

t74_funct_3 (TMHgL- hGZBz8vBS4jUzNDWr3uhNTHnuDXRgR)

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Let $v1_funct.1 : \iota \Rightarrow o$ be given. Let $v1_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k15_funct.3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_xboole.0 : \iota$ be given. Let $v1_xboole.0 : \iota \Rightarrow o$ be given. Let $v1_relat.1 : \iota \Rightarrow o$ be given. Let $k10_xtuple.0 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple.0 : \iota \Rightarrow \iota$ be given. Let $v4_relat.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_zfmisc.1 : \iota \Rightarrow o$ be given. Let $k1_binop.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_relat.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((r1_tarski X0 X1) \wedge \\ & (r1_tarski X2 X3)) \Rightarrow (r1_tarski (k2_zfmisc.1 X0 X2) (k2_zfmisc.1 \\ & X1 X3)) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (k2_zfmisc.1 X0 X1 = k1_xboole.0) \Leftrightarrow ((X0 = k1_xboole.0) \vee (X1 = k1_xboole.0)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole.0 X1) \quad (3)$$

Assume the following.

$$\forall X0. (v1_xboole.0 X0) \Rightarrow (X0 = k1_xboole.0) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat.1 X0) \wedge (v1_funct.1 X0)) \Rightarrow (\forall X1. ((\\ & v1_relat.1 X1) \wedge (v1_funct.1 X1)) \Rightarrow (k10_xtuple.0 (k15_funct.3 \\ & X0 X1) = k2_zfmisc.1 (k10_xtuple.0 X0) (k10_xtuple.0 X1))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (v1_relat.1 X2) \Rightarrow (((r1_tarski \\ & (k9_xtuple.0 X2) X0) \wedge (r1_tarski (k10_xtuple.0 X2) X1)) \Rightarrow (m1_subset.1 \\ & X2 (k1_zfmisc.1 (k2_zfmisc.1 X0 X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0) \Rightarrow ((k9_xtuple_0 X0 = k1_xboole_0) \Leftrightarrow (k10_xtuple_0 X0 = k1_xboole_0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (8)$$

Assume the following.

$$(k9_xtuple_0 k1_xboole_0 = k1_xboole_0) \wedge (k10_xtuple_0 k1_xboole_0 = k1_xboole_0) \quad (9)$$

Assume the following.

$$\forall X0.r1_tarski k1_xboole_0 X0 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((r1_tarski (k10_xtuple_0 X1) X0) \Rightarrow ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k9_xtuple_0 X1) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k9_xtuple_0 X1) X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (12)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\exists X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge ((\neg v1_xboole_0 X1) \wedge (v1_zfmisc_1 X1))) \quad (13)$$

Assume the following.

$$\forall X0.\exists X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (v1_xboole_0 X1) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_relat_1 X0)) \Rightarrow (\neg v1_xboole_0 (k9_xtuple_0 X0)) \quad (15)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (16)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v1_xboole_0 (k10_xtuple_0 X0)) \quad (17)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v1_xboole_0 (k9_xtuple_0 X0)) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \wedge ((v1_relat_1 X1) \wedge (v1_funct_1 X1))) \Rightarrow ((v1_relat_1 (k15_funct_3 X0 X1)) \wedge (v1_funct_1 (k15_funct_3 X0 X1))) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 X2)) \Rightarrow ((X2 = k15_funct_3 X0 X1) \Leftrightarrow ((k9_xtuple_0 X2 = k2_zfmisc_1 (k9_xtuple_0 X0) (k9_xtuple_0 X1)) \wedge (\forall X3.\forall X4.((X3 \in k9_xtuple_0 X0) \wedge (X4 \in k9_xtuple_0 X1)) \Rightarrow (k1_binop_1 X2 X3 X4 = k4_tarski (k1_funct_1 X0 X3) (k1_funct_1 X1 X4))))))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (((X1 \neq k1_xboole_0) \Rightarrow ((v1_funct_2 X2 X0 X1) \Leftrightarrow (X0 = k1_relset_1 X0 X2))) \wedge ((X1 = k1_xboole_0) \Rightarrow ((v1_funct_2 X2 X0 X1) \Leftrightarrow (X2 = k1_xboole_0)))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1) \Rightarrow ((v5_relat_1 X1 X0) \Leftrightarrow (r1_tarski (k10_xtuple_0 X1) X0)) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.(v1_xboole_0 X0) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_xboole_0 X2)) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (24)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \quad (26)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v1_relat_1 X0) \quad (27)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v1_funct_1 X0) \quad (28)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v1_funct_1 \\ & X4) \wedge ((v1_funct_2 X4 X0 X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 X5 X2 X3) \wedge \\ & (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 X2 X3)))))) \Rightarrow ((v1_funct_1 \\ & (k15_funct_3 X4 X5)) \wedge ((v1_funct_2 (k15_funct_3 X4 X5) (k2_zfmisc_1 \\ & X0 X2) (k2_zfmisc_1 X1 X3)) \wedge (m1_subset_1 (k15_funct_3 X4 X5) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X2) (k2_zfmisc_1 X1 X3))))))) \end{aligned}$$