

l66_anproj_2 (TMGuT- gFA9Hjf7C3Wwjx8DzvTYrqizGKBgVZ)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v7_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v5_rlvect_1 : \iota \Rightarrow o$ be given. Let $v6_rlvect_1 : \iota \Rightarrow o$ be given. Let $v7_rlvect_1 : \iota \Rightarrow o$ be given. Let $v8_rlvect_1 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_collsp : \iota \Rightarrow o$ be given. Let $k5_anproj_1 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_anproj_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_anproj_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_anproj_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_collsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_collsp : \iota \Rightarrow o$ be given. Let $l1_collsp : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6. \\
& (m1_subset_1 X6 (u1_struct_0 X0)) \Rightarrow (((r1_anproj_1 X0 X1 X2) \wedge ((\\
& r1_anproj_1 X0 X3 X4) \wedge ((r1_anproj_1 X0 X5 X6) \wedge (r2_anproj_1 X0 X1 \\
& X3 X5)))) \Rightarrow (r2_anproj_1 X0 X2 X4 X6))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((\neg v7_struct_0 X1) \wedge \\
& ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 \\
& X1) \wedge ((v5_rlvect_1 X1) \wedge ((v6_rlvect_1 X1) \wedge ((v7_rlvect_1 X1) \wedge \\
& ((v8_rlvect_1 X1) \wedge (l1_rlvect_1 X1)))))))))) \Rightarrow ((m1_subset_1 \\
& X0 (u1_struct_0 (k5_anproj_1 X1))) \Leftrightarrow (\exists X2.(m1_subset_1 \\
& X2 (u1_struct_0 X1)) \wedge ((\neg v9_struct_0 X2 X1) \wedge (X0 = k2_anproj_1 X1 \\
& X2))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\
& ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\
& X0) \wedge (l1_rlvect_1 X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 \\
& (u1_struct_0 (k5_anproj_1 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 \\
& (u1_struct_0 (k5_anproj_1 X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 (k5_anproj_1 X0))) \Rightarrow ((r1_collsp (k5_anproj_1 X0) \\
& X1 X2 X3) \Leftrightarrow (\exists X4.(m1_subset_1 X4 (u1_struct_0 X0)) \wedge (\exists X5. \\
& (m1_subset_1 X5 (u1_struct_0 X0)) \wedge (\exists X6.(m1_subset_1 X6 \\
& (u1_struct_0 X0)) \wedge ((X1 = k2_anproj_1 X0 X4) \wedge ((X2 = k2_anproj_1 \\
& X0 X5) \wedge ((X3 = k2_anproj_1 X0 X6) \wedge ((\neg v9_struct_0 X4 X0) \wedge ((\neg v9_struct_0 \\
& X5 X0) \wedge ((\neg v9_struct_0 X6 X0) \wedge (r2_anproj_1 X0 X4 X5 X6))))))))))))) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\
& ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\
& X0) \wedge (l1_rlvect_1 X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow \\
& (\neg(\neg v9_struct_0 X1 X0) \wedge ((\neg v9_struct_0 X2 X0) \wedge (\neg(k2_anproj_1 \\
& X0 X1 = k2_anproj_1 X0 X2) \Leftrightarrow (r1_anproj_1 X0 X1 X2)))))) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge (l1_rlvect_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (((r2_anproj_1 \\
& X0 X1 X2 X3) \wedge ((r2_anproj_1 X0 X1 X2 X4) \wedge (r2_anproj_1 X0 X1 X2 X5))) \Rightarrow \\
& ((r1_anproj_1 X0 X1 X2) \vee ((v9_struct_0 X1 X0) \vee ((v9_struct_0 X2 \\
& X0) \vee (r2_anproj_1 X0 X3 X4 X5))))))))) \\
& \tag{5}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\
& ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\
& X0) \wedge (l1_rlvect_1 X0)))))))))) \Rightarrow ((\neg v2_struct_0 (k5_anproj_1 \\
& X0)) \wedge (v1_collsp (k5_anproj_1 X0))) \\
& \tag{6}
\end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 \\ &X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\ &((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\ &X0) \wedge (l1_rlvect_1 X0)))))))))) \Rightarrow ((v1_collsp (k5_anproj_1 X0)) \wedge \\ &(l1_collsp (k5_anproj_1 X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge (l1_collsp X0)) \Rightarrow ((v3_collsp X0) \Leftrightarrow \\ &(\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ &X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ &X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\forall X5. \\ &(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (((r1_collsp X0 X1 X2 X3) \wedge ((\\ &r1_collsp X0 X1 X2 X4) \wedge (r1_collsp X0 X1 X2 X5)) \Rightarrow ((X1 = X2) \vee (r1_collsp \\ &X0 X3 X4 X5)))))))))) \end{aligned} \quad (8)$$

Theorem 1

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 \\ &X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\ &((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\ &X0) \wedge (l1_rlvect_1 X0)))))))))) \Rightarrow (v3_collsp (k5_anproj_1 X0)) \end{aligned}$$