

t16_projred2
(TMG92YPpnVzyacYx2d9wStjwZjW4zknN7kQ)

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Let $v6_incsp_1 : \iota \Rightarrow o$ be given. Let $v1_incproj : \iota \Rightarrow o$ be given. Let $v2_incproj : \iota \Rightarrow o$ be given. Let $v3_incproj : \iota \Rightarrow o$ be given. Let $v4_incproj : \iota \Rightarrow o$ be given. Let $v5_incproj : \iota \Rightarrow o$ be given. Let $v9_incproj : \iota \Rightarrow o$ be given. Let $l1_incsp_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_incsp_1 : \iota \Rightarrow \iota$ be given. Let $u2_incsp_1 : \iota \Rightarrow \iota$ be given. Let $r4_incsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_incsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_projred2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(l1_incsp_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u2_incsp_1 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_incsp_1 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_incsp_1 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\ & (u1_incsp_1 X0)) \Rightarrow ((r4_incsp_1 X0 (k8_domain_1 (u1_incsp_1 X0) \\ & X2 X3 X4) X1) \Leftrightarrow ((r1_incsp_1 X0 X2 X1) \wedge ((r1_incsp_1 X0 X3 X1) \wedge (r1_incsp_1 \\ & X0 X4 X1)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_incsp_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u2_incsp_1 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_incsp_1 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_incsp_1 X0)) \Rightarrow ((r4_incsp_1 X0 (k7_domain_1 \\ & (u1_incsp_1 X0) X2 X3) X1) \Leftrightarrow ((r1_incsp_1 X0 X2 X1) \wedge (r1_incsp_1 X0 \\ & X3 X1)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_incsp_1 X0) \Rightarrow ((v1_incproj X0) \Leftrightarrow (\forall X1.(m1_subset_1 \\ & X1 (u1_incsp_1 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_incsp_1 X0)) \Rightarrow \\ & (\forall X3.(m1_subset_1 X3 (u2_incsp_1 X0)) \Rightarrow (\forall X4.(m1_subset_1 \\ & X4 (u2_incsp_1 X0)) \Rightarrow (\neg(r1_incsp_1 X0 X1 X3) \wedge ((r1_incsp_1 X0 X2 \\ & X3) \wedge (r1_incsp_1 X0 X1 X4) \wedge ((r1_incsp_1 X0 X2 X4) \wedge ((X1 \neq X2) \wedge (X3 \neq \\ & X4)))))))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v6_incsp_1 X0) \wedge ((v1_incproj X0) \wedge ((v2_incproj X0) \wedge \\
& ((v3_incproj X0) \wedge ((v4_incproj X0) \wedge (l1_incsp_1 X0)))))) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (u2_incsp_1 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\
& (u2_incsp_1 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u2_incsp_1 X0)) \Rightarrow \\
& ((r1_projred2 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m1_subset_1 X4 (u1_incsp_1 \\
& X0)) \wedge ((r1_incsp_1 X0 X4 X1) \wedge ((r1_incsp_1 X0 X4 X2) \wedge (r1_incsp_1 \\
& X0 X4 X3))))))))) \\
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((v6_incsp_1 X0) \wedge ((v1_incproj X0) \wedge ((v2_incproj X0) \wedge \\
& ((v3_incproj X0) \wedge ((v4_incproj X0) \wedge ((v5_incproj X0) \wedge ((v9_incproj \\
& X0) \wedge (l1_incsp_1 X0))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_incsp_1 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_incsp_1 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_incsp_1 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (u1_incsp_1 X0)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_incsp_1 X0)) \Rightarrow \\
& (\forall X6.(m1_subset_1 X6 (u1_incsp_1 X0)) \Rightarrow (\forall X7.(m1_subset_1 \\
& X7 (u1_incsp_1 X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 (u2_incsp_1 X0)) \Rightarrow \\
& (\forall X9.(m1_subset_1 X9 (u2_incsp_1 X0)) \Rightarrow (\forall X10.(m1_subset_1 \\
& X10 (u2_incsp_1 X0)) \Rightarrow (\forall X11.(m1_subset_1 X11 (u2_incsp_1 \\
& X0)) \Rightarrow (\forall X12.(m1_subset_1 X12 (u2_incsp_1 X0)) \Rightarrow (\forall X13. \\
& (m1_subset_1 X13 (u2_incsp_1 X0)) \Rightarrow (\forall X14.(m1_subset_1 \\
& X14 (u2_incsp_1 X0)) \Rightarrow (\forall X15.(m1_subset_1 X15 (u2_incsp_1 \\
& X0)) \Rightarrow (((r4_incsp_1 X0 (k7_domain_1 (u1_incsp_1 X0) X3 X4) X8) \wedge \\
& ((r1_incsp_1 X0 X5 X11) \wedge ((r4_incsp_1 X0 (k7_domain_1 (u1_incsp_1 \\
& X0) X3 X5) X9) \wedge ((r4_incsp_1 X0 (k8_domain_1 (u1_incsp_1 X0) X1 X2 \\
& X6) X12) \wedge ((r4_incsp_1 X0 (k7_domain_1 (u1_incsp_1 X0) X3 X7) X10) \wedge \\
& ((r4_incsp_1 X0 (k8_domain_1 (u1_incsp_1 X0) X1 X5 X4) X13) \wedge ((r4_incsp_1 \\
& X0 (k8_domain_1 (u1_incsp_1 X0) X6 X4 X7) X14) \wedge (r4_incsp_1 X0 (k8_domain_1 \\
& (u1_incsp_1 X0) X2 X5 X7) X15))))))))) \Rightarrow ((r1_incsp_1 X0 X1 X8) \vee ((\\
& r1_incsp_1 X0 X1 X9) \vee ((r1_incsp_1 X0 X2 X9) \vee ((r1_incsp_1 X0 X2 X10) \vee \\
& ((r1_projred2 X0 X8 X11 X9) \vee ((r1_projred2 X0 X11 X9 X12) \vee ((X8 = X10) \vee \\
& ((X10 = X9) \vee ((X1 = X2) \vee ((X6 \neq X1) \wedge ((X6 \neq X2) \wedge ((\neg r1_incsp_1 X0 X6 X8) \wedge \\
& (\neg r1_incsp_1 X0 X6 X10)))))))))))))))))
\end{aligned}$$