t11_gate_1 (TMPPx-aGDkY6vBv7pYuxw1Lmz9uhaHM3H6oX)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k5\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ (k5\_gate\_1\ X0\ X1))\Leftrightarrow((\neg(\neg v1\_xboole\_0\ X0)\wedge(v1\_xboole\_0\ X1))\wedge(\neg(\neg v1\_xboole\_0\ X1)\wedge(v1\_xboole\_0\ X0))) \tag{2}$$

Theorem 1

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ (k5\_gate\_1\ X0\ X1))\Leftrightarrow(v1\_xboole\_0\ (k4\_gate\_1\ X0\ X1))$$