

t1_gate_3 (TMVRGeX- AELfitw9a2NbVUjX8HGzz3b8DWD8)

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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 $k1_gate_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (\neg v1_xboole_0 (k2_gate_1 X0 X1)) \Leftrightarrow ((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \quad (1)$$

Assume the following.

$$\forall X0. (\neg v1_xboole_0 X0) \Rightarrow (v1_xboole_0 (k1_gate_1 X0)) \quad (2)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (\neg v1_xboole_0 (k1_gate_1 X0)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. k2_gate_1 X0 X1 = k2_gate_1 X1 X0 \quad (4)$$

Theorem 1

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& \forall X6. \forall X7. \forall X8. \forall X9. \forall X10. \forall X11. \\
& \neg(\neg(\neg v1_xboole_0 X0) \wedge (v1_xboole_0 (k2_gate_1 (k1_gate_1 X9) \\
& (k1_gate_1 X8)))) \wedge (\neg(\neg v1_xboole_0 (k2_gate_1 (k1_gate_1 X9) \\
& (k1_gate_1 X8))) \wedge (v1_xboole_0 X0)) \wedge (\neg(\neg v1_xboole_0 X1) \wedge (v1_xboole_0 \\
& (k2_gate_1 (k1_gate_1 X9) X8))) \wedge (\neg(\neg v1_xboole_0 (k2_gate_1 \\
& (k1_gate_1 X9) X8)) \wedge (v1_xboole_0 X1)) \wedge (\neg(\neg v1_xboole_0 X2) \wedge \\
& (v1_xboole_0 (k2_gate_1 X9 (k1_gate_1 X8)))) \wedge (\neg(\neg v1_xboole_0 \\
& (k2_gate_1 X9 (k1_gate_1 X8))) \wedge (v1_xboole_0 X2)) \wedge (\neg(\neg v1_xboole_0 \\
& X3) \wedge (v1_xboole_0 (k2_gate_1 X9 X8))) \wedge (\neg(\neg v1_xboole_0 (k2_gate_1 \\
& X9 X8)) \wedge (v1_xboole_0 X3)) \wedge (\neg(\neg v1_xboole_0 X4) \wedge (v1_xboole_0 \\
& (k2_gate_1 (k1_gate_1 X11) (k1_gate_1 X10)))) \wedge (\neg(\neg v1_xboole_0 \\
& (k2_gate_1 (k1_gate_1 X11) (k1_gate_1 X10))) \wedge (v1_xboole_0 X4)) \wedge \\
& ((\neg(\neg v1_xboole_0 X5) \wedge (v1_xboole_0 (k2_gate_1 (k1_gate_1 X11) \\
& X10))) \wedge (\neg(\neg v1_xboole_0 (k2_gate_1 (k1_gate_1 X11) X10)) \wedge (v1_xboole_0 \\
& X5))) \wedge (\neg(\neg v1_xboole_0 X6) \wedge (v1_xboole_0 (k2_gate_1 X11 (k1_gate_1 \\
& X10)))) \wedge (\neg(\neg v1_xboole_0 (k2_gate_1 X11 (k1_gate_1 X10))) \wedge (\\
& v1_xboole_0 X6)) \wedge (\neg(\neg v1_xboole_0 X7) \wedge (v1_xboole_0 (k2_gate_1 \\
& X11 X10))) \wedge (\neg(\neg v1_xboole_0 (k2_gate_1 X11 X10)) \wedge (v1_xboole_0 \\
& X7)) \wedge (\neg(\neg v1_xboole_0 X10) \wedge (v1_xboole_0 (k1_gate_1 X9))) \wedge (\\
& (\neg(\neg v1_xboole_0 (k1_gate_1 X9) \wedge (v1_xboole_0 X10)) \wedge (\neg(\neg v1_xboole_0 \\
& X11) \wedge (v1_xboole_0 X8))) \wedge (\neg(\neg v1_xboole_0 X8) \wedge (v1_xboole_0 X11)) \wedge \\
& (\neg(\neg(\neg v1_xboole_0 X5) \wedge (v1_xboole_0 X0)) \wedge (\neg(\neg v1_xboole_0 X0) \wedge \\
& (v1_xboole_0 X5))) \wedge (\neg(\neg v1_xboole_0 X7) \wedge (v1_xboole_0 X1)) \wedge (\\
& (\neg(\neg v1_xboole_0 X1) \wedge (v1_xboole_0 X7)) \wedge (\neg(\neg v1_xboole_0 X6) \wedge \\
& (v1_xboole_0 X3))) \wedge (\neg(\neg v1_xboole_0 X3) \wedge (v1_xboole_0 X6)) \wedge (\\
& (\neg(\neg v1_xboole_0 X4) \wedge (v1_xboole_0 X2)) \wedge (\neg(\neg v1_xboole_0 X2) \wedge \\
& (v1_xboole_0 X4)))))))))
\end{aligned}$$