

t2_xxreal_0
(TMF6RFyjVqXPieVibV7RcM6XALEebeWX8zo)

October 27, 2020

Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_arytm_2 : \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k11_arytm_3 : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_arytm_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k1_xxreal_0 : \iota$ be given. Let $k2_xxreal_0 : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$r1_xboole_0 \ k2_arytm_2 \ (k2_zfmisc_1 \ (k1_tarski \ k11_arytm_3) \ k2_arytm_2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (\neg(\neg r1_xboole_0 \ X0 \ X1) \wedge (\forall X2. \neg(X2 \in X0) \wedge (X2 \in X1))) \wedge (\neg(\exists X2. (X2 \in X0) \wedge (X2 \in X1)) \wedge (r1_xboole_0 \ X0 \ X1)) \quad (2)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k2_arytm_2) \Rightarrow (\forall X1. (m1_subset_1 \ X1 \ k2_arytm_2) \Rightarrow (\forall X2. (m1_subset_1 \ X2 \ k2_arytm_2) \Rightarrow (((r1_arytm_2 \ X0 \ X1) \wedge (r1_arytm_2 \ X1 \ X2)) \Rightarrow (r1_arytm_2 \ X0 \ X2)))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (k4_tarski \ X0 \ X1 = k4_tarski \ X2 \ X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3)) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 \ X0) \wedge (v1_xxreal_0 \ X1)) \Rightarrow (r1_xxreal_0 \ X0 \ X0) \quad (5)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (6)$$

Assume the following.

$$k11_arytm_3 = k1_xboole_0 \quad (7)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow ((r1_xxreal_0 k1_xxreal_0 X0) \Rightarrow (X0 = k1_xxreal_0)) \quad (8)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow ((r1_xxreal_0 X0 k2_xxreal_0) \Rightarrow (X0 = k2_xxreal_0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((\\ & ((X0 \in k2_arytm_2) \wedge (X1 \in k2_arytm_2)) \Rightarrow ((r1_xxreal_0 X0 X1) \Leftrightarrow (\exists X2. \\ & (m1_subset_1 X2 k2_arytm_2) \wedge (\exists X3.(m1_subset_1 X3 k2_arytm_2) \wedge \\ & ((X0 = X2) \wedge ((X1 = X3) \wedge (r1_arytm_2 X2 X3)))))) \wedge (((X0 \in k2_zfmisc_1 \\ & (k1_tarski k6_numbers) k2_arytm_2) \wedge (X1 \in k2_zfmisc_1 (k1_tarski \\ & k6_numbers) k2_arytm_2)) \Rightarrow ((r1_xxreal_0 X0 X1) \Leftrightarrow (\exists X2.(\\ & m1_subset_1 X2 k2_arytm_2) \wedge (\exists X3.(m1_subset_1 X3 k2_arytm_2) \wedge \\ & ((X0 = k4_tarski k6_numbers X2) \wedge ((X1 = k4_tarski k6_numbers X3) \wedge \\ & (r1_arytm_2 X3 X2)))))) \wedge (\neg(\neg(X0 \in k2_arytm_2) \wedge (X1 \in k2_arytm_2)) \wedge \\ & (\neg(\neg(X0 \in k2_zfmisc_1 (k1_tarski k6_numbers) k2_arytm_2) \wedge (X1 \in \\ & k2_zfmisc_1 (k1_tarski k6_numbers) k2_arytm_2)) \wedge (\neg(r1_xxreal_0 \\ & X0 X1) \Leftrightarrow (\neg(\neg(X1 \in k2_arytm_2) \wedge (X0 \in k2_zfmisc_1 (k1_tarski k6_numbers) \\ & k2_arytm_2)) \wedge ((X0 \neq k2_xxreal_0) \wedge (X1 \neq k1_xxreal_0)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$k1_xboole_0 = the (\lambda X0 : \iota.v1_xboole_0 X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0) \wedge (v1_xxreal_0 X1)) \Rightarrow (r1_xxreal_0 X0 X1) \vee (r1_xxreal_0 X1 X0) \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (((r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X2)) \Rightarrow \\ & (r1_xxreal_0 X0 X2)))) \end{aligned}$$