

t67_xboolean
(TMExFQp3MyabnG1wez22KkAGxmBK7gtG7Dw)

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Let $v1_xboolean : \iota \Rightarrow o$ be given. Let $k8_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboolean : \iota \Rightarrow \iota$ be given. Let $k4_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (\forall X2. \\ & (v1_xboolean X2) \Rightarrow (k4_xboolean X0 (k9_xboolean X1 X2) = k4_xboolean \\ & (k4_xboolean X0 (k3_xboolean X1)) (k3_xboolean X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (k3_xboolean (k3_xboolean X0) = X0) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (v1_xboolean (k9_xboolean X0 X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (v1_xboolean (k5_xboolean X0 X1)) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (v1_xboolean (k3_xboolean X0)) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (k8_xboolean X0 X1 = k3_xboolean (k4_xboolean X0 X1))) \quad (6)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (k5_xboolean X0 X1 = k3_xboolean (k4_xboolean (k3_xboolean X0) (k3_xboolean X1)))) \quad (7)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (k9_xboolean X0 X1 = k3_xboolean (k5_xboolean X0 X1))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (k9_xboolean X0 X1 = k9_xboolean X1 X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (k5_xboolean X0 X1 = k5_xboolean X1 X0) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (k4_xboolean X0 X1 = k4_xboolean X1 X0) \quad (11)$$

Theorem 1

$$\forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (\forall X2.(v1_xboolean X2) \Rightarrow (k8_xboolean X0 (k9_xboolean X1 X2) = k5_xboolean (k5_xboolean (k3_xboolean X0) X1) X2))))$$