

t24_hilbert3

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Let $k1_xboole_0 : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2_pralg_2 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_funct_6 : \iota \Rightarrow \iota$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $r1_tarSKI : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_card_3 : \iota \Rightarrow \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v4_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funcop_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tarSKI : \iota \Rightarrow \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (\neg (X2 = k1_xboole_0) \wedge ((X1 \neq k1_xboole_0) \wedge \\ & (X0 \neq k1_xboole_0))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 (k1_funct_2 X1 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k1_funct_2 X1 X2)))))) \Rightarrow (k2_funct_6 X3 = k7_funcop_1 X0 X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (v1_relat_1 X2) \Rightarrow (((r1_tarSKI \\ & (k9_xtuple_0 X2) X0) \wedge (r1_tarSKI (k10_xtuple_0 X2) X1)) \Rightarrow (m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarSKI X0 X1) \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg(X2 = k1_xboole_0)\wedge((X1\neq k1_xboole_0)\wedge \\ & (X0\neq k1_xboole_0)))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 X0 (k1_funct_2 X1 X2))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k1_funct_2 X1 X2))))))\Rightarrow(r1_tarski (k10_xtuple_0 (k2_pralg_2 \\ & X3)) (k1_funct_2 X0 X2))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg(X2 = k1_xboole_0)\wedge((X1\neq k1_xboole_0)\wedge \\ & (X0\neq k1_xboole_0)))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 X0 (k1_funct_2 X1 X2))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k1_funct_2 X1 X2))))))\Rightarrow(k9_xtuple_0 (k2_pralg_2 X3) = k1_funct_2 \\ & X0 X1)) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.k1_funct_2 X0 X1 = k4_card_3 (k7_funcop_1 X0 X1) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.r1_tarski X0 X0 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(\\ k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(v1_xboole_0 X1))\Rightarrow \\ (v1_xboole_0 (k1_funct_2 X0 X1)) \quad (12)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.v4_funct_1 (k1_funct_2 X0 X1) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v1_funcop_1 X0)))\Rightarrow \\ & ((v1_relat_1 (k2_pralg_2 X0))\wedge((v4_relat_1 (k2_pralg_2 X0) (\\ & k4_card_3 (k2_funct_6 X0)))\wedge((v1_funct_1 (k2_pralg_2 X0))\wedge(\\ & (v1_partfun1 (k2_pralg_2 X0) (k4_card_3 (k2_funct_6 X0)))\wedge(v1_funcop_1 \\ & (k2_pralg_2 X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarSKI X0 X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow (X2 \in X1)) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow((v1_partfun1 X1 X0)\Leftrightarrow(k1_relset_1 X0 X1 = X0)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.k2_funcop_1 X0 X1 = k2_zfmisc_1 X0 (k1_tarSKI X1) \quad (18)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ &(k2_zfmisc_1 X0 X1)))\Rightarrow(((X1\neq k1_xboole_0)\Rightarrow((v1_funct_2 X2 X0 \\ &X1)\Leftrightarrow(X0 = k1_relset_1 X0 X2)))\wedge((X1 = k1_xboole_0)\Rightarrow((v1_funct_2 \\ &X2 X0 X1)\Leftrightarrow(X2 = k1_xboole_0)))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.(v1_xboole_0 X0)\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))\Rightarrow(v1_xboole_0 X2)) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (21)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(v1_xboole_0 X1)) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v1_partfun1 X2 X0)\Rightarrow(v1_funct_2 X2 X0 X1)) \quad (24)$$

Assume the following.

$$\begin{aligned} &\forall X0.(v4_funct_1 X0)\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((v5_relat_1 \\ &X1 X0)\wedge(v1_funct_1 X1)))\Rightarrow((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge \\ &(v1_funcop_1 X1)))) \end{aligned} \quad (25)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (\neg(X2 = k1_xboole_0) \wedge ((X1 \neq k1_xboole_0) \wedge \\ & (X0 \neq k1_xboole_0))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 (k1_funct_2 X1 X2)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 (k1_funct_2 X1 X2)))))) \Rightarrow ((v1_funct_1 (k2_pralg_2 X3)) \wedge ((v1_funct_2 \\ & (k2_pralg_2 X3) (k1_funct_2 X0 X1) (k1_funct_2 X0 X2)) \wedge (m1_subset_1 \\ & (k2_pralg_2 X3) (k1_zfmisc_1 (k2_zfmisc_1 (k1_funct_2 X0 X1) (\\ & k1_funct_2 X0 X2)))))) \end{aligned}$$