t1_gate_4 (TMVQaZasEKvBbjd-mYM5fPvb744WiNeviTrT)

October 27, 2020

Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k4\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge (\neg v1\_xboole\_0\ X1)) \Rightarrow (v1\_xboole\_0\ (k4\_gate\_1\ X0\ X1)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboole\_0\ X0) \wedge (v1\_xboole\_0\ X1)) \Rightarrow (v1\_xboole\_0\ (k4\_gate\_1\ X0\ X1)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboole\_0\ X0) \wedge (\neg v1\_xboole\_0\ X1)) \Rightarrow (\neg v1\_xboole\_0\ (k4\_gate\_1\ X0\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(v1\_xboole\_0\ X0) \Rightarrow (v1\_xboole\_0\ (k2\_gate\_1\ X0\ X1)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge (\neg v1\_xboole\_0\ X1)) \Rightarrow (\neg v1\_xboole\_0\ (k2\_gate\_1\ X0\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.k4\_gate\_1\ X0\ X1 = k4\_gate\_1\ X1\ X0 \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.k2\_gate\_1\ X0\ X1 = k2\_gate\_1\ X1\ X0 \tag{7}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.$$
$$\forall X6.\forall X7.\forall X8.\forall X9.\forall X10.\forall X11.$$
$$\forall X12.\forall X13.\forall X14.\forall X15.\forall X16.$$
$$\forall X17.\forall X18.\forall X19.\forall X20.\forall X21.$$
$$\forall X22.\forall X23.\forall X24.\forall X25.\forall X26.$$
$$\forall X27.\forall X28.\forall X29.\forall X30.\forall X31.$$
$$\forall X32.\forall X33.\forall X34.\forall X35.\forall X36.$$
$$\forall X37.\neg(\neg v1\_xboole\_0\ X12)\wedge((\neg(\neg v1\_xboole\_0\ X25)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X37\ (k2\_gate\_1\ X0\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X37\ (k2\_gate\_1\ X0\ X24)))\wedge(v1\_xboole\_0\ X25))\wedge((\neg(\neg v1\_xboole\_0\ X26)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X13\ (k2\_gate\_1\ X1\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X13\ (k2\_gate\_1\ X1\ X24)))\wedge(v1\_xboole\_0\ X26))\wedge((\neg(\neg v1\_xboole\_0\ X27)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X14\ (k2\_gate\_1\ X2\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X14\ (k2\_gate\_1\ X2\ X24)))\wedge(v1\_xboole\_0\ X27))\wedge((\neg(\neg v1\_xboole\_0\ X28)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X15\ (k2\_gate\_1\ X3\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X15\ (k2\_gate\_1\ X3\ X24)))\wedge(v1\_xboole\_0\ X28))\wedge((\neg(\neg v1\_xboole\_0\ X29)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X16\ (k2\_gate\_1\ X4\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X16\ (k2\_gate\_1\ X4\ X24)))\wedge(v1\_xboole\_0\ X29))\wedge((\neg(\neg v1\_xboole\_0\ X30)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X17\ (k2\_gate\_1\ X5\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X17\ (k2\_gate\_1\ X5\ X24)))\wedge(v1\_xboole\_0\ X30))\wedge((\neg(\neg v1\_xboole\_0\ X31)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X18\ (k2\_gate\_1\ X6\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X18\ (k2\_gate\_1\ X6\ X24)))\wedge(v1\_xboole\_0\ X31))\wedge((\neg(\neg v1\_xboole\_0\ X32)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X19\ (k2\_gate\_1\ X7\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X19\ (k2\_gate\_1\ X7\ X24)))\wedge(v1\_xboole\_0\ X32))\wedge((\neg(\neg v1\_xboole\_0\ X33)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X20\ (k2\_gate\_1\ X8\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X20\ (k2\_gate\_1\ X8\ X24)))\wedge(v1\_xboole\_0\ X33))\wedge((\neg(\neg v1\_xboole\_0\ X34)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X21\ (k2\_gate\_1\ X9\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X21\ (k2\_gate\_1\ X9\ X24)))\wedge(v1\_xboole\_0\ X34))\wedge((\neg(\neg v1\_xboole\_0\ X35)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X22\ (k2\_gate\_1\ X10\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X22\ (k2\_gate\_1\ X10\ X24)))\wedge(v1\_xboole\_0\ X35))\wedge((\neg(\neg v1\_xboole\_0\ X36)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X23\ (k2\_gate\_1\ X11\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X23\ (k2\_gate\_1\ X11\ X24)))\wedge(v1\_xboole\_0\ X36))\wedge(\neg(\neg(\neg v1\_xboole\_0\ X24)\wedge(v1\_xboole\_0\ (k2\_gate\_1\ X12\ X24)))\wedge((\neg(\neg v1\_xboole\_0\ (k2\_gate\_1\ X12\ X24))\wedge(v1\_xboole\_0\ X24))\wedge((\neg(\neg v1\_xboole\_0\ X23)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X36\ (k2\_gate\_1\ X11\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X36\ (k2\_gate\_1\ X11\ X24)))\wedge(v1\_xboole\_0\ X23))\wedge((\neg(\neg v1\_xboole\_0\ X22)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X35\ (k2\_gate\_1\ X10\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X35\ (k2\_gate\_1\ X10\ X24)))\wedge(v1\_xboole\_0\ X22))\wedge((\neg(\neg v1\_xboole\_0\ X21)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X34\ (k2\_gate\_1\ X9\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X34\ (k2\_gate\_1\ X9\ X24)))\wedge(v1\_xboole\_0\ X21))\wedge((\neg(\neg v1\_xboole\_0\ X20)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X33\ (k2\_gate\_1\ X8\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X33\ (k2\_gate\_1\ X8\ X24)))\wedge(v1\_xboole\_0\ X20))\wedge((\neg(\neg v1\_xboole\_0\ X19)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X32\ (k2\_gate\_1\ X7\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X32\ (k2\_gate\_1\ X7\ X24)))\wedge(v1\_xboole\_0\ X19))\wedge((\neg(\neg v1\_xboole\_0\ X18)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X31\ (k2\_gate\_1\ X6\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X31\ (k2\_gate\_1\ X6\ X24)))\wedge(v1\_xboole\_0\ X18))\wedge((\neg(\neg v1\_xboole\_0\ X17)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X30\ (k2\_gate\_1\ X5\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X30\ (k2\_gate\_1\ X5\ X24)))\wedge(v1\_xboole\_0\ X17))\wedge((\neg(\neg v1\_xboole\_0\ X16)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X29\ (k2\_gate\_1\ X4\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X29\ (k2\_gate\_1\ X4\ X24)))\wedge(v1\_xboole\_0\ X16))\wedge((\neg(\neg v1\_xboole\_0\ X15)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X28\ (k2\_gate\_1\ X3\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X28\ (k2\_gate\_1\ X3\ X24)))\wedge(v1\_xboole\_0\ X15))\wedge((\neg(\neg v1\_xboole\_0\ X14)\wedge(v1\_xboole\_0\ (k4\_gate\_1\ X27\ (k2\_gate\_1\ X2\ X24))))\wedge((\neg(\neg v1\_xboole\_0\ (k4\_gate\_1\ X27\ (k2\_gate\_1\ X2\ X24)))\wedge(v1\_xboole\_0\ X14))\wedge((\neg(\neg v1\_xboole\_0$$