1\_relat\_1\ X1)\wedge(v1\_funct\_1\ X1))) \tag{18}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow((v4\_relat\_1\ X2\ X0)\wedge(v5\_relat\_1\ X2\ X1)) \tag{19}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_msafree2\ X2)\wedge(l1\_msualg\_1\ X2))))\Rightarrow((X2 = k2\_circcomb\ X0\ X1)\Rightarrow(\forall X3.((v4\_msualg\_1\ X3\ X0)\wedge((v4\_msafree2\ X3\ X0)\wedge(l3\_msualg\_1\ X3\ X0)))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X1)\wedge((v4\_msafree2\ X4\ X1)\wedge(l3\_msualg\_1\ X4\ X1)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X2)\wedge((v4\_msafree2\ X5\ X2)\wedge(l3\_msualg\_1\ X5\ X2)))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X2\ X5)))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X4)))\Rightarrow((X7 = k11\_card\_3\ (u3\_msualg\_1\ X2\ X5)\ X6\ (u1\_struct\_0\ X1))\Rightarrow(\forall X8.(m1\_subset\_1\ X8\ (u4\_struct\_0\ X2))\Rightarrow(\forall X9.(m1\_subset\_1\ X9\ (u4\_struct\_0\ X1))\Rightarrow((X8 = X9)\Rightarrow(k3\_circuit1\ X2\ X5\ X6\ X8 = k3\_circuit1\ X1\ X4\ X7\ X9)))))))))))$$