

t3_gate_5 (TMGbQwoeYzjH83ixNwQfMfoe365FS7sasnq)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k11_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k38_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k37_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_gate_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k35_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k36_gate_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (v1_xboole_0 X0) \Rightarrow (v1_xboole_0 (k2_gate_1 X0 X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow (\neg v1_xboole_0 (k2_gate_1 X0 X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1_xboole_0 X0) \wedge (v1_xboole_0 X1)) \Rightarrow (v1_xboole_0 (k11_gate_1 X2 X0 X1)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1_xboole_0 X0) \wedge (v1_xboole_0 X1)) \Rightarrow (v1_xboole_0 (k11_gate_1 X0 X2 X1)) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1_xboole_0 X0) \wedge (v1_xboole_0 X1)) \Rightarrow (v1_xboole_0 (k11_gate_1 X0 X1 X2)) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow (\neg v1_xboole_0 (k11_gate_1 X2 X0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(\neg v1_xboole_0 X1))\Rightarrow(\neg v1_xboole_0 (k11_gate_1 X0 X2 X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(\neg v1_xboole_0 X1))\Rightarrow(\neg v1_xboole_0 (k11_gate_1 X0 X1 X2)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(\neg v1_xboole_0 X2)))\Rightarrow(\neg v1_xboole_0 (k10_gate_1 X0 X1 X2)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(v1_xboole_0 X2)))\Rightarrow(v1_xboole_0 (k10_gate_1 X2 X0 X1)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(v1_xboole_0 X2)))\Rightarrow(v1_xboole_0 (k10_gate_1 X0 X2 X1)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(v1_xboole_0 X2)))\Rightarrow(v1_xboole_0 (k10_gate_1 X0 X1 X2)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_xboole_0 X0)\wedge((v1_xboole_0 X1)\wedge(\neg v1_xboole_0 X2)))\Rightarrow(\neg v1_xboole_0 (k10_gate_1 X2 X0 X1)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_xboole_0 X0)\wedge((v1_xboole_0 X1)\wedge(\neg v1_xboole_0 X2)))\Rightarrow(\neg v1_xboole_0 (k10_gate_1 X0 X2 X1)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_xboole_0 X0)\wedge((v1_xboole_0 X1)\wedge(\neg v1_xboole_0 X2)))\Rightarrow(\neg v1_xboole_0 (k10_gate_1 X0 X1 X2)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_xboole_0 X0)\wedge((v1_xboole_0 X1)\wedge(v1_xboole_0 X2)))\Rightarrow(v1_xboole_0 (k10_gate_1 X0 X1 X2)) \quad (16)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k9_gate_5 \\ X0\ X1\ X2\ X3\ X4 = & k38_gate_1\ (k2_gate_1\ X1\ X3)\ (k2_gate_1\ X0\ X4)\ (k2_gate_1 \\ & X2\ X3)\ (k2_gate_1\ X1\ X4)\ k1_xboole_0\ (k2_gate_1\ X2\ X4)\ k1_xboole_0 \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k8_gate_5 \\ X0\ X1\ X2\ X3\ X4 = & k37_gate_1\ (k2_gate_1\ X1\ X3)\ (k2_gate_1\ X0\ X4)\ (k2_gate_1 \\ & X2\ X3)\ (k2_gate_1\ X1\ X4)\ k1_xboole_0\ (k2_gate_1\ X2\ X4)\ k1_xboole_0 \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k7_gate_5 \\ X0\ X1\ X2\ X3\ X4 = & k35_gate_1\ (k2_gate_1\ X1\ X3)\ (k2_gate_1\ X0\ X4)\ (k2_gate_1 \\ & X2\ X3)\ (k2_gate_1\ X1\ X4)\ k1_xboole_0 \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k6_gate_5 \\ X0\ X1\ X2\ X3\ X4 = & k10_gate_1\ (k2_gate_1\ X1\ X3)\ (k2_gate_1\ X0\ X4)\ k1_xboole_0 \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k5_gate_5 \\ X0\ X1\ X2\ X3\ X4 = & k2_gate_1\ X0\ X3 \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ \forall X6.k38_gate_1\ X0\ X1\ X2\ X3\ X4\ X5\ X6 = & k11_gate_1\ X4\ X5\ (k36_gate_1 \\ & X0\ X1\ X2\ X3\ X6) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ \forall X6.k37_gate_1\ X0\ X1\ X2\ X3\ X4\ X5\ X6 = & k10_gate_1\ X4\ X5\ (k36_gate_1 \\ & X0\ X1\ X2\ X3\ X6) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k36_gate_1 \\ X0\ X1\ X2\ X3\ X4 = & k11_gate_1\ X2\ X3\ (k11_gate_1\ X0\ X1\ X4) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.k35_gate_1 \\ X0\ X1\ X2\ X3\ X4 = & k10_gate_1\ X2\ X3\ (k11_gate_1\ X0\ X1\ X4) \end{aligned} \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & k13_gate_5\ X0\ X1\ X2\ X3\ X4\ X5 = k38_gate_1\ (k7_gate_5\ X0\ X1\ X2\ X3\ X4)\ (\\ & k2_gate_1\ X0\ X5)\ (k8_gate_5\ X0\ X1\ X2\ X3\ X4)\ (k2_gate_1\ X1\ X5)\ (k9_gate_5 \\ & X0\ X1\ X2\ X3\ X4)\ (k2_gate_1\ X2\ X5)\ k1_xboole_0 \end{aligned} \quad (27)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & k12_gate_5\ X0\ X1\ X2\ X3\ X4\ X5 = k37_gate_1\ (k7_gate_5\ X0\ X1\ X2\ X3\ X4)\ (\\ & k2_gate_1\ X0\ X5)\ (k8_gate_5\ X0\ X1\ X2\ X3\ X4)\ (k2_gate_1\ X1\ X5)\ (k9_gate_5 \\ & X0\ X1\ X2\ X3\ X4)\ (k2_gate_1\ X2\ X5)\ k1_xboole_0 \end{aligned} \quad (28)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & k11_gate_5\ X0\ X1\ X2\ X3\ X4\ X5 = k35_gate_1\ (k7_gate_5\ X0\ X1\ X2\ X3\ X4)\ (\\ & k2_gate_1\ X0\ X5)\ (k8_gate_5\ X0\ X1\ X2\ X3\ X4)\ (k2_gate_1\ X1\ X5)\ k1_xboole_0 \end{aligned} \quad (29)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & k10_gate_5\ X0\ X1\ X2\ X3\ X4\ X5 = k10_gate_1\ (k7_gate_5\ X0\ X1\ X2\ X3\ X4)\ (\\ & k2_gate_1\ X0\ X5)\ k1_xboole_0 \end{aligned} \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.k2_gate_1\ X0\ X1 = k2_gate_1\ X1\ X0 \quad (31)$$

