

t29_mssubfam (TMWScCS-
gFrCQ1KM3vHRhuxPPMFu7CoyA6CL)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ 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 $v2_finset_1 : \iota \Rightarrow o$ be given. Let $r1_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_mboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v2_finset_1 X1)))))) \Rightarrow \\ & ((\forall X2. ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 \\ & X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow (\forall X3. ((v1_relat_1 X3) \wedge ((v4_relat_1 \\ & X3 X0) \wedge ((v1_funct_1 X3) \wedge (v1_partfun1 X3 X0)))))) \Rightarrow (\neg(r1_pboole \\ & X0 X2 X1) \wedge ((r1_pboole X0 X3 X1) \wedge ((\neg r2_pboole X0 X2 X3) \wedge (\neg r2_pboole \\ & X0 X3 X2)))))) \Rightarrow (r1_pboole X0 (k2_mboolean X0 X1) X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & ((r1_pboole X0 X1 X2) \Rightarrow (r2_pboole X0 X1 (k2_mboolean X0 X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow ((v1_relat_1 (k2_mboolean \\ & X0 X1)) \wedge ((v4_relat_1 (k2_mboolean X0 X1) X0) \wedge ((v1_funct_1 (k2_mboolean \\ & X0 X1)) \wedge (v1_partfun1 (k2_mboolean X0 X1) X0)))) \end{aligned} \quad (3)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge(v2_finset_1 X1))))))\Rightarrow \\ & (\neg(\forall X2.((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 \\ & X2)\wedge(v1_partfun1 X2 X0))))))\Rightarrow(\forall X3.((v1_relat_1 X3)\wedge((v4_relat_1 \\ & X3 X0)\wedge((v1_funct_1 X3)\wedge(v1_partfun1 X3 X0))))\Rightarrow(\neg(r1_pboole \\ & X0 X2 X1)\wedge((r1_pboole X0 X3 X1)\wedge((\neg r2_pboole X0 X2 X3)\wedge(\neg r2_pboole \\ & X0 X3 X2))))))\wedge(\forall X2.((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge \\ & ((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\Rightarrow(\neg(r1_pboole X0 X2 X1)\wedge \\ & (\forall X3.((v1_relat_1 X3)\wedge((v4_relat_1 X3 X0)\wedge((v1_funct_1 \\ & X3)\wedge(v1_partfun1 X3 X0))))\Rightarrow((r1_pboole X0 X3 X1)\Rightarrow(r2_pboole X0 \\ & X3 X2)))))) \end{aligned}$$