

t3_semi_af1
(TMTTAMcBJcfQnsoTeUvJir9McNE2KE34SjF)

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.

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

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. \\
& \quad (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 \\
& \quad (\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 (\\
& \quad (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 \\
& \quad (\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 \\
& \quad (\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 \\
& \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& \quad (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 \\
& \quad (\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 \\
& X5) \wedge (r2_analoaf X0 X2 X6 X3 X7)))) \Rightarrow ((r2_analoaf X0 X1 X2 X1 X4) \vee \\
& \quad ((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 \\
& \quad (\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 \\
& X6)))) \Rightarrow ((r2_analoaf X0 X1 X2 X1 X3) \vee ((r2_analoaf X0 X1 X2 X1 X5) \vee \\
& \quad (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. \\
& \quad (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 \\
& \quad ((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 \\
& \quad (\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 \\
& \quad ((r2_analoaf X0 X1 X3 X2 X4) \wedge (r2_analoaf X0 X1 X4 X2 X3)))))))))) \wedge \\
\end{aligned}$$

(2)

Theorem 1

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