

t53_mssubfam
(TMLMJQ14kKkPaFvVnNaprXoG1trDEoSfgfc)

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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 $v2_relat_1 : \iota \Rightarrow o$ 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 $r1_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_pzfmisc1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_finset_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & (\forall X3. ((v2_relat_1 X3) \wedge (m3_pboole X3 X0 (k1_mboolean X0 \\ & X2)))) \Rightarrow ((\forall X4. ((v1_relat_1 X4) \wedge ((v4_relat_1 X4 X0) \wedge ((v1_funct_1 \\ & X4) \wedge (v1_partfun1 X4 X0)))) \Rightarrow ((r1_pboole X0 X4 X3) \Rightarrow (r2_pboole X0 \\ & X1 X4))) \Rightarrow (r2_pboole X0 X1 (k4_mssubfam X0 X2 X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & ((r2_pboole X0 (k1_pzfmisc1 X0 X1) X2) \Leftrightarrow (r1_pboole X0 X1 X2))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow ((v1_relat_1 (k1_pzfmisc1 \\ & X0 X1)) \wedge ((v2_relat_1 (k1_pzfmisc1 X0 X1)) \wedge ((v4_relat_1 (k1_pzfmisc1 \\ & X0 X1) X0) \wedge ((v1_funct_1 (k1_pzfmisc1 X0 X1)) \wedge ((v1_partfun1 (k1_pzfmisc1 \\ & X0 X1) X0) \wedge (v2_finset_1 (k1_pzfmisc1 X0 X1)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.(m3_pboole \\ & X2 X0 X1)\Rightarrow((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge \\ & (v1_partfun1 X2 X0)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(m3_pboole X2 \\ & X0 (k1_mboolean X0 X1)))\Rightarrow(m3_pboole (k4_mssubfam X0 X1 X2) X0 X1) \end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow \\ & (\forall X3.((v2_relat_1 X3)\wedge(m3_pboole X3 X0 (k1_mboolean X0 \\ & X2)))\Rightarrow(((r1_pboole X0 X1 X2)\wedge(\forall X4.((v1_relat_1 X4)\wedge((\\ & v4_relat_1 X4 X0)\wedge((v1_funct_1 X4)\wedge(v1_partfun1 X4 X0))))\Rightarrow((\\ & r1_pboole X0 X4 X3)\Rightarrow(r1_pboole X0 X1 X4))))\Rightarrow(r1_pboole X0 X1 (k4_mssubfam \\ & X0 X2 X3)))))) \end{aligned}$$