

t11_binari_4 (TM-
bVP7hNubj1aFWbmsA8yWJZYnE5DBwurvK)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k23_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k21_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_series_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $np_1 : \iota$ be given. Let $k6_binarith : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_binarith : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binari_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v3_card_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_margrel1 : \iota$ be given. Let $r1_binarith : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k8_binarith : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_margrel1 : \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k1_xboolean : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v6_membered : \iota \Rightarrow o$ be given. Let $v1_xboolean : \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (\forall X2. \\ & (v7_ordinal1 X2) \Rightarrow ((r1_xxreal_0 (k23_binop_2 X0 X1) (k21_binop_2 \\ & X2 np_1)) \Rightarrow ((\neg r1_xxreal_0 X2 X0) \wedge (\neg r1_xxreal_0 X2 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v7_ordinal1 X0)) \Rightarrow (\forall X1. \\ & (v7_ordinal1 X1) \Rightarrow ((\neg r1_xxreal_0 (k5_series_1 np_2 X0) X1) \Rightarrow (\\ & k6_binarith X0 (k1_binari_3 X0 X1) = X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v7_ordinal1 X0)) \Rightarrow (\forall X1. \\ & ((v3_card_1 X1 X0) \wedge (m2_finseq_1 X1 k6_margrel1)) \Rightarrow (\forall X2. \\ & ((v3_card_1 X2 X0) \wedge (m2_finseq_1 X2 k6_margrel1)) \Rightarrow ((r1_binarith \\ & X0 X1 X2) \Rightarrow (k6_binarith X0 (k7_binarith X0 X1 X2) = k2_nat_1 (k6_binarith \\ & X0 X1) (k6_binarith X0 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k2_xcmplx_0 X0 k6_numbers = X0) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v7_ordinal1 X0)) \Rightarrow (\forall X1. \\ & (v7_ordinal1 X1) \Rightarrow (\forall X2.(v7_ordinal1 X2) \Rightarrow ((r1_xxreal_0 \\ & (k23_binop_2 X1 X2) (k21_binop_2 (k5_series_1 np_2 X0) np_1)) \Rightarrow \\ & (k8_binarith X0 (k1_binari_3 X0 X1) (k1_binari_3 X0 X2) = k7_margrel1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 np_2) \wedge (m2_subset_1 np_2 k1_numbers k5_numbers)) \wedge \\ & ((m1_subset_1 np_2 k5_numbers) \wedge (m1_subset_1 np_2 k1_numbers)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (8)$$

Assume the following.

$$k7_margrel1 = k1_xboolean \quad (9)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (10)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k5_numbers) \wedge (v7_ordinal1 X1)) \Rightarrow (k2_nat_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0) \wedge (v7_ordinal1 X1)) \Rightarrow (k23_binop_2 X0 X1 = k2_xcmplx_0 X0 X1) \quad (13)$$

Assume the following.

$$\neg v1_finset_1 \ k4_ordinal1 \quad (14)$$

Assume the following.

$$v6_membered \ k4_ordinal1 \quad (15)$$

Assume the following.

$$v1_xboolean \ k1_xboolean \quad (16)$$

Assume the following.

$$\neg v1_xboole_0 \ k1_numbers \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 \ X0)\wedge(v7_ordinal1 \ X1))\Rightarrow(\quad (18)$$

$$m2_subset_1 \ (k5_series_1 \ X0 \ X1) \ k1_numbers \ k5_numbers)$$

Assume the following.

$$m1_subset_1 \ k5_numbers \ (k1_zfmisc_1 \ k1_numbers) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 \ X0)\wedge(v7_ordinal1 \ X1))\Rightarrow(\quad (20)$$

$$m2_subset_1 \ (k23_binop_2 \ X0 \ X1) \ k1_numbers \ k5_numbers)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 \ X0)\wedge(v7_ordinal1 \ X1))\Rightarrow(\quad (21)$$

$$(v3_card_1 \ (k1_binari_3 \ X0 \ X1) \ X0)\wedge(m2_finseq_1 \ (k1_binari_3$$

$$X0 \ X1) \ k6_margrel1))$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 \ X0)\wedge(v7_ordinal1 \ X0))\Rightarrow(\forall X1. \quad (22)$$

$$((v3_card_1 \ X1 \ X0)\wedge(m2_finseq_1 \ X1 \ k6_margrel1))\Rightarrow(\forall X2.$$

$$((v3_card_1 \ X2 \ X0)\wedge(m2_finseq_1 \ X2 \ k6_margrel1))\Rightarrow(((r1_binarith$$

$$X0 \ X1 \ X2)\Leftrightarrow(k8_binarith \ X0 \ X1 \ X2 = k7_margrel1))))$$

Assume the following.

$$k1_xboolean = k6_numbers \quad (23)$$

Assume the following.

$$\forall X0.(v7_ordinal1 \ X0)\Rightarrow(v1_finset_1 \ X0) \quad (24)$$

Assume the following.

$$\forall X0.(v1_xreal_0 \ X0)\Rightarrow(v1_xcmplx_0 \ X0) \quad (25)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(v1_xreal_0\ X0) \quad (26)$$

Assume the following.

$$\forall X0.(v1_xboolean\ X0)\Rightarrow(v7_ordinal1\ X0) \quad (27)$$

Assume the following.

$$\forall X0.(v6_membered\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ X0)\Rightarrow(v7_ordinal1\ X1)) \quad (28)$$

Theorem 1

$$\begin{aligned} &\forall X0.((\neg v1_xboole_0\ X0)\wedge(v7_ordinal1\ X0))\Rightarrow(\forall X1. \\ &(v7_ordinal1\ X1)\Rightarrow(\forall X2.(v7_ordinal1\ X2)\Rightarrow((r1_xxreal_0 \\ &(k23_binop_2\ X1\ X2)\ (k21_binop_2\ (k5_series_1\ np_2\ X0)\ np_1)))\Rightarrow \\ &(k6_binarith\ X0\ (k7_binarith\ X0\ (k1_binari_3\ X0\ X1)\ (k1_binari_3 \\ &\ X0\ X2)) = k23_binop_2\ X1\ X2)))) \end{aligned}$$