

t74\_xboolean  
(TMKwrA3SvKVbT18CXZegui8JqSi3umSsvRP)

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Let  $v1\_xboolean : \iota \Rightarrow o$  be given. Let  $k3\_xboolean : \iota \Rightarrow \iota$  be given. Let  $k10\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k10\_xboolean X0 (k10\_xboolean X0 X1) = X1)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (k9\_xboolean X0 X0 = k3\_xboolean X0) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (k3\_xboolean (k3\_xboolean X0) = X0) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (k5\_xboolean X0 X0 = X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (k4\_xboolean X0 X0 = X0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (v1\_xboolean (k10\_xboolean X0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (v1\_xboolean (k9\_xboolean X0 X1)) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(v1\_xboolean\ (k3\_xboolean\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(k7\_xboolean\ X0\ X1 = k4\_xboolean\ (k6\_xboolean\ X0\ X1)\ (k6\_xboolean\ X1\ X0))) \quad (9)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(k6\_xboolean\ X0\ X1 = k5\_xboolean\ (k3\_xboolean\ X0)\ X1)) \quad (10)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(k5\_xboolean\ X0\ X1 = k3\_xboolean\ (k4\_xboolean\ (k3\_xboolean\ X0)\ (k3\_xboolean\ X1)))) \quad (11)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(k10\_xboolean\ X0\ X1 = k3\_xboolean\ (k7\_xboolean\ X0\ X1))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(k5\_xboolean\ X0\ X1 = k5\_xboolean\ X1\ X0) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(k10\_xboolean\ X0\ X1 = k10\_xboolean\ X1\ X0) \quad (14)$$

**Theorem 1**

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(k3\_xboolean\ (k10\_xboolean\ X0\ X1) = k10\_xboolean\ (k3\_xboolean\ X0)\ X1))$$