

t17_projdes1
(TMZ5nYpP7ktQJGt9x7WByRwdhpB8wkWHhRE)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_collsp : \iota \Rightarrow o$ be given. Let $v3_collsp : \iota \Rightarrow o$ be given. Let $v4_collsp : \iota \Rightarrow o$ be given. Let $v2_anproj_2 : \iota \Rightarrow o$ be given. Let $v3_anproj_2 : \iota \Rightarrow o$ be given. Let $v7_anproj_2 : \iota \Rightarrow o$ be given. Let $l1_collsp : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_collsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_projdes1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_collsp X0) \wedge ((v3_collsp X0) \wedge \\
& ((v4_collsp X0) \wedge ((v2_anproj_2 X0) \wedge ((v3_anproj_2 X0) \wedge ((\neg v7_anproj_2 \\
& X0) \wedge (l1_collsp X0)))))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 \\
& (u1_struct_0 X0)) \Rightarrow ((\neg(\neg r1_collsp X0 X1 X2 X3) \wedge (\neg r1_collsp X0 \\
& X2 X3 X4) \wedge (\neg r1_collsp X0 X3 X4 X1) \wedge (\neg r1_collsp X0 X4 X1 X2)))) \Rightarrow (\\
& r1_projdes1 X0 X1 X2 X3 X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_collsp X0) \wedge ((v3_collsp X0) \wedge \\
& ((v4_collsp X0) \wedge ((v2_anproj_2 X0) \wedge ((v3_anproj_2 X0) \wedge ((\neg v7_anproj_2 \\
& X0) \wedge (l1_collsp X0)))))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r1_collsp X0 X1 X2 X3) \Rightarrow ((r1_collsp \\
& X0 X2 X3 X1) \wedge ((r1_collsp X0 X3 X1 X2) \wedge ((r1_collsp X0 X2 X1 X3) \wedge ((r1_collsp \\
& X0 X1 X3 X2) \wedge (r1_collsp X0 X3 X2 X1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_collsp X0) \wedge ((v3_collsp X0) \wedge \\
& ((v4_collsp X0) \wedge ((v2_anproj_2 X0) \wedge ((v3_anproj_2 X0) \wedge ((\neg v7_anproj_2 \\
& X0) \wedge (l1_collsp X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow (\forall X7.(m1_subset_1 \\
& X7 (u1_struct_0 X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X9.(m1_subset_1 X9 (u1_struct_0 X0)) \Rightarrow (((r1_projdes1 \\
& X0 X1 X2 X3 X7) \wedge ((r1_projdes1 X0 X1 X2 X3 X8) \wedge ((r1_projdes1 X0 X1 X2 \\
& X3 X9) \wedge ((r1_projdes1 X0 X4 X5 X6 X7) \wedge ((r1_projdes1 X0 X4 X5 X6 X8) \wedge \\
& (r1_projdes1 X0 X4 X5 X6 X9)))))) \Rightarrow ((r1_collsp X0 X1 X2 X3) \vee ((r1_collsp \\
& X0 X4 X5 X6) \vee ((r1_projdes1 X0 X1 X2 X3 X4) \vee (r1_collsp X0 X7 X8 X9))))))))) \\
& \hspace{15em} (3)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_collsp X0) \wedge ((v3_collsp X0) \wedge \\
& ((v4_collsp X0) \wedge ((v2_anproj_2 X0) \wedge ((v3_anproj_2 X0) \wedge ((\neg v7_anproj_2 \\
& X0) \wedge (l1_collsp X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow \\
& (\neg(\neg r1_projdes1 X0 X1 X2 X3 X4) \wedge ((r1_collsp X0 X4 X1 X5) \wedge ((X1 \neq X5) \wedge \\
& (r1_projdes1 X0 X1 X2 X3 X5))))))))) \\
& \hspace{15em} (4)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_collsp X0) \wedge ((v3_collsp X0) \wedge \\
& ((v4_collsp X0) \wedge ((v2_anproj_2 X0) \wedge ((v3_anproj_2 X0) \wedge ((\neg v7_anproj_2 \\
& X0) \wedge (l1_collsp X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X6.(m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow (\forall X7.(m1_subset_1 \\
& X7 (u1_struct_0 X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X9.(m1_subset_1 X9 (u1_struct_0 X0)) \Rightarrow (\forall X10. \\
& (m1_subset_1 X10 (u1_struct_0 X0)) \Rightarrow (((r1_collsp X0 X3 X1 X2) \wedge (\\
& (r1_collsp X0 X1 X4 X8) \wedge ((r1_collsp X0 X2 X6 X8) \wedge ((r1_collsp X0 X4 \\
& X5 X9) \wedge ((r1_collsp X0 X6 X7 X9) \wedge ((r1_collsp X0 X1 X5 X10) \wedge (r1_collsp \\
& X0 X2 X7 X10)))))) \Rightarrow ((X1 = X2) \vee ((r1_projdes1 X0 X1 X4 X5 X3) \vee ((r1_collsp \\
& X0 X2 X6 X7) \vee (r1_collsp X0 X8 X9 X10))))))))) \\
& \hspace{15em} (5)
\end{aligned}$$