

t152_xxreal_1

(TMKKf4wsoBsysMYnMu8cHBRV7g8yahHpD1R)

October 27, 2020

Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (\forall X3.(v1_xxreal_0 X3) \Rightarrow (\neg(\neg r1_xxreal_0 \\ & X1 X0) \wedge ((\neg r1_xxreal_0 X2 X0) \wedge (r1_tarski (k3_xxreal_1 X0 X2) (k1_xxreal_1 \\ & X1 X3))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow ((X0 \in k2_xxreal_1 X1 X2) \Leftrightarrow ((r1_xxreal_0 X1 X0) \wedge \\ & (\neg r1_xxreal_0 X2 X0)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (r1_tarski \\ & (k3_xxreal_1 X0 X1) (k1_xxreal_1 X0 X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow ((X0 \in k1_xxreal_1 X1 X2) \Leftrightarrow ((r1_xxreal_0 X1 X0) \wedge \\ & (r1_xxreal_0 X0 X2)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k3_xboole_0 (k3_xboole_0 X0 \\ & X1) X2 = k3_xboole_0 X0 (k3_xboole_0 X1 X2) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (\forall X3.(v1_xxreal_0 X3) \Rightarrow (((r1_xxreal_0 \\ & X1 X0) \wedge (r1_xxreal_0 X3 X2)) \Rightarrow (k3_xboole_0 (k3_xxreal_1 X0 X2) (\\ & k1_xxreal_1 X1 X3) = k3_xxreal_1 X0 X3)))))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (\forall X3.(v1_xxreal_0 X3) \Rightarrow ((r1_xxreal_0 \\ & X2 X3) \Rightarrow ((r1_xxreal_0 X1 X0) \vee (k3_xboole_0 (k3_xxreal_1 X0 X2) (\\ & k1_xxreal_1 X1 X3) = k1_xxreal_1 X1 X2)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (\forall X3.(v1_xxreal_0 X3) \Rightarrow ((r1_xxreal_0 \\ & X1 X0) \Rightarrow ((r1_xxreal_0 X2 X3) \vee (k3_xboole_0 (k2_xxreal_1 X0 X2) (\\ & k1_xxreal_1 X1 X3) = k1_xxreal_1 X0 X3)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2.(v1_xxreal_0 \\ & X2) \Rightarrow ((X0 \in k2_xxreal_1 X1 X2) \Rightarrow ((X0 \in k1_xxreal_1 X1 X2) \wedge (X0 \neq X2)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (\forall X3.(v1_xxreal_0 X3) \Rightarrow (\neg(\neg r1_xxreal_0 \\ & X1 X0) \wedge (\neg r1_xxreal_0 X3 X2) \wedge (k3_xboole_0 (k3_xxreal_1 X0 X2) \\ & (k2_xxreal_1 X1 X3) \neq k1_xxreal_1 X1 X2)))))) \end{aligned}$$