

## t37\_gate\_1

(TMa3t9B7YSDi99TphYXxhUKALparKY7Hqph)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k31\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & \forall X6.\forall X7.((\neg(v1\_xboole\_0 \ X0) \wedge ((v1\_xboole\_0 \ X1) \wedge \\ & ((v1\_xboole\_0 \ X2) \wedge ((v1\_xboole\_0 \ X3) \wedge ((v1\_xboole\_0 \ X4) \wedge ((v1\_xboole\_0 \\ & \ X5) \wedge ((v1\_xboole\_0 \ X6) \wedge (v1\_xboole\_0 \ X7)))))))))) \Rightarrow (k31\_gate\_1 \\ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \ X6 \ X7 = k1\_gate\_1 \ k1\_xboole\_0) \wedge (\neg(v1\_xboole\_0 \ X0) \wedge \\ & ((v1\_xboole\_0 \ X1) \wedge ((v1\_xboole\_0 \ X2) \wedge ((v1\_xboole\_0 \ X3) \wedge ((v1\_xboole\_0 \\ & \ X4) \wedge ((v1\_xboole\_0 \ X5) \wedge ((v1\_xboole\_0 \ X6) \wedge ((v1\_xboole\_0 \ X7) \wedge \\ & (k31\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \ X6 \ X7 \neq k1\_xboole\_0)))))))))) \end{aligned} \tag{3}$$

### Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & \forall X6.\forall X7.(\neg(\neg v1\_xboole\_0 \ (k31\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \\ & \ X5 \ X6 \ X7)) \wedge ((v1\_xboole\_0 \ X0) \wedge ((v1\_xboole\_0 \ X1) \wedge ((v1\_xboole\_0 \\ & \ X2) \wedge ((v1\_xboole\_0 \ X3) \wedge ((v1\_xboole\_0 \ X4) \wedge ((v1\_xboole\_0 \ X5) \wedge \\ & ((v1\_xboole\_0 \ X6) \wedge (v1\_xboole\_0 \ X7)))))))))) \wedge (\neg(\neg v1\_xboole\_0 \\ & \ X0) \wedge ((v1\_xboole\_0 \ X1) \wedge ((v1\_xboole\_0 \ X2) \wedge ((v1\_xboole\_0 \ X3) \wedge \\ & ((v1\_xboole\_0 \ X4) \wedge ((v1\_xboole\_0 \ X5) \wedge ((v1\_xboole\_0 \ X6) \wedge (v1\_xboole\_0 \\ & \ X7)))))))))) \wedge (v1\_xboole\_0 \ (k31\_gate\_1 \ X0 \ X1 \ X2 \ X3 \ X4 \ X5 \ X6 \ X7)) \end{aligned}$$