

t36\_gate\_1  
(TMVp1Z77R7irGboeyZA5Aoyzx6VxjE8gDSi)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k30\_gate\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_gate\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 (k1\_gate\_1 X0)) \Leftrightarrow (v1\_xboole\_0 X0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & \forall X6. \forall X7. (\neg(\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ & ((\neg v1\_xboole\_0 X2) \wedge ((\neg v1\_xboole\_0 X3) \wedge ((\neg v1\_xboole\_0 X4) \wedge ( \\ & (\neg v1\_xboole\_0 X5) \wedge ((\neg v1\_xboole\_0 X6) \wedge ((\neg v1\_xboole\_0 X7) \wedge (k30\_gate\_1 \\ & X0 X1 X2 X3 X4 X5 X6 X7 \neq k1\_gate\_1 k1\_xboole\_0)))))))) \wedge ((\neg(\neg v1\_xboole\_0 \\ & X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 X2) \wedge ((\neg v1\_xboole\_0 X3) \wedge \\ & ((\neg v1\_xboole\_0 X4) \wedge ((\neg v1\_xboole\_0 X5) \wedge ((\neg v1\_xboole\_0 X6) \wedge ( \\ & \neg v1\_xboole\_0 X7)))))))))) \Rightarrow (k30\_gate\_1 X0 X1 X2 X3 X4 X5 X6 X7 = k1\_xboole\_0)) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v1\_xboole\_0 X0) \Rightarrow (k1\_gate\_1 X0 = k1\_xboole\_0)) \wedge ((v1\_xboole\_0 X0) \Rightarrow (k1\_gate\_1 X0 = k1\_tarski k1\_xboole\_0)) \quad (3)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & \forall X6. \forall X7. (\neg v1\_xboole\_0 (k30\_gate\_1 X0 X1 X2 X3 X4 X5 \\ & X6 X7)) \Leftrightarrow ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 \\ & X2) \wedge ((\neg v1\_xboole\_0 X3) \wedge ((\neg v1\_xboole\_0 X4) \wedge ((\neg v1\_xboole\_0 X5) \wedge \\ & ((\neg v1\_xboole\_0 X6) \wedge (\neg v1\_xboole\_0 X7)))))))) \end{aligned}$$