

t15_mod_2

(TMVj2chqYN2xQahmo2vfXhZdVaAucd3W623)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ 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 $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_mod_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_mod_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_mod_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_mod_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_mod_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_mod_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v8_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v11_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_mod_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
 & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
 & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
 & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v8_vectsp_1 \\
 & X1 X0) \wedge ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 \\
 & X1 X0) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
 & (l1_vectsp_1 X1 X0)))))))))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge \\
 & ((v13_algstr_0 X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge \\
 & ((v10_vectsp_1 X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge ((v2_rlvect_1 X2) \wedge \\
 & ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 X2) \wedge (l1_vectsp_1 X2 X0)))))))))) \Rightarrow \\
 & (\forall X3.((\neg v2_struct_0 X3) \wedge ((v13_algstr_0 X3) \wedge ((v8_vectsp_1 \\
 & X3 X0) \wedge ((v9_vectsp_1 X3 X0) \wedge ((v10_vectsp_1 X3 X0) \wedge ((v11_vectsp_1 \\
 & X3 X0) \wedge ((v2_rlvect_1 X3) \wedge ((v3_rlvect_1 X3) \wedge ((v4_rlvect_1 X3) \wedge \\
 & (l1_vectsp_1 X3 X0)))))))))) \Rightarrow (\forall X4.(m1_mod_2 X4 X0 X1 X2) \Rightarrow \\
 & (\forall X5.(m1_mod_2 X5 X0 X3 X1) \Rightarrow ((v2_mod_2 (k8_mod_2 X0 X4 X5) \\
 & X0) \wedge (m1_mod_2 (k8_mod_2 X0 X4 X5) X0 X3 X2))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((v3_mod_2 X1 X0) \wedge (l1_mod_2 X1 X0)) \Rightarrow (\forall X2.(\\
& (v3_mod_2 X2 X0) \wedge (l1_mod_2 X2 X0)) \Rightarrow (\neg(k2_mod_2 X0 X1 = k3_mod_2 \\
& X0 X2) \wedge (\forall X3.((\neg v2_struct_0 X3) \wedge ((v13_algstr_0 X3) \wedge ((\\
& v8_vectsp_1 X3 X0) \wedge ((v9_vectsp_1 X3 X0) \wedge ((v10_vectsp_1 X3 X0) \wedge \\
& ((v11_vectsp_1 X3 X0) \wedge ((v2_rlvect_1 X3) \wedge ((v3_rlvect_1 X3) \wedge (\\
& (v4_rlvect_1 X3) \wedge (l1_vectsp_1 X3 X0)))))))))) \Rightarrow (\forall X4.(\\
& (\neg v2_struct_0 X4) \wedge ((v13_algstr_0 X4) \wedge ((v8_vectsp_1 X4 X0) \wedge (\\
& (v9_vectsp_1 X4 X0) \wedge ((v10_vectsp_1 X4 X0) \wedge ((v11_vectsp_1 X4 X0) \wedge \\
& ((v2_rlvect_1 X4) \wedge ((v3_rlvect_1 X4) \wedge ((v4_rlvect_1 X4) \wedge (l1_vectsp_1 \\
& X4 X0)))))))))) \Rightarrow (\forall X5.((\neg v2_struct_0 X5) \wedge ((v13_algstr_0 \\
& X5) \wedge ((v8_vectsp_1 X5 X0) \wedge ((v9_vectsp_1 X5 X0) \wedge ((v10_vectsp_1 \\
& X5 X0) \wedge ((v11_vectsp_1 X5 X0) \wedge ((v2_rlvect_1 X5) \wedge ((v3_rlvect_1 \\
& X5) \wedge ((v4_rlvect_1 X5) \wedge (l1_vectsp_1 X5 X0)))))))))) \Rightarrow (\neg(m1_mod_2 \\
& X1 X0 X4 X5) \wedge (m1_mod_2 X2 X0 X3 X4))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (\\
& (v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 \\
& X0)))))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v8_vectsp_1 \\
& X1 X0) \wedge ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 \\
& X1 X0) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
& (l1_vectsp_1 X1 X0)))))))))) \wedge ((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 \\
& X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge ((v10_vectsp_1 \\
& X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 \\
& X2) \wedge ((v4_rlvect_1 X2) \wedge (l1_vectsp_1 X2 X0)))))))))) \Rightarrow (\forall X3. \\
& (m1_mod_2 X3 X0 X1 X2) \Rightarrow ((v3_mod_2 X3 X0) \wedge (l1_mod_2 X3 X0)))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v8_vectsp_1 \\
& X1 X0) \wedge ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 \\
& X1 X0) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
& (l1_vectsp_1 X1 X0)))))))))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge \\
& ((v13_algstr_0 X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge \\
& ((v10_vectsp_1 X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge ((v2_rlvect_1 X2) \wedge \\
& ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 X2) \wedge (l1_vectsp_1 X2 X0)))))))))) \Rightarrow \\
& (\forall X3.((v3_mod_2 X3 X0) \wedge (l1_mod_2 X3 X0)) \Rightarrow ((m1_mod_2 X3 \\
& X0 X1 X2) \Leftrightarrow ((k2_mod_2 X0 X3 = X1) \wedge (k3_mod_2 X0 X3 = X2))))))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((v2_mod_2 X1 X0) \wedge ((v3_mod_2 X1 X0) \wedge (l1_mod_2 X1 X0))) \Rightarrow \\
& (\forall X2.((v2_mod_2 X2 X0) \wedge ((v3_mod_2 X2 X0) \wedge (l1_mod_2 X2 X0))) \Rightarrow \\
& ((k2_mod_2 X0 X2 = k3_mod_2 X0 X1) \Rightarrow ((k2_mod_2 X0 (k8_mod_2 X0 X2 X1) = \\
& k2_mod_2 X0 X1) \wedge (k3_mod_2 X0 (k8_mod_2 X0 X2 X1) = k3_mod_2 X0 X2))))))
\end{aligned}$$