

t92_semi_af1
(TMcDsMv431kRgcdYA1aRfSkN8JegGEjsQq7)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_semi_af1 : \iota \Rightarrow o$ be given. Let $l1_analoaf : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_semi_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_semi_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow ((\neg (X1 \neq X2) \wedge ((X2 \neq X3) \wedge (X3 \neq X1))) \Rightarrow (r1_semi_af1 \\ & X0 X1 X2 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\ & (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow ((r4_semi_af1 \\ & X0 X1 X2 X3 X4 X5) \Leftrightarrow ((\neg r1_semi_af1 X0 X5 X1 X3) \wedge ((r1_semi_af1 X0 X5 \\ & X1 X2) \wedge ((r1_semi_af1 X0 X5 X3 X4) \wedge (r2_analoaf X0 X1 X3 X2 X4)))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0\ X0)\wedge(l1_analoaf\ X0))\Rightarrow((v1_semi_af1 \\
& X0)\Leftrightarrow((\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2. \\
& (m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(r2_analoaf\ X0\ X1\ X2\ X2\ X1))))\wedge \\
& ((\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(\\
& m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1\ X3 \\
& (u1_struct_0\ X0))\Rightarrow(r2_analoaf\ X0\ X1\ X2\ X3\ X3))))\wedge((\forall X1. \\
& (m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2 \\
& (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1\ X3\ (u1_struct_0\ X0))\Rightarrow \\
& (\forall X4.(m1_subset_1\ X4\ (u1_struct_0\ X0))\Rightarrow(\forall X5.(m1_subset_1 \\
& X5\ (u1_struct_0\ X0))\Rightarrow(\forall X6.(m1_subset_1\ X6\ (u1_struct_0 \\
& X0))\Rightarrow(((r2_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge(r2_analoaf\ X0\ X1\ X2\ X5\ X6))\Rightarrow(\\
& (X1 = X2)\vee(r2_analoaf\ X0\ X3\ X4\ X5\ X6))))))))\wedge((\forall X1.(m1_subset_1 \\
& X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0 \\
& X0))\Rightarrow(\forall X3.(m1_subset_1\ X3\ (u1_struct_0\ X0))\Rightarrow((r2_analoaf \\
& X0\ X1\ X2\ X1\ X3)\Rightarrow(r2_analoaf\ X0\ X2\ X1\ X2\ X3))))\wedge((\neg\forall X1.(m1_subset_1 \\
& X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0 \\
& X0))\Rightarrow(\forall X3.(m1_subset_1\ X3\ (u1_struct_0\ X0))\Rightarrow(r2_analoaf \\
& X0\ X1\ X2\ X1\ X3))))\wedge((\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow \\
& (\forall X2.(m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1 \\
& X3\ (u1_struct_0\ X0))\Rightarrow(\exists X4.(m1_subset_1\ X4\ (u1_struct_0 \\
& X0))\wedge((r2_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge(r2_analoaf\ X0\ X1\ X3\ X2\ X4))))))\wedge \\
& ((\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(\\
& m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\exists X3.(m1_subset_1\ X3 \\
& (u1_struct_0\ X0))\wedge(\forall X4.(m1_subset_1\ X4\ (u1_struct_0\ X0))\Rightarrow \\
& (\forall X5.(m1_subset_1\ X5\ (u1_struct_0\ X0))\Rightarrow((r2_analoaf\ X0 \\
& X1\ X2\ X1\ X3)\wedge(\neg\forall X6.(m1_subset_1\ X6\ (u1_struct_0\ X0))\Rightarrow((\\
& r2_analoaf\ X0\ X1\ X3\ X1\ X4)\wedge(\neg(r2_analoaf\ X0\ X1\ X5\ X1\ X6)\wedge(r2_analoaf \\
& X0\ X3\ X5\ X4\ X6))))))))))\wedge((\forall X1.(m1_subset_1\ X1\ (u1_struct_0 \\
& X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3. \\
& (m1_subset_1\ X3\ (u1_struct_0\ X0))\Rightarrow(\forall X4.(m1_subset_1\ X4 \\
& (u1_struct_0\ X0))\Rightarrow(\forall X5.(m1_subset_1\ X5\ (u1_struct_0\ X0))\Rightarrow \\
& (\forall X6.(m1_subset_1\ X6\ (u1_struct_0\ X0))\Rightarrow(\forall X7.(m1_subset_1 \\
& X7\ (u1_struct_0\ X0))\Rightarrow(((r2_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge((r2_analoaf \\
& X0\ X1\ X4\ X1\ X5)\wedge((r2_analoaf\ X0\ X1\ X6\ X1\ X7)\wedge((r2_analoaf\ X0\ X2\ X4\ X3 \\
& X5)\wedge(r2_analoaf\ X0\ X2\ X6\ X3\ X7))))\Rightarrow((r2_analoaf\ X0\ X1\ X2\ X1\ X4)\vee \\
& ((r2_analoaf\ X0\ X1\ X2\ X1\ X6)\vee(r2_analoaf\ X0\ X4\ X6\ X5\ X7))))))))))\wedge \\
& ((\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(\\
& m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1\ X3 \\
& (u1_struct_0\ X0))\Rightarrow(\forall X4.(m1_subset_1\ X4\ (u1_struct_0\ X0))\Rightarrow \\
& (\forall X5.(m1_subset_1\ X5\ (u1_struct_0\ X0))\Rightarrow(\forall X6.(m1_subset_1 \\
& X6\ (u1_struct_0\ X0))\Rightarrow(((r2_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge((r2_analoaf \\
& X0\ X1\ X2\ X5\ X6)\wedge((r2_analoaf\ X0\ X1\ X3\ X2\ X4)\wedge(r2_analoaf\ X0\ X1\ X5\ X2 \\
& X6))))\Rightarrow((r2_analoaf\ X0\ X1\ X2\ X1\ X3)\vee((r2_analoaf\ X0\ X1\ X2\ X1\ X5)\vee \\
& (r2_analoaf\ X0\ X3\ X5\ X4\ X6))))))))))\wedge((\forall X1.(m1_subset_1 \\
& X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0 \\
& X0))\Rightarrow(\forall X3.(m1_subset_1\ X3\ (u1_struct_0\ X0))\Rightarrow(\forall X4. \\
& (m1_subset_1\ X4\ (u1_struct_0\ X0))\Rightarrow(\forall X5.(m1_subset_1\ X5 \\
& (u1_struct_0\ X0))\Rightarrow(\forall X6.(m1_subset_1\ X6\ (u1_struct_0\ X0))\Rightarrow \\
& (((r2_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge((r2_analoaf\ X0\ X4\ X5\ X4\ X6)\wedge((r2_analoaf \\
& X0\ X1\ X5\ X2\ X4)\wedge(r2_analoaf\ X0\ X2\ X6\ X3\ X5))))\Rightarrow(r2_analoaf\ X0\ X3\ X4 \\
& X1\ X6))))))\wedge((\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow \\
& (\forall X2.(m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1 \\
& X3\ (u1_struct_0\ X0))\Rightarrow(\forall X4.(m1_subset_1\ X4\ (u1_struct_0 \\
& X0))\Rightarrow(\neg(\neg r2_analoaf\ X0\ X1\ X2\ X1\ X3)\wedge((r2_analoaf\ X0\ X1\ X2\ X3\ X4)\wedge \\
& ((r2_analoaf\ X0\ X1\ X3\ X2\ X4)\wedge(r2_analoaf\ X0\ X1\ X4\ X2\ X3))))))))))\wedge
\end{aligned}$$

(3)

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow ((\neg r1_semi_af1 X0 X1 X2 X3) \Rightarrow (r4_semi_af1 X0 \\ & X2 X1 X3 X1 X1)))))) \end{aligned}$$