

t16_eqrel_1 (TML-
PAdj8v9DY2WRUoFQnLLYQZjsFHP2RTEv)

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Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 (k2_xboole_0 X0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1_tarski X0 X1) \wedge (r1_tarski X1 X2)) \Rightarrow (r1_tarski X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1_tarski X0 X1) \wedge (r1_tarski X0 X2)) \Rightarrow (r1_tarski X0 (k3_xboole_0 X1 X2)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. r1_tarski (k3_xboole_0 X0 X1) X0 \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (r2_relset_1 X0 X1 X2 X2) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((r1_relset_1 X0 X1 X2 X3)\Leftrightarrow(r1_tarski X2 X3)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\wedge((v3_relat_2 X2)\wedge((v8_relat_2 X2)\wedge((v1_partfun1 X2 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))))\Rightarrow(k4_eqrel_1 X0 X1 X2 = k3_xboole_0 X1 X2) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))\Rightarrow(k3_eqrel_1 X0 X1 X2 = k2_xboole_0 X1 X2) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\wedge((v3_relat_2 X2)\wedge((v8_relat_2 X2)\wedge((v1_partfun1 X2 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))))\Rightarrow(((v3_relat_2 (k5_eqrel_1 X0 X1 X2))\wedge((v8_relat_2 (k5_eqrel_1 X0 X1 X2))\wedge((v1_partfun1 (k5_eqrel_1 X0 X1 X2) X0)\wedge(m1_subset_1 (k5_eqrel_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))\Rightarrow(m1_subset_1 (k3_eqrel_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))) \quad (11)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 \\
& X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\
& (\forall X2.((v3_relat_2 X2)\wedge((v8_relat_2 X2)\wedge((v1_partfun1 \\
& X2 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\
& (\forall X3.((v3_relat_2 X3)\wedge((v8_relat_2 X3)\wedge((v1_partfun1 \\
& X3 X0)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\
& ((X3 = k5_eqrel_1 X0 X1 X2)\Leftrightarrow((r1_relset_1 X0 X0 (k3_eqrel_1 X0 X1 \\
& X2) X3)\wedge(\forall X4.((v3_relat_2 X4)\wedge((v8_relat_2 X4)\wedge((v1_partfun1 \\
& X4 X0)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\
& ((r1_relset_1 X0 X0 (k3_eqrel_1 X0 X1 X2) X4)\Rightarrow(r1_relset_1 X0 X0 \\
& X3 X4))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1)\Leftrightarrow((r1_tarski X0 X1)\wedge(r1_tarski X1 X0)) \tag{13}$$

Theorem 1

$$\begin{aligned}
& \forall X0.\forall X1.((v3_relat_2 X1)\wedge((v8_relat_2 X1)\wedge((v1_partfun1 \\
& X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\
& (\forall X2.((v3_relat_2 X2)\wedge((v8_relat_2 X2)\wedge((v1_partfun1 \\
& X2 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\
& (r2_relset_1 X0 X0 (k4_eqrel_1 X0 X1 (k5_eqrel_1 X0 X1 X2)) X1))
\end{aligned}$$