

l74_mod_4

(TMZXpxd74h8KoMdG8ttgAXQvaUrqZYXifa9)

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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 $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $k8_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $u1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (X1 \in X0) \Rightarrow (k1_funct_1 (k2_funcop_1 X0 X2) X1 = X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge (\\
& (v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0))))))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.((\\
& \neg v2_struct_0 X2) \wedge ((v13_algstr_0 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 \\
& X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge ((v10_vectsp_1 \\
& X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge (l1_vectsp_1 X2 X0))))))))) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X2)) \Rightarrow ((k4_vectsp_1 X0 X2 (k4_struct_0 \\
& X0) X3 = k4_struct_0 X2) \wedge ((k4_vectsp_1 X0 X2 (k4_algstr_0 X0 (k5_struct_0 \\
& X0)) X3 = k4_algstr_0 X2 X3) \wedge (k4_vectsp_1 X0 X2 X1 (k4_struct_0 X2) = \\
& k4_struct_0 X2))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X2 X0)) \Rightarrow (k8_funcop_1 X0 X1 X2 = k2_funcop_1 X1 X2) \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\
& (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1)))))) \wedge (m1_subset_1 X3 X0)) \Rightarrow (k3_funct_2 X0 \\
& X1 X2 X3 = k1_funct_1 X2 X3)
\end{aligned} \tag{5}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((l1_struct_0 X0) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow \\
& ((v1_funct_1 (u1_vectsp_1 X0 X1)) \wedge ((v1_funct_2 (u1_vectsp_1 \\
& X0 X1) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)) (u1_struct_0 \\
& X1)) \wedge (m1_subset_1 (u1_vectsp_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)) (u1_struct_0 \\
& X1))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \tag{8}$$

Assume the following.

$$\forall X0. (l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \tag{9}$$

Assume the following.

$$\forall X0. (l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(l1_vectsp_1 X1 X0) \Rightarrow (l2_algstr_0 X1)) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge (m1_subset_1 \\ & X2 X0)) \Rightarrow ((v1_funct_1 (k8_funcop_1 X0 X1 X2)) \wedge ((v1_funct_2 (k8_funcop_1 \\ & X0 X1 X2) X1 X0) \wedge (m1_subset_1 (k8_funcop_1 X0 X1 X2) (k1_zfmisc_1 \\ & (k2_zfmisc_1 X1 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ & (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1)))))) \wedge (m1_subset_1 X3 X0)) \Rightarrow (m1_subset_1 (\\ & k3_funct_2 X0 X1 X2 X3) X1) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (((v1_funct_1 X3) \wedge ((\\ & v1_funct_2 X3 (k2_zfmisc_1 X0 X1) X2) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) X2)))))) \wedge ((m1_subset_1 X4 X0) \wedge \\ & (m1_subset_1 X5 X1)))) \Rightarrow (m1_subset_1 (k2_binop_1 X0 X1 X2 X3 X4 \\ & X5) X2) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l2_struct_0 X1)) \Rightarrow (k6_grcat_1 X0 X1 = k8_funcop_1 \\ & (u1_struct_0 X1) (u1_struct_0 X0) (k4_struct_0 X1))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X1)) \Rightarrow (k4_vectsp_1 X0 X1 X2 X3 = k2_binop_1 (u1_struct_0 X0) (u1_struct_0 \\ & X1) (u1_struct_0 X1) (u1_vectsp_1 X0 X1) X2 X3)))) \end{aligned} \quad (17)$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\
& X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge \\
& ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v3_group_1 \\
& X1) \wedge ((v4_vectsp_1 X1) \wedge ((v5_vectsp_1 X1) \wedge ((v2_rlvect_1 X1) \wedge \\
& ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge (l6_algstr_0 X1)))))))))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X1) \\
& (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X0)))))) \Rightarrow (\forall X3.((\neg v2_struct_0 \\
& X3) \wedge ((v13_algstr_0 X3) \wedge ((v8_vectsp_1 X3 X1) \wedge ((v9_vectsp_1 X3 \\
& X1) \wedge ((v10_vectsp_1 X3 X1) \wedge ((v11_vectsp_1 X3 X1) \wedge ((v2_rlvect_1 \\
& X3) \wedge ((v3_rlvect_1 X3) \wedge ((v4_rlvect_1 X3) \wedge (l1_vectsp_1 X3 X1)))))))))) \Rightarrow \\
& (\forall X4.((\neg v2_struct_0 X4) \wedge ((v13_algstr_0 X4) \wedge ((v8_vectsp_1 \\
& X4 X0) \wedge ((v9_vectsp_1 X4 X0) \wedge ((v10_vectsp_1 X4 X0) \wedge ((v11_vectsp_1 \\
& X4 X0) \wedge ((v2_rlvect_1 X4) \wedge ((v3_rlvect_1 X4) \wedge ((v4_rlvect_1 X4) \wedge \\
& (l1_vectsp_1 X4 X0)))))))))) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 X3)) \Rightarrow (k3_funct_2 \\
& (u1_struct_0 X3) (u1_struct_0 X4) (k6_grcat_1 X3 X4) (k4_vectsp_1 \\
& X1 X3 X5 X6) = k4_vectsp_1 X0 X4 (k3_funct_2 (u1_struct_0 X1) (u1_struct_0 \\
& X0) X2 X5) (k3_funct_2 (u1_struct_0 X3) (u1_struct_0 X4) (k6_grcat_1 \\
& X3 X4) X6))))))
\end{aligned}$$