

t2_cc0sp2 (TMMe-
MYE5pPQGgqCWErkmnzwwjSxu8t7Fmuov)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_numbers : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_cc0sp2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_cfdiff_1 : \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k8_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_zfmisc_1 : \iota \Rightarrow o$ be given. Let $k3_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_cfdiff_1 : \iota \Rightarrow o$ be given. Let $v1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow (k8_relat_1 X2 (k6_subset_1 X0 X1) = k6_subset_1 (k8_relat_1 X2 X0) (k8_relat_1 X2 X1)) \quad (2)$$

Assume the following.

$$\forall X0.k4_xboole_0 k1_xboole_0 X0 = k1_xboole_0 \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow (((X1 = k1_xboole_0) \Rightarrow (X0 = k1_xboole_0)) \Rightarrow (k8_relset_1 X0 X1 X2 X1 = X0)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1))\Leftrightarrow(r1_tarski X0 X1) \quad (5)$$

Assume the following.

$$\forall X0.k4_xboole_0 X0 k1_xboole_0 = X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.r1_tarski X0 X0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(k8_relset_1 X0 X1 X2 X3 = k8_relat_1 X2 X3) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(k7_subset_1 X0 X1 X2 = k4_xboole_0 X1 X2) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k6_subset_1 X0 X1 = k4_xboole_0 X0 X1 \quad (10)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\exists X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\wedge((\neg v1_xboole_0 X1)\wedge(v1_zfmisc_1 X1))) \quad (11)$$

Assume the following.

$$\forall X0.\exists X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\wedge(v1_xboole_0 X1) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(k3_subset_1 X0 (k3_subset_1 X0 X1) = X1) \quad (13)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 (k2_struct_0 X0)) \quad (14)$$

Assume the following.

$$\neg v1_xboole_0 k2_numbers \quad (15)$$

Assume the following.

$$v1_xboole_0 \ k1_xboole_0 \quad (16)$$

Assume the following.

$$\forall X0.(l1_pre_topc \ X0) \Rightarrow (l1_struct_0 \ X0) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ X1))) \Rightarrow (m1_subset_1 \ (k8_relset_1 \ X0 \ X1 \ X2 \ X3) \ (k1_zfmisc_1 \ X0)) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 \ X1 \ (k1_zfmisc_1 \ X0)) \Rightarrow (m1_subset_1 \ (k7_subset_1 \ X0 \ X1 \ X2) \ (k1_zfmisc_1 \ X0)) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.m1_subset_1 \ (k6_subset_1 \ X0 \ X1) \ (k1_zfmisc_1 \ X0) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 \ X1 \ (k1_zfmisc_1 \ X0)) \Rightarrow (m1_subset_1 \ (k3_subset_1 \ X0 \ X1) \ (k1_zfmisc_1 \ X0)) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 \ X1 \ (k1_zfmisc_1 \ X0)) \Rightarrow (k3_subset_1 \ X0 \ X1 = k4_xboole_0 \ X0 \ X1) \quad (22)$$

Assume the following.

$$\forall X0.(l1_struct_0 \ X0) \Rightarrow (k2_struct_0 \ X0 = u1_struct_0 \ X0) \quad (23)$$

Assume the following.

$$\forall X0.(l1_pre_topc \ X0) \Rightarrow (\forall X1.(m1_subset_1 \ X1 \ (k1_zfmisc_1 \ (u1_struct_0 \ X0))) \Rightarrow ((v4_pre_topc \ X1 \ X0) \Leftrightarrow (v3_pre_topc \ (k7_subset_1 \ (u1_struct_0 \ X0) \ (k2_struct_0 \ X0) \ X1) \ X0))) \quad (24)$$

Assume the following.

$$\forall X0.(l1_pre_topc \ X0) \Rightarrow (\forall X1.((v1_funct_1 \ X1) \wedge ((v1_funct_2 \ X1 \ (u1_struct_0 \ X0) \ k2_numbers) \wedge (m1_subset_1 \ X1 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (u1_struct_0 \ X0) \ k2_numbers)))))) \Rightarrow ((v1_cc0sp2 \ X1 \ X0) \Leftrightarrow (\forall X2.(m1_subset_1 \ X2 \ (k1_zfmisc_1 \ k2_numbers)) \Rightarrow (v5_cdfdiff_1 \ X2) \Rightarrow (v4_pre_topc \ (k8_relset_1 \ (u1_struct_0 \ X0) \ k2_numbers \ X1 \ X2) \ X0)))))) \quad (25)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 (k1_zfmisc_1 k2_numbers)) \Rightarrow ((v6_cfdiff_1 X0) \Leftrightarrow (v5_cfdiff_1 (k3_subset_1 k2_numbers X0))) \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge (\neg v1_xboole_0 X1)) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow \\ & (((v1_funct_1 X2) \wedge (v1_funct_2 X2 X0 X1)) \Rightarrow ((v1_funct_1 X2) \wedge ((\neg v1_xboole_0 X2) \wedge (v1_funct_2 X2 X0 X1))))) \end{aligned} \quad (27)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (\neg v1_subset_1 X1 X0)) \quad (28)$$

Assume the following.

$$\forall X0.\forall X1.(v1_xboole_0 X0) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))) \Rightarrow (v1_xboole_0 X2)) \quad (29)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow ((\neg v1_subset_1 X1 X0) \Rightarrow (\neg v1_xboole_0 X1))) \quad (30)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (31)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (32)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc X0))) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (u1_struct_0 X0) k2_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) k2_numbers)))))) \Rightarrow ((v1_cc0sp2 X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 k2_numbers)) \Rightarrow ((v6_cfdiff_1 X2) \Rightarrow (v3_pre_topc (k8_relset_1 (u1_struct_0 X0) k2_numbers X1 X2) X0)))))) \end{aligned}$$