t3_gate_2 (TMcLFzD7Nk1v7a1uh23srERqSGHrDQp4xT2)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k2\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_gate\_1 : \iota \Rightarrow \iota$ be given. Let $k8\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.(\neg(\neg v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))\wedge((v1\_xboole\_0\ X0)\wedge(v1\_xboole\_0\ X1)))\wedge(\neg(\neg(v1\_xboole\_0\ X0)\wedge(v1\_xboole\_0\ X1))\wedge(v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ (k2\_gate\_1\ X0\ X1))\Leftrightarrow((\neg v1\_xboole\_0\ X0)\wedge(\neg v1\_xboole\_0\ X1)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(\neg v1\_xboole\_0\ (k8\_gate\_1\ X0\ X1\ X2))\Leftrightarrow((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(\neg v1\_xboole\_0\ X2))) \tag{3}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(v1\_xboole\_0\ (k1\_gate\_1\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k1\_gate\_1\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.k3\_gate\_1\ X0\ X1 = k3\_gate\_1\ X1\ X0 \tag{6}$$

Assume the following.

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

Theorem 1

$$\forall X0.\forall X1.\forall X2.\forall X3.(\neg(v1\_xboole\_0\ (k2\_gate\_1\ X0\ X1))\wedge(v1\_xboole\_0\ (k3\_gate\_1\ (k1\_gate\_1\ X0)\ (k1\_gate\_1\ X1))))\wedge(((\neg v1\_xboole\_0\ (k3\_gate\_1\ (k1\_gate\_1\ X0)\ (k1\_gate\_1\ X1)))\Rightarrow(v1\_xboole\_0\ (k2\_gate\_1\ X0\ X1)))\wedge((\neg(\neg v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))\wedge((\neg v1\_xboole\_0\ (k3\_gate\_1\ X2\ X1))\wedge(v1\_xboole\_0\ (k3\_gate\_1\ (k2\_gate\_1\ X0\ X2)\ X1))))\wedge(((\neg v1\_xboole\_0\ (k3\_gate\_1\ (k2\_gate\_1\ X0\ X2)\ X1))\Rightarrow((\neg v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))\wedge(\neg v1\_xboole\_0\ (k3\_gate\_1\ X2\ X1))))\wedge((\neg(\neg v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))\wedge((\neg v1\_xboole\_0\ (k3\_gate\_1\ X2\ X1))\wedge((\neg v1\_xboole\_0\ (k3\_gate\_1\ X3\ X1))\wedge(v1\_xboole\_0\ (k3\_gate\_1\ (k8\_gate\_1\ X0\ X2\ X3)\ X1)))))\wedge(((\neg v1\_xboole\_0\ (k3\_gate\_1\ (k8\_gate\_1\ X0\ X2\ X3)\ X1))\Rightarrow((\neg v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))\wedge((\neg v1\_xboole\_0\ (k3\_gate\_1\ X2\ X1))\wedge(\neg v1\_xboole\_0\ (k3\_gate\_1\ X3\ X1)))))\wedge(\neg(\neg v1\_xboole\_0\ (k3\_gate\_1\ X0\ X1))\wedge((\neg(\neg v1\_xboole\_0\ X0)\wedge(v1\_xboole\_0\ X2))\wedge((\neg(\neg v1\_xboole\_0\ X2)\wedge(v1\_xboole\_0\ X0))\wedge(v1\_xboole\_0\ (k3\_gate\_1\ X2\ X1))))))))))$$