

t1_rmod_3 (TML- npPdBNNLa5ad84XibXUQUbcUQ6aWjUjc)

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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 $r1_struct.0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_rmod.3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct.0 : \iota \Rightarrow \iota$ be given. Let $k3_rlvect.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_algstr.0 : \iota \Rightarrow o$ be given. Let $l5_algstr.0 : \iota \Rightarrow o$ be given. Let $l2_struct.0 : \iota \Rightarrow o$ 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. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct.0 X0) \wedge (v13_algstr.0 X0) \wedge \\ & ((v3_group.1 X0) \wedge ((v4_vectsp.1 X0) \wedge ((v5_vectsp.1 X0) \wedge ((v2_rlvect.1 \\ & X0) \wedge ((v3_rlvect.1 X0) \wedge ((v4_rlvect.1 X0) \wedge (l6_algstr.0 X0)))))))) \wedge \\ & ((\neg v2_struct.0 X1) \wedge (v13_algstr.0 X1) \wedge ((v2_rlvect.1 X1) \wedge ((\\ & v3_rlvect.1 X1) \wedge ((v4_rlvect.1 X1) \wedge ((v4_vectsp.2 X1 X0) \wedge (l1_vectsp.2 \\ & X1 X0)))))) \Rightarrow (\forall X2. (m1_rmod.2 X2 X0 X1) \Rightarrow ((\neg v2_struct.0 \\ & X2) \wedge (v13_algstr.0 X2) \wedge ((v2_rlvect.1 X2) \wedge ((v3_rlvect.1 X2) \wedge \\ & ((v4_rlvect.1 X2) \wedge ((v4_vectsp.2 X2 X0) \wedge (l1_vectsp.2 X2 X0)))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. (l6_algstr.0 X0) \Rightarrow ((l2_algstr.0 X0) \wedge (l5_algstr.0 X0)) \quad (2)$$

Assume the following.

$$\forall X0. (l2_struct.0 X0) \Rightarrow (l1_struct.0 X0) \quad (3)$$

Assume the following.

$$\forall X0. (l2_algstr.0 X0) \Rightarrow ((l2_struct.0 X0) \wedge (l1_algstr.0 X0)) \quad (4)$$

Assume the following.

$$\forall X0. (l1_struct.0 X0) \Rightarrow (\forall X1. (l1_vectsp.2 X1 X0) \Rightarrow (l2_algstr.0 X1)) \quad (5)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge((v13_algstr_0 X0)\wedge((v3_group_1 X0)\wedge((v4_vectsp_1 X0)\wedge \\
& ((v5_vectsp_1 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 \\
& X0)\wedge(l6_algstr_0 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge((v13_algstr_0 \\
& X1)\wedge((v2_rlvect_1 X1)\wedge((v3_rlvect_1 X1)\wedge((v4_rlvect_1 X1)\wedge \\
& ((v4_vectsp_2 X1 X0)\wedge(l1_vectsp_2 X1 X0))))))\wedge((m1_rmod_2 X2 \\
& X0 X1)\wedge(m1_rmod_2 X3 X0 X1)))\Rightarrow((v2_vectsp_2 (k1_rmod_3 X0 X1 X2 \\
& X3) X0)\wedge(m1_rmod_2 (k1_rmod_3 X0 X1 X2 X3) X0 X1))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_struct_0 X0)\Rightarrow(\forall X1.(r1_struct_0 X0 X1)\Leftrightarrow \\
& (X1 \in u1_struct_0 X0))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v3_group_1 \\
& X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 X0)\wedge((v2_rlvect_1 X0)\wedge \\
& ((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge(l6_algstr_0 X0))))))))\Rightarrow \\
& (\forall X1.(((\neg v2_struct_0 X1)\wedge((v13_algstr_0 X1)\wedge((v2_rlvect_1 \\
& X1)\wedge((v3_rlvect_1 X1)\wedge((v4_rlvect_1 X1)\wedge((v4_vectsp_2 X1 X0)\wedge \\
& (l1_vectsp_2 X1 X0))))))\Rightarrow(\forall X2.(m1_rmod_2 X2 X0 X1)\Rightarrow(\forall X3. \\
& (m1_rmod_2 X3 X0 X1)\Rightarrow(\forall X4.((v2_vectsp_2 X4 X0)\wedge(m1_rmod_2 \\
& X4 X0 X1))\Rightarrow((X4 = k1_rmod_3 X0 X1 X2 X3)\Leftrightarrow(u1_struct_0 X4 = ReplSep2 \\
& (toset (\lambda X5 : \iota.m1_subset_1 X5 (u1_struct_0 X1))) (\lambda X5 : \\
& \iota.toset (\lambda X6 : \iota.m1_subset_1 X6 (u1_struct_0 X1))) (\lambda X5 : \\
& \iota.\lambda X6 : \iota.(r1_struct_0 X2 X5)\wedge(r1_struct_0 X3 X6)) (\lambda X5 : \\
& \iota.\lambda X6 : \iota.k3_rlvect_1 X1 X5 X6))))))
\end{aligned} \tag{8}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v3_group_1 \\
& X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 X0)\wedge((v2_rlvect_1 X0)\wedge \\
& ((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge(l6_algstr_0 X0))))))))\Rightarrow \\
& (\forall X1.(((\neg v2_struct_0 X1)\wedge((v13_algstr_0 X1)\wedge((v2_rlvect_1 \\
& X1)\wedge((v3_rlvect_1 X1)\wedge((v4_rlvect_1 X1)\wedge((v4_vectsp_2 X1 X0)\wedge \\
& (l1_vectsp_2 X1 X0))))))\Rightarrow(\forall X2.(m1_rmod_2 X2 X0 X1)\Rightarrow(\forall X3. \\
& (m1_rmod_2 X3 X0 X1)\Rightarrow(\forall X4.(r1_struct_0 (k1_rmod_3 X0 X1 \\
& X2 X3) X4)\Leftrightarrow(\exists X5.(m1_subset_1 X5 (u1_struct_0 X1))\wedge(\exists X6. \\
& (m1_subset_1 X6 (u1_struct_0 X1))\wedge((r1_struct_0 X2 X5)\wedge((r1_struct_0 \\
& X3 X6)\wedge(X4 = k3_rlvect_1 X1 X5 X6))))))
\end{aligned}$$