

t38_closure1 (TMUKViKe- HgiEfk63JBY2LGs92YAFPTRmbZh)

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Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v9_closure1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_closure1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_relat_1 : \iota \Rightarrow o$ 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 $r1_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_closure1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_closure1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_closure1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_closure1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_closure1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_mssubfam : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10_closure1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\
 & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v4_mssubfam \\
 & X2 X0 X1) \wedge (m3_pboole X2 X0 (k1_mboolean X0 X1))) \Rightarrow (\forall X3. (m2_pboole \\
 & X3 X0 (k5_mssubfam X0 X1) (k5_mssubfam X0 X1)) \Rightarrow ((\forall X4. (m1_pboole \\
 & X4 X0 (k5_mssubfam X0 X1)) \Rightarrow (\forall X5. ((v2_relat_1 X5) \wedge (m3_pboole \\
 & X5 X0 (k1_mboolean X0 X1))) \Rightarrow ((\forall X6. ((v1_relat_1 X6) \wedge ((v4_relat_1 \\
 & X6 X0) \wedge ((v1_funct_1 X6) \wedge (v1_partfun1 X6 X0)))) \Rightarrow ((r1_pboole X0 \\
 & X6 X5) \Leftrightarrow ((r1_pboole X0 X6 X2) \wedge (r2_pboole X0 X4 X6)))) \Rightarrow (r6_pboole \\
 & X0 (k2_closure1 X0 X1 X3 X4) (k4_mssubfam X0 X1 X5)))) \Rightarrow (v3_closure1 \\
 & X3 X0 X1))))
 \end{aligned}
 \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\
& (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0)))\Rightarrow(\forall X2.((v5_mssubfam \\
& X2 X0 X1)\wedge(m3_pboole X2 X0 (k1_mboolean X0 X1)))\Rightarrow(\forall X3.(m2_pboole \\
& X3 X0 (k5_mssubfam X0 X1) (k5_mssubfam X0 X1))\Rightarrow((\forall X4.(m1_pboole \\
& X4 X0 (k5_mssubfam X0 X1))\Rightarrow(\forall X5.((v2_relat_1 X5)\wedge(m3_pboole \\
& X5 X0 (k1_mboolean X0 X1)))\Rightarrow((\forall X6.((v1_relat_1 X6)\wedge((v4_relat_1 \\
& X6 X0)\wedge((v1_funct_1 X6)\wedge(v1_partfun1 X6 X0))))\Rightarrow((r1_pboole X0 \\
& X6 X5)\Leftrightarrow((r1_pboole X0 X6 X2)\wedge(r2_pboole X0 X4 X6))))\Rightarrow(r6_pboole \\
& X0 (k2_closure1 X0 X1 X3 X4) (k4_mssubfam X0 X1 X5))))\Rightarrow((v1_closure1 \\
& X3 X0 X1)\wedge(v2_closure1 X3 X0 X1))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((l1_struct_0 X0)\wedge((v10_closure1 X1 X0)\wedge \\
& (l1_closure1 X1 X0)))\Rightarrow(v5_mssubfam (u1_closure1 X0 X1) (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((l1_struct_0 X0)\wedge((v9_closure1 X1 X0)\wedge \\
& (l1_closure1 X1 X0)))\Rightarrow(v4_mssubfam (u1_closure1 X0 X1) (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((l1_struct_0 X0)\wedge(l2_msualg_1 X1 X0))\Rightarrow \\
& ((v1_relat_1 (u3_msualg_1 X0 X1))\wedge((v4_relat_1 (u3_msualg_1 \\
& X0 X1) (u1_struct_0 X0))\wedge((v1_funct_1 (u3_msualg_1 X0 X1))\wedge(v1_partfun1 \\
& (u3_msualg_1 X0 X1) (u1_struct_0 X0))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((l1_struct_0 X0)\wedge(l1_closure1 X1 X0))\Rightarrow \\
& (m3_pboole (u1_closure1 X0 X1) (u1_struct_0 X0) (k1_mboolean (\\
& u1_struct_0 X0) (u3_msualg_1 X0 X1)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_struct_0 X0)\Rightarrow(\forall X1.(l1_closure1 X1 X0)\Rightarrow \\
& (l2_msualg_1 X1 X0))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_struct_0 X0)\Rightarrow(\forall X1.(l1_closure1 X1 X0)\Rightarrow \\
& ((v9_closure1 X1 X0)\Rightarrow(v10_closure1 X1 X0)))
\end{aligned} \tag{8}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.((v9_closure1 X1 X0) \wedge \\
& (l1_closure1 X1 X0)) \Rightarrow (\forall X2.(m2_pboole X2 (u1_struct_0 X0) \\
& (k5_mssubfam (u1_struct_0 X0) (u3_msualg_1 X0 X1)) (k5_mssubfam \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1))) \Rightarrow ((\forall X3.(m1_pboole \\
& X3 (u1_struct_0 X0) (k5_mssubfam (u1_struct_0 X0) (u3_msualg_1 \\
& X0 X1))) \Rightarrow (\forall X4.((v2_relat_1 X4) \wedge (m3_pboole X4 (u1_struct_0 \\
& X0) (k1_mboolean (u1_struct_0 X0) (u3_msualg_1 X0 X1)))) \Rightarrow ((\forall X5. \\
& ((v1_relat_1 X5) \wedge ((v4_relat_1 X5 (u1_struct_0 X0)) \wedge ((v1_funct_1 \\
& X5) \wedge (v1_partfun1 X5 (u1_struct_0 X0)))))) \Rightarrow ((r1_pboole (u1_struct_0 \\
& X0) X5 X4) \Leftrightarrow ((r1_pboole (u1_struct_0 X0) X5 (u1_closure1 X0 X1)) \wedge \\
& (r2_pboole (u1_struct_0 X0) X3 X5)))) \Rightarrow (r6_pboole (u1_struct_0 \\
X0) (k2_closure1 (u1_struct_0 X0) (u3_msualg_1 X0 X1) X2 X3) (k4_mssubfam \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1) X4)))) \Rightarrow ((v1_closure1 X2 \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1)) \wedge ((v2_closure1 X2 (u1_struct_0 \\
X0) (u3_msualg_1 X0 X1)) \wedge ((v3_closure1 X2 (u1_struct_0 X0) (u3_msualg_1 \\
& X0 X1)) \wedge (m2_pboole X2 (u1_struct_0 X0) (k5_mssubfam (u1_struct_0 \\
X0) (u3_msualg_1 X0 X1)) (k5_mssubfam (u1_struct_0 X0) (u3_msualg_1 \\
& X0 X1)))))))))
\end{aligned}$$