

t18_taxonom1 (TMc- NaWGVsr9Qumi3UUzA8jnZPVF9hy78qdp)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ 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 $k1_numbers : \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $v2_metric_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_metric_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_taxonom1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_2 : \iota \Rightarrow o$ be given. Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $r1_relat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_relat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_relat_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))) \Rightarrow ((r1_relat_2 X1 X0) \Rightarrow (k1_relset_1 X0 X1 = X0)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) k1_numbers)))) \Rightarrow (\forall X2. (v1_xreal_0 X2) \Rightarrow ((v4_metric_1 X1 X0) \Rightarrow (r3_relat_2 (k1_taxonom1 X0 X1 X2) X0)))) \quad (3)$$

Assume the following.

$$\forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) k1_numbers)))) \Rightarrow (\forall X2. (v1_xreal_0 X2) \Rightarrow (((v2_metric_1 X1 X0) \wedge (r1_xxreal_0 k6_numbers X2)) \Rightarrow (r1_relat_2 (k1_taxonom1 X0 X1 X2) X0)))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski\ X0\ X1)\Rightarrow(k2_xboole_0\ X0\ X1 = X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge(v5_relat_1\ X1\ X0))\Rightarrow(k2_relset_1\ X0\ X1 = k10_xtuple_0\ X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge(v4_relat_1\ X1\ X0))\Rightarrow(k1_relset_1\ X0\ X1 = k9_xtuple_0\ X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge(v5_relat_1\ X1\ X0))\Rightarrow(m1_subset_1\ (k2_relset_1\ X0\ X1)\ (k1_zfmisc_1\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0\ X0)\wedge(((v1_funct_1\ X1)\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1\ X0\ X0)\ k1_numbers))))\wedge(v1_xreal_0\ X2)))\Rightarrow(m1_subset_1\ (k1_taxonom1\ X0\ X1\ X2)\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X0))) \quad (9)$$

Assume the following.

$$\forall X0.(v1_relat_1\ X0)\Rightarrow((v1_relat_2\ X0)\Leftrightarrow(r1_relat_2\ X0\ (k1_relat_1\ X0))) \quad (10)$$

Assume the following.

$$\forall X0.(v1_relat_1\ X0)\Rightarrow(k1_relat_1\ X0 = k2_xboole_0\ (k9_xtuple_0\ X0)\ (k10_xtuple_0\ X0)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1\ X1)\wedge(v4_relat_1\ X1\ X0))\Rightarrow((v1_partfun1\ X1\ X0)\Leftrightarrow(k1_relset_1\ X0\ X1 = X0)) \quad (12)$$

Assume the following.

$$\forall X0.(v1_relat_1\ X0)\Rightarrow((v3_relat_2\ X0)\Leftrightarrow(r3_relat_2\ X0\ (k1_relat_1\ X0))) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.k2_xboole_0\ X0\ X1 = k2_xboole_0\ X1\ X0 \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge(\\ & m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) k1_numbers))))\Rightarrow \\ & (\forall X2.(v1_xreal_0 X2)\Rightarrow(((r1_xxreal_0 k6_numbers X2)\wedge(\\ & (v2_metric_1 X1 X0)\wedge(v4_metric_1 X1 X0)))\Rightarrow((v1_partfun1 (k1_taxonom1 \\ & X0 X1 X2) X0)\wedge((v1_relat_2 (k1_taxonom1 X0 X1 X2))\wedge((v3_relat_2 \\ & (k1_taxonom1 X0 X1 X2))\wedge(m1_subset_1 (k1_taxonom1 X0 X1 X2) (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))))))) \end{aligned}$$