

t41_mssubfam
(TMK7sx6KgGsPPcvXR1bxaab89DQCtupSyUm)

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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 $m3_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_mboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_pboole : \iota \Rightarrow \iota$ be given. Let $k4_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k8_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2.((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & ((\forall X3.(X3 \in X0) \Rightarrow (k1_funct_1 X1 X3 = k1_funct_1 X2 X3)) \Rightarrow (X1 = \\ & X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & ((r6_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(m3_pboole X2 X0 (k1_mboolean X0 X1)))\Rightarrow(k4_mssubfam X0 X1 X2 = k3_mssubfam X0 X1 X2)$$
(5)

Assume the following.

$$\forall X0.(v1_relat_1 (k1_pboole X0)\wedge((v3_relat_1 (k1_pboole X0)\wedge((v4_relat_1 (k1_pboole X0) X0)\wedge((v1_funct_1 (k1_pboole X0)\wedge(v1_partfun1 (k1_pboole X0) X0))))))$$
(6)

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\Rightarrow((v1_relat_1 (k1_mboolean X0 X1))\wedge((v2_relat_1 (k1_mboolean X0 X1))\wedge((v4_relat_1 (k1_mboolean X0 X1) X0)\wedge((v1_funct_1 (k1_mboolean X0 X1))\wedge(v1_partfun1 (k1_mboolean X0 X1) X0))))))$$
(7)

Assume the following.

$$\forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v3_relat_1 X0)\wedge(v1_funct_1 X0)))\Rightarrow(v1_xboole_0 (k1_funct_1 X0 X1))$$
(8)

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\Rightarrow(\forall X2.(m3_pboole X2 X0 X1)\Rightarrow((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))))$$
(9)

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(m3_pboole X2 X0 (k1_mboolean X0 X1)))\Rightarrow((v1_relat_1 (k3_mssubfam X0 X1 X2))\wedge((v4_relat_1 (k3_mssubfam X0 X1 X2) X0)\wedge((v1_funct_1 (k3_mssubfam X0 X1 X2))\wedge(v1_partfun1 (k3_mssubfam X0 X1 X2) X0))))$$
(10)

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 X0)))\Rightarrow(((X1\neq k1_xboole_0)\Rightarrow(k8_setfam_1 X0 X1 = k6_setfam_1 X0 X1))\wedge((X1 = k1_xboole_0)\Rightarrow(k8_setfam_1 X0 X1 = X0)))$$
(11)

Assume the following.

$$\forall X0.k1_pboole X0 = k7_funcop_1 X0 k1_xboole_0$$
(12)

Assume the following.

$$\forall X0.\forall X1.k2_funcop_1 X0 X1 = k2_zfmisc_1 X0 (k1_tarSKI X1) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.(m3_pboole \\ & X2 X0 (k1_mboolean X0 X1))\Rightarrow(\forall X3.((v1_relat_1 X3)\wedge((v4_relat_1 \\ & X3 X0)\wedge((v1_funct_1 X3)\wedge(v1_partfun1 X3 X0))))\Rightarrow((X3 = k3_mssubfam \\ & X0 X1 X2)\Leftrightarrow(\forall X4.\neg(X4 \in X0)\wedge(\forall X5.(m1_subset_1 X5 (k1_zfmisc_1 \\ & (k1_zfmisc_1 (k1_funct_1 X1 X4))))\Rightarrow(\neg(X5 = k1_funct_1 X2 X4)\wedge \\ & k1_funct_1 X3 X4 = k8_setfam_1 (k1_funct_1 X1 X4) X5)))))) \end{aligned} \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.(m3_pboole \\ & X2 X0 (k1_mboolean X0 X1))\Rightarrow((r6_pboole X0 X2 (k1_pboole X0))\Rightarrow(r6_pboole \\ & X0 (k4_mssubfam X0 X1 X2) X1))) \end{aligned}$$