

t145\_xboolean  
(TMV8Ko6ubpTwZjkgfX6iEC3X21Uf5AvL8YrC)

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Let  $v1\_xboolean : \iota \Rightarrow o$  be given. Let  $k9\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboolean : \iota$  be given. Let  $k3\_xboolean : \iota \Rightarrow \iota$  be given. Let  $k4\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboolean : \iota$  be given. Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k6\_xboolean X0 (k9\_xboolean X0 X1) = k3\_xboolean X0)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k9\_xboolean X0 (k4\_xboolean X0 X1) = k3\_xboolean X0)) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (k9\_xboolean X0 X0 = k3\_xboolean X0) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (k3\_xboolean (k6\_xboolean X0 X0) = k1\_xboolean) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (k4\_xboolean X0 (k3\_xboolean X0) = k1\_xboolean) \quad (5)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow ((k3\_xboolean X0 = k2\_xboolean) \Rightarrow (k6\_xboolean X0 X1 = k2\_xboolean))) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k6\_xboolean (k6\_xboolean X0 (k6\_xboolean X0 X1)) (k6\_xboolean X0 X1) = k2\_xboolean)) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (k6\_xboolean X0 X0 = k2\_xboolean) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (v1\_xboolean (k6\_xboolean X0 X1)) \quad (9)$$

Assume the following.

$$v1\_xboolean k1\_xboolean \quad (10)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Leftrightarrow ((X0 = k1\_xboolean) \vee (X0 = k2\_xboolean)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (k9\_xboolean X0 X1 = k9\_xboolean X1 X0) \quad (12)$$

**Theorem 1**

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k9\_xboolean X0 (k6\_xboolean X0 X1) = k1\_xboolean))$$