

l38_vectsp_2

(TMR9Mh9oYwtgYiMLHG43hr7EYdPyYwKq43d)

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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 $v8_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_vectsp_2 : \iota \Rightarrow \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v7_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
 & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\
 & \quad (k3_vectsp_2 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 \\
 & \quad (k3_vectsp_2 X0)) \Rightarrow ((k4_vectsp_1 X0 (k3_vectsp_2 X0) X1 (k3_rlvect_1 \\
 & \quad (k3_vectsp_2 X0) X3 X4) = k3_rlvect_1 (k3_vectsp_2 X0) (k4_vectsp_1 \\
 & \quad X0 (k3_vectsp_2 X0) X1 X3) (k4_vectsp_1 X0 (k3_vectsp_2 X0) X1 X4)) \wedge \\
 & \quad ((k4_vectsp_1 X0 (k3_vectsp_2 X0) (k3_rlvect_1 X0 X1 X2) X3 = k3_rlvect_1 \\
 & \quad (k3_vectsp_2 X0) (k4_vectsp_1 X0 (k3_vectsp_2 X0) X1 X3) (k4_vectsp_1 \\
 & \quad X0 (k3_vectsp_2 X0) X2 X3)) \wedge ((k4_vectsp_1 X0 (k3_vectsp_2 X0) (\\
 & \quad k6_algstr_0 X0 X1 X2) X3 = k4_vectsp_1 X0 (k3_vectsp_2 X0) X1 (k4_vectsp_1 \\
 & \quad X0 (k3_vectsp_2 X0) X2 X3)) \wedge (k4_vectsp_1 X0 (k3_vectsp_2 X0) (k5_struct_0 \\
 & \quad X0) X3 = X3)))))))))
 \end{aligned}$$

(1)

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0)\wedge(l1_algstr_0 X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2) \quad (2)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0)\Rightarrow((l2_algstr_0 X0)\wedge(l5_algstr_0 X0)) \quad (3)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(l1_struct_0 X0) \quad (4)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0)\Rightarrow((l2_struct_0 X0)\wedge(l1_algstr_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0)\Rightarrow(\forall X1.(l1_vectsp_1 X1 X0)\Rightarrow(l2_algstr_0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\wedge(((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\wedge((m1_subset_1 X2 (u1_struct_0 X0))\wedge(m1_subset_1 X3 (u1_struct_0 X1))))))\Rightarrow(m1_subset_1 (k4_vectsp_1 X0 X1 X2 X3) (u1_struct_0 X1)) \quad (7)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v3_group_1 X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge(l6_algstr_0 X0))))))))))\Rightarrow(((\neg v2_struct_0 (k3_vectsp_2 X0))\wedge((v13_algstr_0 (k3_vectsp_2 X0))\wedge((v7_vectsp_1 (k3_vectsp_2 X0) X0)\wedge((v2_rlvect_1 (k3_vectsp_2 X0))\wedge((v3_rlvect_1 (k3_vectsp_2 X0))\wedge((v4_rlvect_1 (k3_vectsp_2 X0))\wedge(l1_vectsp_1 (k3_vectsp_2 X0) X0)))))))))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((l1_algstr_0 X0)\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k1_algstr_0 X0 X1 X2) (u1_struct_0 X0)) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & (k3_vectsp_2 X0 = g1_vectsp_1 X0 (u1_struct_0 X0) (u1_algstr_0 \\ & X0) (k4_struct_0 X0) (u2_algstr_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow ((v11_vectsp_1 X1 X0) \Leftrightarrow \\ & (\forall X2.(m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (k4_vectsp_1 X0 \\ & X1 (k5_struct_0 X0) X2 = X2)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow ((v10_vectsp_1 X1 X0) \Leftrightarrow \\ & (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\ & X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\ & X1)) \Rightarrow (k4_vectsp_1 X0 X1 (k6_algstr_0 X0 X2 X3) X4 = k4_vectsp_1 X0 \\ & X1 X2 (k4_vectsp_1 X0 X1 X3 X4)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow ((v9_vectsp_1 X1 X0) \Leftrightarrow \\ & (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\ & X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\ & X1)) \Rightarrow (k4_vectsp_1 X0 X1 (k1_algstr_0 X0 X2 X3) X4 = k1_algstr_0 X1 \\ & (k4_vectsp_1 X0 X1 X2 X4) (k4_vectsp_1 X0 X1 X3 X4)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow ((v8_vectsp_1 X1 X0) \Leftrightarrow \\ & (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\ & X3 (u1_struct_0 X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\ & X1)) \Rightarrow (k4_vectsp_1 X0 X1 X2 (k1_algstr_0 X1 X3 X4) = k1_algstr_0 X1 \\ & (k4_vectsp_1 X0 X1 X2 X3) (k4_vectsp_1 X0 X1 X2 X4)))))) \end{aligned} \quad (15)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & ((v8_vectsp_1 (k3_vectsp_2 X0) X0) \wedge ((v9_vectsp_1 (k3_vectsp_2 \\ & X0) X0) \wedge ((v10_vectsp_1 (k3_vectsp_2 X0) X0) \wedge (v11_vectsp_1 (k3_vectsp_2 \\ & X0) X0)))) \end{aligned}$$