

l9_parsp_1 (TM-
JAwA9MWT96zZjpw7BPfZRDXder86vmHts)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v6_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v33_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v5_group_1 : \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_group_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_vectsp_1 : \iota \Rightarrow o$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_vectsp_1 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ 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 $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 \\ & X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (k6_algstr_0 X0 (k4_algstr_0 X0 X1) X2 = k4_algstr_0 \\ & X0 (k6_algstr_0 X0 X1 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 \\ & X0) \wedge ((v4_rlvect_1 X0) \wedge ((v1_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow (k6_algstr_0 X0 X1 (k5_algstr_0 X0 X2 X3) = k5_algstr_0 X0 (\\ & k6_algstr_0 X0 X1 X2) (k6_algstr_0 X0 X1 X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(v5_group_1 X0)\wedge(l3_algstr_0 X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(k8_group_1 X0 X1 X2 = k6_algstr_0 X0 X1 X2)$$
(3)

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0)\wedge(l1_algstr_0 X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2)$$
(4)

Assume the following.

$$\forall X0.(l6_algstr_0 X0)\Rightarrow((l2_algstr_0 X0)\wedge(l5_algstr_0 X0))$$
(5)

Assume the following.

$$\forall X0.(l5_algstr_0 X0)\Rightarrow((l4_algstr_0 X0)\wedge(l4_struct_0 X0))$$
(6)

Assume the following.

$$\forall X0.(l4_algstr_0 X0)\Rightarrow((l3_struct_0 X0)\wedge(l3_algstr_0 X0))$$
(7)

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((l3_algstr_0 X0)\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k6_algstr_0 X0 X1 X2) (u1_struct_0 X0)))$$
(9)

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((l2_algstr_0 X0)\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k5_algstr_0 X0 X1 X2) (u1_struct_0 X0)))$$
(10)

Assume the following.

$$\forall X0.\forall X1.(((l2_algstr_0 X0)\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k4_algstr_0 X0 X1) (u1_struct_0 X0)))$$
(11)

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((l1_algstr_0 X0)\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k1_algstr_0 X0 X1 X2) (u1_struct_0 X0)))$$
(12)

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l6_algstr_0 X0)) \Rightarrow ((v5_vectsp_1 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X0)) \Rightarrow ((k6_algstr_0 X0 X1 (k1_algstr_0 X0 X2 X3) = k1_algstr_0 \\
& \quad X0 (k6_algstr_0 X0 X1 X2) (k6_algstr_0 X0 X1 X3)) \wedge (k6_algstr_0 X0 \\
& \quad (k1_algstr_0 X0 X2 X3) X1 = k1_algstr_0 X0 (k6_algstr_0 X0 X2 X1) (\\
& \quad \quad k6_algstr_0 X0 X3 X1))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_algstr_0 X0) \Rightarrow ((v3_rlvect_1 X0) \Leftrightarrow (\forall X1.(\\
& \quad m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\
& \quad (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow \\
& (k1_algstr_0 X0 (k1_algstr_0 X0 X1 X2) X3 = k1_algstr_0 X0 X1 (k1_algstr_0 \\
& \quad X0 X2 X3))))))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2_algstr_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k5_algstr_0 \\
& \quad X0 X1 X2 = k1_algstr_0 X0 X1 (k4_algstr_0 X0 X2))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l6_algstr_0 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v5_vectsp_1 \\
& X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v1_vectsp_1 X0) \wedge (v2_vectsp_1 X0))))
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\
& \quad X0) \wedge ((v33_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge (\\
& (v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 \\
& \quad X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\
& \quad (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow \\
& \quad (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (k8_group_1 X0 \\
& (k5_algstr_0 X0 X1 X2) (k5_algstr_0 X0 X3 X4) = k3_rlvect_1 X0 (k8_group_1 \\
& \quad X0 X1 X3) (k3_rlvect_1 X0 (k4_algstr_0 X0 (k8_group_1 X0 X1 X4)) (\\
& \quad \quad k4_algstr_0 X0 (k8_group_1 X0 X2 (k5_algstr_0 X0 X3 X4))))))))))
\end{aligned}$$