

t25_mssubfam

(TMKmLba4bex3Y491gXMpTrujzRXpgQs1zCC)

October 27, 2020

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 $v1_funcop_1 : \iota \Rightarrow o$ be given. Let $r2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_6 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $k8_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_finset_1 : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow (((\\ r1_tarski X0 (k10_xtuple_0 X1)) \wedge (v1_finset_1 (k8_relat_1 X1 X0))) \Rightarrow \\ (v1_finset_1 X0)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 \\ X2 X1) \wedge ((v1_funct_1 X2) \wedge ((v1_partfun1 X2 X1) \wedge (v1_funcop_1 X2)))))) \Rightarrow \\ (\forall X3. ((v1_relat_1 X3) \wedge (v1_funct_1 X3)) \Rightarrow (((X0 \in X1) \wedge (X3 = \\ k1_funct_1 X2 X0)) \Rightarrow (k1_funct_1 (k3_funct_6 X2) X0 = k10_xtuple_0 \\ X3))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_funcop_1 \\ X0))) \Rightarrow ((v1_relat_1 (k1_funct_1 X0 X1)) \wedge (v1_funct_1 (k1_funct_1 \\ X0 X1))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge (\\ v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v1_funcop_1 X1)))))) \Rightarrow (\\ (v1_relat_1 (k3_funct_6 X1)) \wedge ((v4_relat_1 (k3_funct_6 X1) X0) \wedge \\ ((v1_funct_1 (k3_funct_6 X1)) \wedge (v1_partfun1 (k3_funct_6 X1) X0)))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ (v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge(v1_funcop_1 X1))))\Rightarrow(\\ (v1_relat_1 (k3_funct_6 X1))\wedge((v4_relat_1 (k3_funct_6 X1) X0)\wedge \\ (v1_funct_1 (k3_funct_6 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v1_funct_1 X0))\Rightarrow((v1_relat_1 (k3_funct_6 X0))\wedge(v1_funct_1 (k3_funct_6 X0))) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ (v1_funct_1 X1)))\Rightarrow((v2_finset_1 X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow(v1_finset_1 \\ (k1_funct_1 X1 X2)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1_relat_1 \\ X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow \\ ((r2_pboole X0 X1 X2)\Leftrightarrow(\forall X3.(X3 \in X0)\Rightarrow(r1_tarski (k1_funct_1 \\ X1 X3) (k1_funct_1 X2 X3)))))) \end{aligned} \quad (8)$$

Theorem 1

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1_relat_1 \\ X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge((v1_partfun1 X2 X0)\wedge \\ (v1_funcop_1 X2))))))\Rightarrow(((r2_pboole X0 X1 (k3_funct_6 X2))\wedge(\forall X3. \\ \forall X4.((v1_relat_1 X4)\wedge(v1_funct_1 X4))\Rightarrow(((X3 \in X0)\wedge(X4 = \\ k1_funct_1 X2 X3))\Rightarrow(v1_finset_1 (k8_relat_1 X4 (k1_funct_1 X1 \\ X3))))))\Rightarrow(v2_finset_1 X1))) \end{aligned}$$