

l42_rmod_3

(TMYUWv9Ff1ptXZVtDydMsRARoTrWppPSzcv)

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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 $v4_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_rmod_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_rmod_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_rmod_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_vectsp_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
 & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
 & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
 & (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
 & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
 & (l1_vectsp_2 X1 X0)))))))) \Rightarrow (\forall X2. (m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
 & ((v2_vectsp_2 X3 X0) \wedge (m1_rmod_2 X3 X0 X1) \Rightarrow ((m1_rmod_2 X2 X0 X3) \Leftrightarrow \\
 & (k1_rmod_3 X0 X1 X2 X3 = X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
 & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
 & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
 & (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
 & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
 & (l1_vectsp_2 X1 X0)))))))) \Rightarrow (\forall X2. (m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
 & (m1_rmod_2 X3 X0 X1) \Rightarrow ((m1_rmod_2 X2 X0 (k1_rmod_3 X0 X1 X2 X3) \wedge \\
 & m1_rmod_2 X3 X0 (k1_rmod_3 X0 X1 X2 X3))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (\forall X4.(m1_rmod_2 X4 X0 X1) \Rightarrow (k1_rmod_3 \\
& X0 X1 X2 (k1_rmod_3 X0 X1 X3 X4) = k1_rmod_3 X0 X1 (k1_rmod_3 X0 X1 X2 \\
& X3) X4))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow ((r1_tarski (u1_struct_0 X2) (u1_struct_0 \\
& X3)) \Rightarrow (m1_rmod_2 X2 X0 X3))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge ((\\
& v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 \\
& X2) \wedge ((v4_vectsp_2 X2 X0) \wedge (l1_vectsp_2 X2 X0))))))) \Rightarrow (\forall X3. \\
& ((\neg v2_struct_0 X3) \wedge ((v13_algstr_0 X3) \wedge ((v2_rlvect_1 X3) \wedge ((\\
& v3_rlvect_1 X3) \wedge ((v4_rlvect_1 X3) \wedge ((v4_vectsp_2 X3 X0) \wedge (l1_vectsp_2 \\
& X3 X0))))))) \Rightarrow (((m1_rmod_2 X1 X0 X2) \wedge (m1_rmod_2 X2 X0 X3)) \Rightarrow (m1_rmod_2 \\
& X1 X0 X3))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (\forall X4.(m1_rmod_2 X4 X0 X1) \Rightarrow (((m1_rmod_2 \\
& X2 X0 X3) \wedge (m1_rmod_2 X2 X0 X4)) \Rightarrow (m1_rmod_2 X2 X0 (k2_rmod_3 X0 X1 \\
& X3 X4))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow ((m1_rmod_2 (k2_rmod_3 X0 X1 X2 X3) X0 X2) \wedge \\
& m1_rmod_2 (k2_rmod_3 X0 X1 X2 X3) X0 X3))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (r1_tarski (u1_struct_0 X2) (u1_struct_0 \\
& (k1_rmod_3 X0 X1 X2 X3))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (k1_rmod_3 X0 X1 X2 X3 = k1_rmod_3 X0 X1 X3 X2))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (r1_tarski (u1_struct_0 (k2_rmod_3 X0 X1 X2 \\
& X3)) (u1_struct_0 X2))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge \\
& ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \wedge \\
& ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((\\
& v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge (l1_vectsp_2 \\
& X1 X0)))))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow ((\neg v2_struct_0 \\
& X2) \wedge ((v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge \\
& ((v4_rlvect_1 X2) \wedge ((v4_vectsp_2 X2 X0) \wedge (l1_vectsp_2 X2 X0))))))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge \\
& ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 \\
& X0) \wedge (l6_algstr_0 X0)))))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 \\
& X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
& ((v4_vectsp_2 X1 X0) \wedge (l1_vectsp_2 X1 X0)))))))))) \wedge ((m1_rmod_2 X2 \\
& X0 X1) \wedge (m1_rmod_2 X3 X0 X1))) \Rightarrow ((v2_vectsp_2 (k2_rmod_3 X0 X1 X2 \\
& X3) X0) \wedge (m1_rmod_2 (k2_rmod_3 X0 X1 X2 X3) X0 X1))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge \\
& ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 \\
& X0) \wedge (l6_algstr_0 X0)))))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 \\
& X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
& ((v4_vectsp_2 X1 X0) \wedge (l1_vectsp_2 X1 X0)))))))))) \wedge ((m1_rmod_2 X2 \\
& X0 X1) \wedge (m1_rmod_2 X3 X0 X1))) \Rightarrow ((v2_vectsp_2 (k1_rmod_3 X0 X1 X2 \\
& X3) X0) \wedge (m1_rmod_2 (k1_rmod_3 X0 X1 X2 X3) X0 X1))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge ((\\
& v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 \\
& X2) \wedge ((v4_vectsp_2 X2 X0) \wedge (l1_vectsp_2 X2 X0))))))) \Rightarrow ((m1_rmod_2 \\
& X2 X0 X1) \Leftrightarrow ((r1_tarski (u1_struct_0 X2) (u1_struct_0 X1) \wedge ((k4_struct_0 \\
& X2 = k4_struct_0 X1) \wedge ((u1_algstr_0 X2 = k5_relat_1 (u1_algstr_0 \\
& X1) (k2_zfmisc_1 (u1_struct_0 X2) (u1_struct_0 X2))) \wedge (u1_vectsp_2 \\
& X0 X2 = k5_relat_1 (u1_vectsp_2 X0 X1) (k2_zfmisc_1 (u1_struct_0 \\
& X2) (u1_struct_0 X0))))))))))
\end{aligned} \tag{14}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow (\forall X4.(m1_rmod_2 X4 X0 X1) \Rightarrow (r1_tarski \\
& (u1_struct_0 (k1_rmod_3 X0 X1 X2) (k2_rmod_3 X0 X1 X3 X4)) (u1_struct_0 \\
& (k2_rmod_3 X0 X1 (k1_rmod_3 X0 X1 X3 X2) (k1_rmod_3 X0 X1 X2 X4))))))))))
\end{aligned}$$