

t38\_gate\_1  
(TMavyPVjti4rG14WWJodBJtn4xzactunqp2)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k32\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & \forall X6.\forall X7.((\neg(\neg v1\_xboole\_0 \ X0) \wedge (\neg v1\_xboole\_0 \ X1) \wedge \\ & ((\neg v1\_xboole\_0 \ X2) \wedge ((\neg v1\_xboole\_0 \ X3) \wedge ((\neg v1\_xboole\_0 \ X4) \wedge ( \\ & (\neg v1\_xboole\_0 \ X5) \wedge ((\neg v1\_xboole\_0 \ X6) \wedge (\neg v1\_xboole\_0 \ X7)))))) \Rightarrow \\ & (k32\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \ X6 \ X7 = k1\_gate\_1 \ k1\_xboole\_0)) \wedge (\neg(\neg \\ & v1\_xboole\_0 \ X0) \wedge (\neg v1\_xboole\_0 \ X1) \wedge ((\neg v1\_xboole\_0 \ X2) \wedge ((\neg v1\_xboole\_0 \\ & X3) \wedge ((\neg v1\_xboole\_0 \ X4) \wedge ((\neg v1\_xboole\_0 \ X5) \wedge ((\neg v1\_xboole\_0 \ X6) \wedge \\ & ((\neg v1\_xboole\_0 \ X7) \wedge (k32\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \ X6 \ X7 \neq k1\_xboole\_0)))))))))) \tag{3} \end{aligned}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & \forall X6.\forall X7.(\neg(\neg v1\_xboole\_0 \ (k32\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \\ & X5 \ X6 \ X7)) \wedge (\neg v1\_xboole\_0 \ X0) \wedge (\neg v1\_xboole\_0 \ X1) \wedge (\neg v1\_xboole\_0 \\ & X2) \wedge ((\neg v1\_xboole\_0 \ X3) \wedge ((\neg v1\_xboole\_0 \ X4) \wedge ((\neg v1\_xboole\_0 \ X5) \wedge \\ & ((\neg v1\_xboole\_0 \ X6) \wedge (\neg v1\_xboole\_0 \ X7)))))) \wedge (\neg(\neg(\neg v1\_xboole\_0 \\ & X0) \wedge ((\neg v1\_xboole\_0 \ X1) \wedge ((\neg v1\_xboole\_0 \ X2) \wedge ((\neg v1\_xboole\_0 \ X3) \wedge \\ & ((\neg v1\_xboole\_0 \ X4) \wedge ((\neg v1\_xboole\_0 \ X5) \wedge ((\neg v1\_xboole\_0 \ X6) \wedge ( \\ & \neg v1\_xboole\_0 \ X7)))))))))) \wedge (v1\_xboole\_0 \ (k32\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \\ & X5 \ X6 \ X7))) \end{aligned}$$