

t28_hermitan

(TMH7qsVAAju9Dd61fSftkaKfS6rMZq3xHEZ)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_complfld : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_hermitan : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_square_1 : \iota \Rightarrow \iota$ be given. Let $k17_complex1 : \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_group_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_complfld : \iota \Rightarrow \iota$ be given. Let $v5_group_1 : \iota \Rightarrow o$ 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 $v6_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v33_algstr_0 : \iota \Rightarrow o$ be given. Let $v36_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v3_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $v6_vectsp_1 : \iota \Rightarrow o$ 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 $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ 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. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 (u1_struct_0 k1_complfld)) \Rightarrow (k8_group_1 \\ & k1_complfld X0 (k2_complfld X0) = k5_square_1 (k17_complex1 X0)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge (v5_group_1 \\ & X0) \wedge (l3_algstr_0 X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ & m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (k8_group_1 X0 X1 X2 = k6_algstr_0 \\ & X0 X1 X2) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& (\neg v6_struct_0 \ k1_complfld) \wedge ((v13_algstr_0 \ k1_complfld) \wedge ((\\
& \quad v33_algstr_0 \ k1_complfld) \wedge ((v36_algstr_0 \ k1_complfld) \wedge ((v3_group_1 \\
& \quad k1_complfld) \wedge ((v5_group_1 \ k1_complfld) \wedge ((v3_vectsp_1 \ k1_complfld) \wedge \\
& \quad ((v5_vectsp_1 \ k1_complfld) \wedge ((v6_vectsp_1 \ k1_complfld) \wedge ((v2_rlvect_1 \\
& \quad k1_complfld) \wedge ((v3_rlvect_1 \ k1_complfld) \wedge (v4_rlvect_1 \ k1_complfld)))))))))) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 \ X0) \wedge (l1_struct_0 \ X0)) \Rightarrow (\neg v1_xboole_0 \ (u1_struct_0 \ X0)) \tag{4}$$

Assume the following.

$$(\neg v2_struct_0 \ k1_complfld) \wedge (v36_algstr_0 \ k1_complfld) \tag{5}$$

Assume the following.

$$\forall X0. (l6_algstr_0 \ X0) \Rightarrow ((l2_algstr_0 \ X0) \wedge (l5_algstr_0 \ X0)) \tag{6}$$

Assume the following.

$$\forall X0. (l5_algstr_0 \ X0) \Rightarrow ((l4_algstr_0 \ X0) \wedge (l4_struct_0 \ X0)) \tag{7}$$

Assume the following.

$$\forall X0. (l4_algstr_0 \ X0) \Rightarrow ((l3_struct_0 \ X0) \wedge (l3_algstr_0 \ X0)) \tag{8}$$

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.

$$\forall X0. (l1_struct_0 \ X0) \Rightarrow (\forall X1. (l1_vectsp_1 \ X1 \ X0) \Rightarrow (l2_algstr_0 \ X1)) \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\
& X0)\wedge(l3_algstr_0 X0))\wedge(((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\wedge \\
& (((\neg v2_struct_0 X2)\wedge(l1_vectsp_1 X2 X0))\wedge(((v1_funct_1 X3)\wedge \\
& ((v1_funct_2 X3 (u1_struct_0 X1) (u1_struct_0 X0))\wedge(m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0))))))\wedge \\
& ((v1_funct_1 X4)\wedge((v1_funct_2 X4 (u1_struct_0 X2) (u1_struct_0 \\
& X0))\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X2) (u1_struct_0 X0)))))))))\Rightarrow((v1_funct_1 (k9_bilinear X0 X1 \\
& X2 X3 X4))\wedge((v1_funct_2 (k9_bilinear X0 X1 X2 X3 X4) (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0))\wedge(m1_subset_1 \\
& (k9_bilinear X0 X1 X2 X3 X4) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\
& (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0))\Rightarrow(m1_subset_1 (\\
& k3_funct_2 X0 X1 X2 X3) X1)
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_vectsp_1 X0 k1_complfld))\wedge \\
& ((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\
& k1_complfld))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 k1_complfld))))))\Rightarrow((v1_funct_1 (k1_hermitan \\
& X0 X1))\wedge((v1_funct_2 (k1_hermitan X0 X1) (u1_struct_0 X0) (u1_struct_0 \\
& k1_complfld))\wedge(m1_subset_1 (k1_hermitan X0 X1) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 k1_complfld))))))
\end{aligned} \tag{14}$$

Assume the following.

$$(v36_algstr_0 k1_complfld)\wedge(l6_algstr_0 k1_complfld) \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge(l1_vectsp_1 X0 k1_complfld))\Rightarrow \\
& (\forall X1.(((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) \\
& (u1_struct_0 k1_complfld))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 k1_complfld))))))\Rightarrow(\forall X2. \\
& ((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 \\
& k1_complfld))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 k1_complfld))))))\Rightarrow((X2 = k1_hermitan X0 X1)\Leftrightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(k3_funct_2 (u1_struct_0 \\
& X0) (u1_struct_0 k1_complfld) X2 X3 = k2_complfld (k3_funct_2 (\\
& u1_struct_0 X0) (u1_struct_0 k1_complfld) X1 X3))))))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\
& X2) \wedge (l1_vectsp_1 X2 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 (u1_struct_0 X1) (u1_struct_0 X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0)))))) \Rightarrow (\forall X4. \\
& ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 X2) (u1_struct_0 \\
& X0)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X2) (u1_struct_0 X0)))))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 \\
& X5 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0)) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)))))) \Rightarrow ((X5 = \\
& k9_bilinear X0 X1 X2 X3 X4) \Leftrightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X7.(m1_subset_1 X7 (u1_struct_0 X2)) \Rightarrow (k2_binop_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 X0) X5 X6 X7 = k6_algstr_0 \\
& X0 (k3_funct_2 (u1_struct_0 X1) (u1_struct_0 X0) X3 X6) (k3_funct_2 \\
& (u1_struct_0 X2) (u1_struct_0 X0) X4 X7)))))))))
\end{aligned} \tag{17}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_vectsp_1 X0 k1_complfld)) \Rightarrow \\
& (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (u1_struct_0 X0) \\
& (u1_struct_0 k1_complfld)) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 k1_complfld)))))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k2_binop_1 (u1_struct_0 X0) \\
& (u1_struct_0 X0) (u1_struct_0 k1_complfld) (k9_bilinear k1_complfld \\
& X0 X0 X1 (k1_hermitan X0 X1)) X2 X2 = k5_square_1 (k17_complex1 (k3_funct_2 \\
& (u1_struct_0 X0) (u1_struct_0 k1_complfld) X1 X2))))))
\end{aligned}$$