

l16_rmod.3 (TMGuATmr- rHYMEbm2JxGBcRrN79Jpm39s1Qj)

October 27, 2020

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 $k2_rmod_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_rmod_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_vectsp_2 : \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X1)) \Rightarrow (k3_rmod_2 X0 X1 X2 (k2_rmod_2 X0 X1) = u1_struct_0 X1))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\
& (l1_vectsp_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1_rmod_2 X3 X0 X1) \Rightarrow ((r1_tarski (u1_struct_0 X2) (u1_struct_0 \\
& X3)) \Rightarrow (m1_rmod_2 X2 X0 X3))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\ & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\ & (l1_vectsp_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (k3_rmod_2 \\ & X0 X1 (k4_struct_0 X1) X2 = u1_struct_0 X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (m1_subset_1 (u2_struct_0 X0) (u1_struct_0 X0)) \quad (4)$$

Assume the following.

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

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(l1_vectsp_2 X1 X0) \Rightarrow (l2_algstr_0 X1)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge \\ & ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \wedge \\ & ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((\\ & v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge (l1_vectsp_2 \\ & X1 X0)))))))))) \Rightarrow ((v2_vectsp_2 (k2_rmod_2 X0 X1) X0) \wedge (m1_rmod_2 \\ & (k2_rmod_2 X0 X1) X0 X1)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (k4_struct_0 X0 = u2_struct_0 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\ & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\ & (l1_vectsp_2 X1 X0)))))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge ((\\ & v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 \\ & X2) \wedge ((v4_vectsp_2 X2 X0) \wedge (l1_vectsp_2 X2 X0)))))) \Rightarrow ((m1_rmod_2 \\ & X2 X0 X1) \Leftrightarrow ((r1_tarski (u1_struct_0 X2) (u1_struct_0 X1)) \wedge ((k4_struct_0 \\ & X2 = k4_struct_0 X1) \wedge ((u1_algstr_0 X2 = k5_relat_1 (u1_algstr_0 \\ & X1) (k2_zfmisc_1 (u1_struct_0 X2) (u1_struct_0 X2))) \wedge (u1_vectsp_2 \\ & X0 X2 = k5_relat_1 (u1_vectsp_2 X0 X1) (k2_zfmisc_1 (u1_struct_0 \\ & X2) (u1_struct_0 X0)))))))))) \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\ & X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v4_vectsp_2 X1 X0) \wedge \\ & (l1_vectsp_2 X1 X0)))))) \Rightarrow (\forall X2.(m1_rmod_2 X2 X0 X1) \Rightarrow (m1_rmod_2 \\ & X2 X0 (k2_rmod_2 X0 X1)))) \end{aligned}$$