

t52_mssubfam
(TMWw4fsmMie6H4V9hEM6G1q22df7UN1MDEG)

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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 $r1_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k3_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & (\forall X3. (m3_pboole X3 X0 (k1_mboolean X0 X1)) \Rightarrow ((r1_pboole \\ & X0 X2 X3) \Rightarrow (r2_pboole X0 (k4_mssubfam X0 X1 X3) X2)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge (m3_pboole X2 \\ & X0 (k1_mboolean X0 X1))) \Rightarrow (k4_mssubfam X0 X1 X2 = k3_mssubfam X0 X1 \\ & X2) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 \\
& X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(m3_pboole X2 \\
& X0 (k1_mboolean X0 X1)))\Rightarrow((v1_relat_1 (k3_mssubfam X0 X1 X2))\wedge \\
& ((v4_relat_1 (k3_mssubfam X0 X1 X2) X0)\wedge((v1_funct_1 (k3_mssubfam \\
& X0 X1 X2))\wedge(v1_partfun1 (k3_mssubfam X0 X1 X2) X0))))
\end{aligned} \tag{4}$$

Theorem 1

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