

t39\_gate\_1  
(TMTB8ftF3FKZ1tDTxgDJhezUGQmtXCZ5xMM)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k33\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k1\_gate\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$v1\_xboole\_0 \ k1\_xboole\_0 \tag{1}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 \ X0) \Rightarrow (\neg v1\_xboole\_0 \ (k1\_gate\_1 \ X0)) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & \forall X6.\forall X7.(\neg(v1\_xboole\_0 \ X0) \wedge ((v1\_xboole\_0 \ X1) \wedge \\ & ((v1\_xboole\_0 \ X2) \wedge ((v1\_xboole\_0 \ X3) \wedge ((v1\_xboole\_0 \ X4) \wedge ((v1\_xboole\_0 \\ & \ X5) \wedge ((v1\_xboole\_0 \ X6) \wedge ((v1\_xboole\_0 \ X7) \wedge (k33\_gate\_1 \ X0 \ X1 \ X2 \\ & \ X3 \ X4 \ X5 \ X6 \ X7 \neq k1\_gate\_1 \ k1\_xboole\_0)))))))))) \wedge (\neg(v1\_xboole\_0 \\ & \ X0) \wedge ((v1\_xboole\_0 \ X1) \wedge ((v1\_xboole\_0 \ X2) \wedge ((v1\_xboole\_0 \ X3) \wedge \\ & ((v1\_xboole\_0 \ X4) \wedge ((v1\_xboole\_0 \ X5) \wedge ((v1\_xboole\_0 \ X6) \wedge (v1\_xboole\_0 \\ & \ X7)))))))))) \Rightarrow (k33\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \ X6 \ X7 = k1\_xboole\_0)) \end{aligned} \tag{3}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & \forall X6.\forall X7.(\neg v1\_xboole\_0 \ (k33\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \\ & \ X6 \ X7)) \Leftrightarrow ((v1\_xboole\_0 \ X0) \wedge ((v1\_xboole\_0 \ X1) \wedge ((v1\_xboole\_0 \ X2) \wedge \\ & ((v1\_xboole\_0 \ X3) \wedge ((v1\_xboole\_0 \ X4) \wedge ((v1\_xboole\_0 \ X5) \wedge ((v1\_xboole\_0 \\ & \ X6) \wedge (v1\_xboole\_0 \ X7)))))))))) \end{aligned}$$