

t181\_xxreal\_1

(TMYy6hipAMh616mBpw8SWQ8ppfX6mQGuP1i)

October 27, 2020

Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xxreal\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xxreal\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k2\_xxreal\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow ((r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X2)) \Rightarrow \\ & (r1\_xxreal\_0 X0 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (( \\ & r1\_xxreal\_0 X0 X1) \Rightarrow (k4\_xxreal\_1 X1 X0 = k1\_xboole\_0))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.k2\_xboole\_0 X0 k1\_xboole\_0 = X0 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow (\forall X3.(v1\_xxreal\_0 X3) \Rightarrow (((r1\_xxreal\_0 \\ & X0 X1) \wedge ((r1\_xxreal\_0 X2 X3) \wedge (r1\_xxreal\_0 X1 X2))) \Rightarrow (k2\_xboole\_0 \\ & (k1\_xxreal\_1 X0 X2) (k1\_xxreal\_1 X1 X3) = k1\_xxreal\_1 X0 X3)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow ((r1\_xxreal\_0 X2 X1) \vee ( \\ & k2\_xboole\_0 (k1\_xxreal\_1 X0 X1) (k4\_xxreal\_1 X1 X2) = k2\_xxreal\_1 \\ & X0 X2)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X2)) \Rightarrow \\ & (k2\_xboole\_0 (k2\_xxreal\_1 X0 X1) (k1\_xxreal\_1 X1 X2) = k1\_xxreal\_1 \\ & X0 X2)))) \end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \tag{7}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal\_0 X2) \Rightarrow (\forall X3.(v1\_xxreal\_0 X3) \Rightarrow (((r1\_xxreal\_0 \\ & X0 X1) \wedge ((r1\_xxreal\_0 X1 X2) \wedge (r1\_xxreal\_0 X2 X3))) \Rightarrow (k2\_xboole\_0 \\ & (k2\_xboole\_0 (k1\_xxreal\_1 X0 X1) (k4\_xxreal\_1 X1 X2)) (k1\_xxreal\_1 \\ & X2 X3) = k1\_xxreal\_1 X0 X3)))))) \end{aligned}$$