t33_circcomb (TMR52bNHKeBdJMVgQdK1hM1K5txTXrnSB8k)

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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 $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k2\_msafree2 : \iota \Rightarrow \iota$ 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 $r2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k6\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_circcomb : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_msualg\_1\ X0)) \Rightarrow (\forall X1.\ ((\neg v2\_struct\_0\ X1) \wedge (l1\_msualg\_1\ X1)) \Rightarrow ((r1\_circcomb\ X0\ X1) \Rightarrow (\ k2\_circcomb\ X0\ X1 = k2\_circcomb\ X1\ X0))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_msafree2\ X0) \wedge (l1\_msualg\_1\ X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((\neg v11\_struct\_0\ X1) \wedge ((v2\_msafree2\ X1) \wedge (l1\_msualg\_1\ X1)))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge ((\neg v11\_struct\_0\ X2) \wedge ((v2\_msafree2\ X2) \wedge (l1\_msualg\_1\ X2)))) \Rightarrow (((r1\_xboole\_0\ (k3\_msafree2\ X0)\ (k2\_msafree2\ X1)) \wedge (X2 = k2\_circcomb\ X0\ X1)) \Rightarrow (\forall X3.((v4\_msualg\_1\ X3\ X0) \wedge ((v4\_msafree2\ X3\ X0) \wedge (l3\_msualg\_1\ X3\ X0))) \Rightarrow (\forall X4.((v4\_msualg\_1\ X4\ X1) \wedge ((v4\_msafree2\ X4\ X1) \wedge (l3\_msualg\_1\ X4\ X1))) \Rightarrow (\forall X5.((v4\_msualg\_1\ X5\ X2) \wedge ((v4\_msafree2\ X5\ X2) \wedge (l3\_msualg\_1\ X5\ X2))) \Rightarrow (((r2\_circcomb\ X0\ X1\ X3\ X4) \wedge (X5 = k3\_circcomb\ X0\ X1\ X3\ X4)) \Rightarrow (\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X2\ X5))) \Rightarrow (\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X3))) \Rightarrow (\forall X8.(m1\_subset\_1\ X8\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X4))) \Rightarrow (((X7 = k11\_card\_3\ (u3\_msualg\_1\ X2\ X5)\ X6\ (u1\_struct\_0\ X0)) \wedge (X8 = k11\_card\_3\ (u3\_msualg\_1\ X2\ X5)\ X6\ (u1\_struct\_0\ X1))) \Rightarrow (k6\_circuit2\ X2\ X5\ X6 = k1\_funct\_4\ (k6\_circuit2\ X0\ X3\ X7)\ (k6\_circuit2\ X1\ X4\ X8)))))))))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1))\Rightarrow(\forall X2.((v4\_msualg\_1\ X2\ X0)\wedge(l3\_msualg\_1\ X2\ X0))\Rightarrow(\forall X3.((v4\_msualg\_1\ X3\ X1)\wedge(l3\_msualg\_1\ X3\ X1))\Rightarrow((r2\_circcomb\ X0\ X1\ X2\ X3)\Rightarrow(k3\_circcomb\ X0\ X1\ X2\ X3 = k3\_circcomb\ X1\ X0\ X3\ X2)))))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1)))\Rightarrow(\forall X2.(l3\_msualg\_1\ X2\ X0)\Rightarrow(\forall X3.(l3\_msualg\_1\ X3\ X1)\Rightarrow((r2\_circcomb\ X0\ X1\ X2\ X3)\Rightarrow(r2\_circcomb\ X1\ X0\ X3\ X2))))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_msualg\_1\ X1))\Rightarrow(\forall X2.(l3\_msualg\_1\ X2\ X0)\Rightarrow(\forall X3.(l3\_msualg\_1\ X3\ X1)\Rightarrow((r2\_circcomb\ X0\ X1\ X2\ X3)\Leftrightarrow((r1\_circcomb\ X0\ X1)\wedge((r1\_partfun1\ (u3\_msualg\_1\ X0\ X2)\ (u3\_msualg\_1\ X1\ X3))\wedge(r1\_partfun1\ (u4\_msualg\_1\ X0\ X2)\ (u4\_msualg\_1\ X1\ X3)))))))) \tag{5}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((\neg v11\_struct\_0\ X2)\wedge((v2\_msafree2\ X2)\wedge(l1\_msualg\_1\ X2))))\Rightarrow(((r1\_xboole\_0\ (k3\_msafree2\ X1)\ (k2\_msafree2\ X0))\wedge(X2 = k2\_circcomb\ X0\ X1))\Rightarrow(\forall X3.((v4\_msualg\_1\ X3\ X0)\wedge((v4\_msafree2\ X3\ X0)\wedge(l3\_msualg\_1\ X3\ X0)))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X1)\wedge((v4\_msafree2\ X4\ X1)\wedge(l3\_msualg\_1\ X4\ X1)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X2)\wedge((v4\_msafree2\ X5\ X2)\wedge(l3\_msualg\_1\ X5\ X2)))\Rightarrow(((r2\_circcomb\ X0\ X1\ X3\ X4)\wedge(X5 = k3\_circcomb\ X0\ X1\ X3\ X4))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X2\ X5)))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X3)))\Rightarrow(\forall X8.(m1\_subset\_1\ X8\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X4)))\Rightarrow(((X7 = k11\_card\_3\ (u3\_msualg\_1\ X2\ X5)\ X6\ (u1\_struct\_0\ X0))\wedge(X8 = k11\_card\_3\ (u3\_msualg\_1\ X2\ X5)\ X6\ (u1\_struct\_0\ X1)))\Rightarrow(k6\_circuit2\ X2\ X5\ X6 = k1\_funct\_4\ (k6\_circuit2\ X1\ X4\ X8)\ (k6\_circuit2\ X0\ X3\ X7)))))))))))$$