

t24_xboolean (TMFE3LPXL7oyFbtjAGyQn4Tki1xupDvntwe)

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Let $v1_xboolean : \iota \Rightarrow o$ be given. Let $k4_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboolean : \iota \Rightarrow \iota$ be given. Let $k7_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (\forall X2. \\ & (v1_xboolean X2) \Rightarrow (k4_xboolean X0 (k7_xboolean X1 X2) = k4_xboolean \\ & (k4_xboolean X0 (k5_xboolean (k3_xboolean X1) X2)) (k5_xboolean \\ & (k3_xboolean X2) X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (k4_xboolean X0 (k5_xboolean (k3_xboolean X0) X1) = k4_xboolean X0 X1)) \tag{2}$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (k3_xboolean (k3_xboolean X0) = X0) \tag{3}$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (v1_xboolean (k3_xboolean X0)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (k7_xboolean X0 X1 = k7_xboolean X1 X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (k5_xboolean X0 X1 = k5_xboolean X1 X0) \tag{6}$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (k4_xboolean \\ & (k3_xboolean X0) (k7_xboolean X0 X1) = k4_xboolean (k4_xboolean \\ & (k3_xboolean X0) (k3_xboolean X1)) (k5_xboolean (k3_xboolean \\ & X0) X1))) \end{aligned}$$