t40_xboolean (TMWdk39WmnhWsHuQzy5uMmGbXxwcHVr494s)

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

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (\forall X1.(v1\_xboolean\ X1) \Rightarrow (\forall X2.\ (v1\_xboolean\ X2) \Rightarrow (k4\_xboolean\ X0\ (k5\_xboolean\ X1\ X2) = k5\_xboolean\ (k4\_xboolean\ X0\ X1)\ (k4\_xboolean\ X0\ X2)))) \tag{1}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (k3\_xboolean\ (k3\_xboolean\ X0) = X0) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0) \wedge (v1\_xboolean\ X1)) \Rightarrow (v1\_xboolean\ (k4\_xboolean\ X0\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (v1\_xboolean\ (k3\_xboolean\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (\forall X1.(v1\_xboolean\ X1) \Rightarrow (k5\_xboolean\ X0\ X1 = k3\_xboolean\ (k4\_xboolean\ (k3\_xboolean\ X0)\ (k3\_xboolean\ X1)))) \tag{5}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (\forall X1.(v1\_xboolean\ X1) \Rightarrow (k9\_xboolean\ X0\ X1 = k3\_xboolean\ (k5\_xboolean\ X0\ X1))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0) \wedge (v1\_xboolean\ X1)) \Rightarrow (k4\_xboolean\ X0\ X1 = k4\_xboolean\ X1\ X0) \tag{7}$$

Theorem 1

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(\forall X1.(v1\_xboolean\ X1)\Rightarrow(\forall X2.\ (v1\_xboolean\ X2)\Rightarrow(k9\_xboolean\ X0\ (k4\_xboolean\ X1\ X2) = k5\_xboolean\ (k3\_xboolean\ (k5\_xboolean\ X0\ X1))\ (k3\_xboolean\ (k5\_xboolean\ X0\ X2)))))$$