t13_circuit1 (TMT5uP9zLHtcWzEReAi44LXg8R395XXxh46)

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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 $v5\_msafree2 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ 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 $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_msafree2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k1\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k5\_card\_1 : \iota \Rightarrow \iota$ be given. Let $k4\_circuit1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_finseq\_1 : \iota \Rightarrow o$ be given. Let $v6\_trees\_3 : \iota \Rightarrow o$ be given. Let $k4\_trees\_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_msafree2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $v3\_trees\_2 : \iota \Rightarrow o$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k11\_trees\_3 : \iota \Rightarrow \iota$ be given. Let $k2\_funct\_6 : \iota \Rightarrow \iota$ be given. Let $k5\_numbers : \iota$ be given. Let $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $k5\_trees\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v1\_finset\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_msafree2\ X0) \wedge ((v5\_msafree2\ X0) \wedge (l1\_msualg\_1\ X0))))) \Rightarrow (\forall X1.((v4\_msualg\_1\ X1\ X0) \wedge ((v4\_msafree2\ X1\ X0) \wedge (l3\_msualg\_1\ X1\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_funct\_1\ (u3\_msualg\_1\ X0\ (k5\_msafree2\ X0\ X1))\ X2)) \Rightarrow (\neg (X2 \in k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k3\_msafree2\ X0)\ (k1\_msafree2\ X0)) \wedge ((k5\_card\_1\ X3 = k4\_circuit1\ X0\ X1\ X2) \wedge (\forall X4.((v1\_relat\_1\ X4) \wedge ((v1\_funct\_1\ X4) \wedge ((v1\_finseq\_1\ X4) \wedge (v6\_trees\_3\ X4)))) \Rightarrow (X3 \neq k4\_trees\_4\ (k4\_tarski\ (k4\_msafree2\ X0\ X2)\ (u1\_struct\_0\ X0))\ X4)))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\wedge(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)))\Rightarrow(m1\_subset\_1\ (k4\_msafree2\ X0\ X1)\ (u4\_struct\_0\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski\ X0\ X1 = k2\_tarski\ (k2\_tarski\ X0\ X1)\ (k1\_tarski\ X0) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow((v6\_trees\_3\ X1)\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v3\_trees\_2\ X2)))\Rightarrow((X2 = k4\_trees\_4\ X0\ X1)\Leftrightarrow(\exists X3.((v1\_relat\_1\ X3)\wedge((v1\_funct\_1\ X3)\wedge((v1\_finseq\_1\ X3)\wedge(v6\_trees\_3\ X3))))\wedge((X1 = X3)\wedge(k9\_xtuple\_0\ X2 = k11\_trees\_3\ (k2\_funct\_6\ X3))))\wedge((k1\_funct\_1\ X2\ k1\_xboole\_0 = X0)\wedge(\forall X3.(m1\_subset\_1\ X3\ k5\_numbers)\Rightarrow((\neg r1\_xxreal\_0\ (k3\_finseq\_1\ X1)\ X3)\Rightarrow(k5\_trees\_2\ X2\ (k12\_finseq\_1\ k5\_numbers\ X3) = k1\_funct\_1\ X1\ (k2\_nat\_1\ X3\ np\_\_1)))))))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.k2\_tarski\ X0\ X1 = k2\_tarski\ X1\ X0 \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge((v5\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0)))))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_funct\_1\ (u3\_msualg\_1\ X0\ (k5\_msafree2\ X0\ X1))\ X2))\Rightarrow(v3\_trees\_2\ X3)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge((v5\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0)))))\wedge(((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_funct\_1\ (u3\_msualg\_1\ X0\ (k5\_msafree2\ X0\ X1))\ X2))\Rightarrow((v1\_relat\_1\ X3)\wedge((v1\_funct\_1\ X3)\wedge((\neg v1\_xboole\_0\ X3)\wedge(v1\_finset\_1\ X3))))) \tag{7}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge((v5\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0)))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_funct\_1\ (u3\_msualg\_1\ X0\ (k5\_msafree2\ X0\ X1))\ X2))\Rightarrow(\neg(X2\in k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k3\_msafree2\ X0)\ (k1\_msafree2\ X0))\wedge((k5\_card\_1\ X3=k4\_circuit1\ X0\ X1\ X2)\wedge(\forall X4.(m1\_subset\_1\ X4\ (u4\_struct\_0\ X0))\Rightarrow(k1\_funct\_1\ X3\ k1\_xboole\_0\neq k4\_tarski\ X4\ (u1\_struct\_0\ X0))))))))$$