

t15_semi_af1

(TMa7b3YwRPXdD2cuc9apVa9rwCuUEecvX4J)

October 27, 2020

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 $r2_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & \quad X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ & \quad (u1_struct_0 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\ & \quad ((r2_analoaf X0 X1 X2 X3 X4) \Rightarrow ((r2_analoaf X0 X2 X1 X3 X4) \wedge ((r2_analoaf \\ & \quad X0 X1 X2 X4 X3) \wedge ((r2_analoaf X0 X2 X1 X4 X3) \wedge ((r2_analoaf X0 X3 X4 X1 \\ & \quad X2) \wedge ((r2_analoaf X0 X4 X3 X1 X2) \wedge ((r2_analoaf X0 X3 X4 X2 X1) \wedge (r2_analoaf \\ & \quad X0 X4 X3 X2 X1)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_analoaf X0)) \Rightarrow ((v1_semi_af1 \\
& \quad 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 \\
& \quad ((\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(\\
& \quad 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 \\
& \quad 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 \\
& \quad X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& \quad 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 \\
& \quad X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& \quad 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 \\
& \quad 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 \\
& \quad ((\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(\\
& \quad 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 \\
& \quad 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 \\
& \quad X0 X3 X5 X4 X6)))))))))) \wedge ((\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& \quad 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 \\
& \quad 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 \\
& \quad 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 \\
& \quad ((\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(\\
& \quad 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 \\
& \quad 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 \\
& \quad 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 \\
& \quad X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& \quad 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 \\
& \quad 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 \\
& \quad 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}$$

(2)

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\ & (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 \\ & X6 (u1_struct_0 X0)) \Rightarrow (\forall X7.(m1_subset_1 X7 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u1_struct_0 X0)) \Rightarrow (\neg(\neg r2_analoaf \\ X0 X1 X2 X3 X4) \wedge ((r2_analoaf X0 X1 X2 X5 X6) \wedge ((r2_analoaf X0 X3 X4 X7 \\ X8) \wedge ((X5 \neq X6) \wedge ((X7 \neq X8) \wedge (r2_analoaf X0 X5 X6 X7 X8)))))))))))))) \end{aligned}$$