

# t10\_xboolean (TMQEVnRccu- VAoyH5NqDxgBc2YJoP23Lh3WJ)

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Let  $v1\_xboolean : \iota \Rightarrow o$  be given. Let  $k5\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_0 : \iota$  be given. Let  $k2\_xboolean : \iota$  be given. Let  $k1\_xboolean : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k4\_xboolean X0 (k5\_xboolean X0 X1) = X0)) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_xboolean X0) \Rightarrow (\forall X1.(v1\_xboolean X1) \Rightarrow (k5\_xboolean X0 (k4\_xboolean X0 X1) = X0)) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k3\_xcmplx\_0 np\_1 X0 = X0) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k3\_xcmplx\_0 X0 k6\_numbers = k6\_numbers) \quad (5)$$

Assume the following.

$$v1\_xboole\_0 np\_0 \quad (6)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean X0) \wedge (v1\_xboolean X1)) \Rightarrow (v1\_xboolean (k5\_xboolean X0 X1)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(v1\_xboolean\ (k4\_xboolean\ X0\ X1)) \quad (9)$$

Assume the following.

$$v1\_xboolean\ k2\_xboolean \quad (10)$$

Assume the following.

$$v1\_xboolean\ k1\_xboolean \quad (11)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(k4\_xboolean\ X0\ X1 = k3\_xcmplx\_0\ X0\ X1)) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Leftrightarrow((X0 = k1\_xboolean)\vee(X0 = k2\_xboolean)) \quad (13)$$

Assume the following.

$$k2\_xboolean = np\_1 \quad (14)$$

Assume the following.

$$k1\_xboolean = k6\_numbers \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(k5\_xboolean\ X0\ X1 = k5\_xboolean\ X1\ X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(k4\_xboolean\ X0\ X1 = k4\_xboolean\ X1\ X0) \quad (17)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(v1\_xcmplx\_0\ X0) \quad (18)$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(v7\_ordinal1\ X0) \quad (19)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(\forall X2. \\ &(v1\_xboolean\ X2)\Rightarrow(k5\_xboolean\ (k5\_xboolean\ (k4\_xboolean\ X0\ X1) \\ &(k4\_xboolean\ X1\ X2))\ (k4\_xboolean\ X2\ X0) = k4\_xboolean\ (k4\_xboolean\ \\ &(k5\_xboolean\ X0\ X1)\ (k5\_xboolean\ X1\ X2))\ (k5\_xboolean\ X2\ X0)))) \end{aligned}$$