

t32_gate_1

(TMN8uYvY75pK4KJqZfZGwwGo4u5EuFva61d)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k26_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_gate_1 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (\neg(\neg v1_xboole_0 \\ & (k16_gate_1 X0 X1 X2 X3)) \wedge (\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1) \wedge \\ & ((\neg v1_xboole_0 X2) \wedge (\neg v1_xboole_0 X3)))) \wedge (\neg(\neg(\neg v1_xboole_0 \\ & X0) \wedge (\neg v1_xboole_0 X1) \wedge (\neg v1_xboole_0 X2) \wedge (\neg v1_xboole_0 X3)))) \wedge \\ & (v1_xboole_0 (k16_gate_1 X0 X1 X2 X3))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & \forall X6. (\neg(\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1) \wedge (\neg v1_xboole_0 \\ & X2) \wedge (\neg v1_xboole_0 X3) \wedge (\neg v1_xboole_0 X4) \wedge (\neg v1_xboole_0 X5) \wedge \\ & ((\neg v1_xboole_0 X6) \wedge (k26_gate_1 X0 X1 X2 X3 X4 X5 X6 \neq k1_gate_1 k1_xboole_0)))) \wedge \\ & ((\neg(\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1) \wedge (\neg v1_xboole_0 X2) \wedge \\ & ((\neg v1_xboole_0 X3) \wedge (\neg v1_xboole_0 X4) \wedge (\neg v1_xboole_0 X5) \wedge \\ & \neg v1_xboole_0 X6)))) \Rightarrow (k26_gate_1 X0 X1 X2 X3 X4 X5 X6 = k1_xboole_0) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg(\neg v1_xboole_0 \\ & X0) \wedge (\neg v1_xboole_0 X1) \wedge (\neg v1_xboole_0 X2) \wedge (\neg v1_xboole_0 X3))) \Rightarrow \\ & (k16_gate_1 X0 X1 X2 X3 = k1_gate_1 k1_xboole_0) \wedge (\neg(\neg v1_xboole_0 \\ & X0) \wedge (\neg v1_xboole_0 X1) \wedge (\neg v1_xboole_0 X2) \wedge (\neg v1_xboole_0 X3) \wedge \\ & (k16_gate_1 X0 X1 X2 X3 \neq k1_xboole_0)))) \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & \forall X6. (\neg v1_xboole_0 (k26_gate_1 X0 X1 X2 X3 X4 X5 X6)) \Leftrightarrow ((\neg v1_xboole_0 \\ & X0) \wedge (\neg v1_xboole_0 X1) \wedge (\neg v1_xboole_0 X2) \wedge (\neg v1_xboole_0 X3) \wedge \\ & ((\neg v1_xboole_0 X4) \wedge (\neg v1_xboole_0 X5) \wedge (\neg v1_xboole_0 X6)))) \end{aligned}$$