

l16_waybel_5 (TMHAchWgw- fYvYDP28ztcPZwxe9jGD2SoZUz)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_card_3 : \iota \Rightarrow \iota$ be given. Let $k2_funct_6 : \iota \Rightarrow \iota$ be given. Let $k2_pralg_2 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funcop_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ 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 $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_funcop_1 X0))) \Rightarrow \\
& (\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X1 \in k1_relset_1 \\
& (k4_card_3 (k2_funct_6 X0)) (k2_pralg_2 X0)) \Rightarrow (\forall X2.(X2 \in \\
& k9_xtuple_0 X0) \Rightarrow ((k1_funct_1 X1 X2 \in k9_xtuple_0 (k1_funct_1 X0 \\
& X2)) \wedge ((k1_funct_1 (k1_funct_1 (k2_pralg_2 X0) X1) X2 = k1_funct_1 \\
& (k1_funct_1 X0 X2) (k1_funct_1 X1 X2)) \wedge (k1_funct_1 (k1_funct_1 \\
& X0 X2) (k1_funct_1 X1 X2) \in k10_xtuple_0 (k1_funct_1 (k2_pralg_2 \\
& X0) X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 \\
& X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow (\forall X3. (\\
& m2_pboole X3 X0 X2 (k7_funcop_1 X0 X1)) \Rightarrow (\forall X4. (X4 \in X0) \Rightarrow ((\\
& v1_funct_1 (k1_funct_1 X3 X4)) \wedge ((v1_funct_2 (k1_funct_1 X3 X4) \\
& (k1_funct_1 X2 X4) X1) \wedge (m1_subset_1 (k1_funct_1 X3 X4) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k1_funct_1 X2 X4) X1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 (k2_funcop_1 X0 X1))\wedge((v4_relat_1 (k2_funcop_1 X0 X1) X0)\wedge((v1_funct_1 (k2_funcop_1 X0 X1))\wedge(v1_partfun1 (k2_funcop_1 X0 X1) X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 (k2_funcop_1 X0 X1))\wedge(v1_funct_1 (k2_funcop_1 X0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.v4_relat_1 (k2_funcop_1 X0 X1) X0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))))\Rightarrow(\forall X3.(m2_pboole X3 X0 X1 X2)\Rightarrow((v1_relat_1 X3)\wedge((v4_relat_1 X3 X0)\wedge((v1_funct_1 X3)\wedge(v1_partfun1 X3 X0)))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow((v1_partfun1 X1 X0)\Leftrightarrow(k1_relset_1 X0 X1 = X0)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))))\Rightarrow(\forall X3.(m2_pboole X3 X0 X1 X2)\Rightarrow(v1_funcop_1 X3)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v1_funct_2 X2 X0 X1)\Rightarrow(v1_partfun1 X2 X0))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (13)$$

Theorem 1

$$\begin{aligned} &\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ &(v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.(\neg v1_xboole_0 \\ &X2)\Rightarrow(\forall X3.(m2_pboole X3 X0 X1 (k7_funcop_1 X0 X2))\Rightarrow(\forall X4. \\ &((v1_relat_1 X4)\wedge(v1_funct_1 X4))\Rightarrow((X4 \in k1_relset_1 (k4_card_3 \\ &(k2_funct_6 X3)) (k2_pralg_2 X3))\Rightarrow(\forall X5.(X5 \in X0)\Rightarrow(k1_funct_1 \\ &X4 X5 \in k1_funct_1 X1 X5)))))) \end{aligned}$$