

t60_semi_af1 (TM-
bqkFmGdifc2FQgH9zzfM3Cm3vkMaF3poD)

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 $r2_semi_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_semi_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_semi_af1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\ & (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 \\ & X6 (u1_struct_0 X0)) \Rightarrow (((r1_semi_af1 X0 X1 X2 X3) \wedge ((r2_semi_af1 \\ & X0 X1 X4 X2 X5) \wedge (r2_semi_af1 X0 X1 X4 X3 X6))) \Rightarrow ((X2 = X3) \vee (r2_semi_af1 \\ & X0 X2 X5 X3 X6)))))))))) \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (\neg (\neg r1_semi_af1 X0 X1 X2 X3) \wedge (\forall X4.(m1_subset_1 \\ & X4 (u1_struct_0 X0)) \Rightarrow (\neg r2_semi_af1 X0 X1 X2 X3 X4)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\
& \quad X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& \quad (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& \quad ((r2_semi_af1 X0 X1 X2 X3 X4) \Rightarrow ((r2_semi_af1 X0 X1 X3 X2 X4) \wedge ((r2_semi_af1 \\
& \quad X0 X3 X4 X1 X2) \wedge ((r2_semi_af1 X0 X2 X1 X4 X3) \wedge ((r2_semi_af1 X0 X3 X1 \\
& \quad X4 X2) \wedge ((r2_semi_af1 X0 X4 X2 X3 X1) \wedge (r2_semi_af1 X0 X2 X4 X1 X3)))))))))) \\
& \hspace{15em} (4)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\
& \quad X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& \quad (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& \quad ((r2_semi_af1 X0 X1 X2 X3 X4) \Rightarrow ((\neg r1_semi_af1 X0 X1 X2 X3) \wedge ((\neg r1_semi_af1 \\
& \quad X0 X1 X3 X2) \wedge ((\neg r1_semi_af1 X0 X1 X2 X4) \wedge ((\neg r1_semi_af1 X0 X1 X4 X2) \wedge \\
& \quad ((\neg r1_semi_af1 X0 X1 X3 X4) \wedge ((\neg r1_semi_af1 X0 X1 X4 X3) \wedge ((\neg r1_semi_af1 \\
& \quad X0 X2 X1 X3) \wedge ((\neg r1_semi_af1 X0 X2 X3 X1) \wedge ((\neg r1_semi_af1 X0 X2 X1 X4) \wedge \\
& \quad ((\neg r1_semi_af1 X0 X2 X4 X1) \wedge ((\neg r1_semi_af1 X0 X2 X3 X4) \wedge ((\neg r1_semi_af1 \\
& \quad X0 X2 X4 X3) \wedge ((\neg r1_semi_af1 X0 X3 X1 X2) \wedge ((\neg r1_semi_af1 X0 X3 X2 X1) \wedge \\
& \quad ((\neg r1_semi_af1 X0 X3 X1 X4) \wedge ((\neg r1_semi_af1 X0 X3 X4 X1) \wedge ((\neg r1_semi_af1 \\
& \quad X0 X3 X2 X4) \wedge ((\neg r1_semi_af1 X0 X3 X4 X2) \wedge ((\neg r1_semi_af1 X0 X4 X1 X2) \wedge \\
& \quad ((\neg r1_semi_af1 X0 X4 X2 X1) \wedge ((\neg r1_semi_af1 X0 X4 X1 X3) \wedge ((\neg r1_semi_af1 \\
& \quad X0 X4 X3 X1) \wedge ((\neg r1_semi_af1 X0 X4 X2 X3) \wedge (\neg r1_semi_af1 X0 X4 X3 X2)))))))))))))) \\
& \hspace{15em} (5)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\
& \quad X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& \quad (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& \quad ((r2_semi_af1 X0 X1 X2 X3 X4) \Rightarrow ((X1 \neq X2) \wedge ((X1 \neq X3) \wedge ((X3 \neq X2) \wedge ((X1 \neq \\
& \quad X4) \wedge ((X2 \neq X4) \wedge (X3 \neq X4)))))))))) \\
& \hspace{15em} (6)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\
& \quad X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& \quad (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& \quad (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 \\
& \quad X6 (u1_struct_0 X0)) \Rightarrow (\neg(\neg r1_semi_af1 X0 X1 X2 X3) \wedge ((r2_analoaf \\
& \quad X0 X1 X2 X4 X5) \wedge ((r2_analoaf X0 X1 X3 X4 X6) \wedge ((X4 \neq X5) \wedge ((X4 \neq X6) \wedge (\\
& \quad r1_semi_af1 X0 X4 X5 X6)))))))))) \\
& \hspace{15em} (7)
\end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (r2_analoaf X0 X1 X2 X1 X2))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\ & ((r3_semi_af1 X0 X1 X2 X3 X4) \Leftrightarrow (\neg(\neg(X1 = X2) \wedge (X3 = X4)) \wedge (\forall X5. \\ & (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.(m1_subset_1 X6 \\ & (u1_struct_0 X0)) \Rightarrow (\neg(r2_semi_af1 X0 X5 X6 X1 X2) \wedge (r2_semi_af1 \\ & X0 X5 X6 X3 X4)))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow ((r1_semi_af1 X0 X1 X2 X3) \Leftrightarrow (r2_analoaf X0 X1 \\ & X2 X1 X3)))))) \end{aligned} \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_semi_af1 X0) \wedge (l1_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\ & ((r2_semi_af1 X0 X1 X2 X3 X4) \Rightarrow (r3_semi_af1 X0 X1 X2 X3 X4)))))) \end{aligned}$$