t102_xboolean (TMM1y1JoeUftKnjaCq9EgmxEMWZ9dZ8hVnQ)

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Let $v1\_xboolean : \iota \Rightarrow o$ 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. Let $k5\_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Assume the following.

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

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (\forall X1.(v1\_xboolean\ X1) \Rightarrow (k5\_xboolean\ X0\ (k4\_xboolean\ (k3\_xboolean\ X0)\ X1) = k5\_xboolean\ X0\ X1)) \tag{2}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (\forall X1.(v1\_xboolean\ X1) \Rightarrow ((k4\_xboolean\ X0\ X1 = k2\_xboolean) \Rightarrow ((X0 = k2\_xboolean) \wedge (X1 = k2\_xboolean)))) \tag{3}$$

Assume the following.

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

Assume the following.

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

Assume the following.

$$v1\_xboolean\ k2\_xboolean \tag{6}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (v1\_xboolean\ (k3\_xboolean\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.(v1\_xboolean\ X0) \Rightarrow (\forall X1.(v1\_xboolean\ X1) \Rightarrow (k5\_xboolean\ X0\ X1 = k3\_xboolean\ (k4\_xboolean\ (k3\_xboolean\ X0)\ (k3\_xboolean\ X1)))) \tag{8}$$

Assume the following.

$$k2\_xboolean = np\_\_1 \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(k5\_xboolean\ X0\ X1 = k5\_xboolean\ X1\ X0) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xboolean\ X0)\wedge(v1\_xboolean\ X1))\Rightarrow(k4\_xboolean\ X0\ X1 = k4\_xboolean\ X1\ X0) \tag{11}$$

Theorem 1

$$\forall X0.(v1\_xboolean\ X0)\Rightarrow(k3\_xboolean\ (k4\_xboolean\ X0\ (k3\_xboolean\ X0)) = k2\_xboolean)$$