

t13_symssp_1 (TM-
RChjY1s78hnUZXUFqFHP9nfEHSBG6jMhf)

October 27, 2020

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 $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ 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 $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $v8_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v2_symssp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_symssp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_group_1 : \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_group_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ 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. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l1_orders_2 :$

$\iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\
& ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v8_vectsp_1 X1 X0) \wedge ((v9_vectsp_1 \\
& X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 X1 X0) \wedge ((v2_symsp_1 X1 X0) \wedge (l1_symsp_1 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (u1_struct_0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\neg(\neg r1_orders_2 \\
& X1 X2 X3) \wedge ((X4 \neq k4_struct_0 X0) \wedge (\neg(\neg r1_orders_2 X1 (k4_vectsp_1 X0 X1 X4 X2) X3) \wedge (\neg r1_orders_2 X1 X2 (k4_vectsp_1 X0 X1 X4 X3))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l2_algstr_0 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow ((k1_algstr_0 X0 X1 (k4_struct_0 X0) = X1) \wedge (k1_algstr_0 X0 (k4_struct_0 X0) X1 = X1)))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\
& ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((X1 \neq k4_struct_0 X0) \Rightarrow ((k11_algstr_0 X0 X1 \neq k4_struct_0 X0) \wedge (k4_algstr_0 X0 (k11_algstr_0 X0 X1) \neq k4_struct_0 \\
& X0))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\
& ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v8_vectsp_1 X1 X0) \wedge ((v9_vectsp_1 \\
& X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 X1 X0) \wedge ((v2_symsp_1 X1 X0) \wedge (l1_symsp_1 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (u1_struct_0 X1)) \Rightarrow (r1_orders_2 X1 (k4_struct_0 X1) X2))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l2_algstr_0 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\
& X1 (u1_struct_0 X0)) \Rightarrow (k5_algstr_0 X0 X1 X1 = k4_struct_0 X0))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge \\
& (v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.((\\
& \neg v2_struct_0 X2) \wedge ((v13_algstr_0 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 \\
& X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge ((v10_vectsp_1 \\
& X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge (l1_vectsp_1 X2 X0)))))) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X2)) \Rightarrow ((k4_vectsp_1 X0 X2 (k4_struct_0 \\
& X0) X3 = k4_struct_0 X2) \wedge ((k4_vectsp_1 X0 X2 (k4_algstr_0 X0 (k5_struct_0 \\
& X0)) X3 = k4_algstr_0 X2 X3) \wedge (k4_vectsp_1 X0 X2 X1 (k4_struct_0 X2) = \\
& k4_struct_0 X2))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge \\
& (v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 \\
& X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k8_group_1 X0 \\
& X1 X2 = k4_struct_0 X0) \Leftrightarrow ((X1 = k4_struct_0 X0) \vee (X2 = k4_struct_0 \\
& X0))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v5_group_1 \\
& X0) \wedge (l3_algstr_0 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\
& (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (k8_group_1 X0 X1 X2 = k6_algstr_0 \\
& X0 X1 X2)
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((v2_rlvect_1 X0) \wedge (l1_algstr_0 \\
& X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\
& X0)))) \Rightarrow (k3_rlvect_1 X0 X1 X2 = k1_algstr_0 X0 X1 X2)
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v4_vectsp_1 X0) \wedge (l4_algstr_0 \\
& X0))) \Rightarrow (k1_group_1 X0 = k5_struct_0 X0)
\end{aligned} \tag{10}$$

Assume the following.

$$\forall X0. \exists X1. m1_subset_1 X1 X0 \tag{11}$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \tag{12}$$

Assume the following.

$$\forall X0.(l5_algstr_0 X0) \Rightarrow ((l4_algstr_0 X0) \wedge (l4_struct_0 X0)) \quad (13)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow ((l3_struct_0 X0) \wedge (l3_algstr_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (15)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \quad (16)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(l1_vectsp_1 X1 X0) \Rightarrow (l2_algstr_0 X1)) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\ X0) \wedge ((v33_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\ ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 \\ X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\ (l1_symmsp_1 X1 X0) \Rightarrow ((l1_orders_2 X1) \wedge (l1_vectsp_1 X1 X0))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.((l2_algstr_0 X0) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k4_algstr_0 X0 X1) (u1_struct_0 X0)) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0) \wedge (l1_algstr_0 X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k3_rlvect_1 X0 X1 X2) (u1_struct_0 X0)) \quad (21)$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0) \Rightarrow (m1_subset_1 (k1_group_1 X0) (u1_struct_0 X0)) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.((l5_algstr_0 X0)\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k11_algstr_0 X0 X1) (u1_struct_0 X0)) \quad (23)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l4_algstr_0 X0))\Rightarrow((v4_vectsp_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow((k6_algstr_0 X0 X1 (k5_struct_0 X0) = X1)\wedge(k6_algstr_0 X0 (k5_struct_0 X0) X1 = X1)))) \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v6_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v33_algstr_0 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge \\ & ((v4_rlvect_1 X0)\wedge((v3_group_1 X0)\wedge((v5_group_1 X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 X0)\wedge(l6_algstr_0 X0))))))))))\Rightarrow(\forall X1. \\ & ((\neg v2_struct_0 X1)\wedge((v13_algstr_0 X1)\wedge((v2_rlvect_1 X1)\wedge((v3_rlvect_1 X1)\wedge((v4_rlvect_1 X1)\wedge(l1_symsp_1 X1 X0))))))\Rightarrow(\\ & (v2_symsp_1 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X1))\Rightarrow \\ & (\forall X3.(m1_subset_1 X3 (u1_struct_0 X1))\Rightarrow(\forall X4.(m1_subset_1 X4 (u1_struct_0 X1))\Rightarrow(\forall X5.(m1_subset_1 X5 (u1_struct_0 X1))\Rightarrow(\forall X6.(m1_subset_1 X6 (u1_struct_0 X0))\Rightarrow((\neg(X2\neq k4_struct_0 X1))\wedge(\forall X7.(m1_subset_1 X7 (u1_struct_0 X1))\Rightarrow(r1_orders_2 X1 X7 X2))\wedge(((r1_orders_2 X1 X2 X3)\Rightarrow(r1_orders_2 X1 (k4_vectsp_1 X0 X1 X6 X2) X3))\wedge(((r1_orders_2 X1 X3 X2)\wedge(r1_orders_2 X1 X4 X2))\Rightarrow(r1_orders_2 X1 (k3_rlvect_1 X1 X3 X4) X2))\wedge((\neg(\neg r1_orders_2 X1 X3 X2)\wedge(\forall X7.(m1_subset_1 X7 (u1_struct_0 X0))\Rightarrow(\neg r1_orders_2 X1 (k5_algstr_0 X1 X5 (k4_vectsp_1 X0 X1 X7 X3)) X2))\wedge(((r1_orders_2 X1 X2 (k3_rlvect_1 X1 X3 X4))\wedge(r1_orders_2 X1 X3 (k3_rlvect_1 X1 X4 X2))\Rightarrow(r1_orders_2 X1 X4 (k3_rlvect_1 X1 X2 X3)))))))))))))) \quad (25) \end{aligned}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l6_algstr_0 X0))\Rightarrow(\forall X1. ((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\Rightarrow((v11_vectsp_1 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X1))\Rightarrow(k4_vectsp_1 X0 X1 (k5_struct_0 X0) X2 = X2)))) \quad (26)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l6_algstr_0 X0))\Rightarrow(\forall X1. ((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\Rightarrow((v9_vectsp_1 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (u1_struct_0 X1))\Rightarrow(k4_vectsp_1 X0 X1 (k1_algstr_0 X0 X2 X3) X4 = k1_algstr_0 X1 (k4_vectsp_1 X0 X1 X2 X4) (k4_vectsp_1 X0 X1 X3 X4)))))) \quad (27)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_algstr_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k5_algstr_0 \\ X0 X1 X2 = k1_algstr_0 X0 X1 (k4_algstr_0 X0 X2)))) \end{aligned} \quad (28)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v33_algstr_0 X0) \wedge ((v3_group_1 \\ X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))) \Rightarrow \\ (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((X1 \neq k4_struct_0 \\ X0) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((X2 = k11_algstr_0 \\ X0 X1) \Leftrightarrow (k8_group_1 X0 X2 X1 = k5_struct_0 X0)))))) \end{aligned} \quad (29)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v2_rlvect_1 X0) \wedge (l1_algstr_0 \\ X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ X0)))) \Rightarrow (k3_rlvect_1 X0 X1 X2 = k3_rlvect_1 X0 X2 X1) \end{aligned} \quad (30)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\ X0) \wedge ((v33_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\ ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 \\ X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 X1) \wedge ((\\ v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v8_vectsp_1 X1 X0) \wedge ((v9_vectsp_1 \\ X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 X1 X0) \wedge ((v2_symsp_1 \\ X1 X0) \wedge (l1_symsp_1 X1 X0)))))))))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 X1)) \Rightarrow ((k3_rlvect_1 X0 (k1_group_1 X0) (k1_group_1 \\ X0) \neq k4_struct_0 X0) \Rightarrow (r1_orders_2 X1 X2 X2)))) \end{aligned}$$