

t107_xboolean
(TMKrq7FNsDgE9uERSHxYDipfHFLet8KJXLf)

October 27, 2020

Let $v1_xboolean : \iota \Rightarrow o$ be given. Let $k6_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboolean : \iota$ be given. Let $k3_xboolean : \iota \Rightarrow \iota$ be given. Let $k5_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (\forall X2. \\ & (v1_xboolean X2) \Rightarrow (k6_xboolean (k6_xboolean X0 X1) (k6_xboolean \\ & (k6_xboolean X1 X2) (k6_xboolean X0 X2)) = k2_xboolean))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (k3_xboolean (k3_xboolean X0) = X0) \quad (2)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (v1_xboolean (k3_xboolean X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (k6_xboolean \\ & X0 X1 = k5_xboolean (k3_xboolean X0) X1)) \end{aligned} \quad (4)$$

Assume the following.

$$k2_xboolean = np_1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (\\ & k5_xboolean X0 X1 = k5_xboolean X1 X0) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xboolean X0) \Rightarrow (\forall X1.(v1_xboolean X1) \Rightarrow (\forall X2. \\ & (v1_xboolean X2) \Rightarrow (k6_xboolean (k6_xboolean X0 X1) (k6_xboolean \\ & (k6_xboolean X2 X0) (k6_xboolean X2 X1)) = k2_xboolean))) \end{aligned}$$