

t58_hermitan
(TMUHC8Lho8r8C3ASkBNu69dH55RVKw63JNA)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ 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 $v8_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_complfld : \iota$ 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 $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_hermitan : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_hermitan : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k3_complex1 : \iota \Rightarrow \iota$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v5_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v4_hermitan : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ 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 $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $v36_algstr_0 :$

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

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v8_vectsp_1 X0 k1_complfld) \wedge \\
& ((v9_vectsp_1 X0 k1_complfld) \wedge ((v10_vectsp_1 X0 k1_complfld) \wedge \\
& ((v11_vectsp_1 X0 k1_complfld) \wedge (l1_vectsp_1 X0 k1_complfld)))))))))) \Rightarrow \\
& (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X0)) (u1_struct_0 k1_complfld) \wedge ((v4_hermitan \\
& X1 X0) \wedge ((v5_hermitan X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 \\
& k1_complfld)))))))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow (k3_complex1 (k2_binop_1 (u1_struct_0 X0) (u1_struct_0 \\
& X0) (u1_struct_0 k1_complfld) X1 X2 X2) = k6_numbers) \Rightarrow (k2_binop_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 k1_complfld) X1 \\
& X2 X2 = k4_struct_0 k1_complfld))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v8_vectsp_1 X0 k1_complfld) \wedge \\
& ((v9_vectsp_1 X0 k1_complfld) \wedge ((v10_vectsp_1 X0 k1_complfld) \wedge \\
& ((v11_vectsp_1 X0 k1_complfld) \wedge (l1_vectsp_1 X0 k1_complfld)))))))))) \Rightarrow \\
& (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X0)) (u1_struct_0 k1_complfld) \wedge ((v2_bilinear \\
& X1 k1_complfld X0 X0) \wedge ((v4_bilinear X1 k1_complfld X0 X0) \wedge ((v3_hermitan \\
& X1 X0) \wedge ((v5_hermitan X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 \\
& k1_complfld)))))))))) \Rightarrow (k12_bilinear k1_complfld X0 X1 = k11_bilinear \\
& k1_complfld X0 X0 X1))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v8_vectsp_1 X0 k1_complfld) \wedge \\
& ((v9_vectsp_1 X0 k1_complfld) \wedge ((v10_vectsp_1 X0 k1_complfld) \wedge \\
& ((v11_vectsp_1 X0 k1_complfld) \wedge (l1_vectsp_1 X0 k1_complfld)))))))))) \Rightarrow \\
& (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X0)) (u1_struct_0 k1_complfld) \wedge ((v2_bilinear \\
& X1 k1_complfld X0 X0) \wedge ((v4_bilinear X1 k1_complfld X0 X0) \wedge ((v3_hermitan \\
& X1 X0) \wedge ((v5_hermitan X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 \\
& k1_complfld)))))))))) \Rightarrow (k12_bilinear k1_complfld X0 X1 = k10_bilinear \\
& k1_complfld X0 X0 X1))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow \\
& (k6_domain_1 X0 X1 = k1_tarski X1)
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (l1_struct_0 X0) \quad (7)$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(l1_vectsp_1 X1 X0) \Rightarrow (l2_algstr_0 X1)) \quad (9)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0) \Rightarrow (m1_subset_1 (k4_struct_0 X0) (u1_struct_0 X0)) \quad (10)$$

Assume the following.

$$(v36_algstr_0 k1_complfld) \wedge (l6_algstr_0 k1_complfld) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_struct_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\ (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_vectsp_1 \\ X2 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\ (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge (m1_subset_1 \\ X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\ X2)) (u1_struct_0 X0)))))) \Rightarrow ((v6_bilinear X3 X0 X1 X2) \Leftrightarrow (k11_bilinear \\ X0 X1 X2 X3 \neq k6_domain_1 (u1_struct_0 X2) (k4_struct_0 X2)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_struct_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\ (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_vectsp_1 \\ X2 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\ (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge (m1_subset_1 \\ X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\ X2)) (u1_struct_0 X0)))))) \Rightarrow ((v5_bilinear X3 X0 X1 X2) \Leftrightarrow (k10_bilinear \\ X0 X1 X2 X3 \neq k6_domain_1 (u1_struct_0 X1) (k4_struct_0 X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1_tarski\ X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (X2 = X0)) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2_struct_0\ X0) \Rightarrow (\forall X1.((\neg v2_struct_0\ X1) \wedge \\ & (l1_vectsp_1\ X1\ X0)) \Rightarrow (\forall X2.((v1_funct_1\ X2) \wedge ((v1_funct_2 \\ & X2\ (k2_zfmisc_1\ (u1_struct_0\ X1)\ (u1_struct_0\ X1))\ (u1_struct_0 \\ & X0)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1 \\ & (u1_struct_0\ X1)\ (u1_struct_0\ X1))\ (u1_struct_0\ X0)))))) \Rightarrow (k12_bilinear \\ & X0\ X1\ X2 = ReplSep\ (toset\ (\lambda X3 : \iota.m1_subset_1\ X3\ (u1_struct_0 \\ & X1)))\ (\lambda X3 : \iota.k2_binop_1\ (u1_struct_0\ X1)\ (u1_struct_0\ X1) \\ & (u1_struct_0\ X0)\ X2\ X3\ X3 = k4_struct_0\ X0)\ (\lambda X3 : \iota.X3)))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0) \wedge (l1_vectsp_1\ X0\ k1_complfld)) \Rightarrow \\ & (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1 \\ & (u1_struct_0\ X0)\ (u1_struct_0\ X0))\ (u1_struct_0\ k1_complfld)))) \Rightarrow \\ & (((v1_funct_1\ X1) \wedge ((v1_funct_2\ X1\ (k2_zfmisc_1\ (u1_struct_0 \\ & X0)\ (u1_struct_0\ X0))\ (u1_struct_0\ k1_complfld)) \wedge (v3_hermitan \\ & X1\ X0))) \Rightarrow ((v1_funct_1\ X1) \wedge ((v1_funct_2\ X1\ (k2_zfmisc_1\ (u1_struct_0 \\ & X0)\ (u1_struct_0\ X0))\ (u1_struct_0\ k1_complfld)) \wedge (v4_hermitan \\ & X1\ X0)))) \end{aligned} \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0) \wedge ((v13_algstr_0\ X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1\ X0) \wedge ((v4_rlvect_1\ X0) \wedge ((v8_vectsp_1\ X0\ k1_complfld) \wedge \\ & ((v9_vectsp_1\ X0\ k1_complfld) \wedge ((v10_vectsp_1\ X0\ k1_complfld) \wedge \\ & ((v11_vectsp_1\ X0\ k1_complfld) \wedge (l1_vectsp_1\ X0\ k1_complfld)))))))))) \Rightarrow \\ & (\forall X1.((v1_funct_1\ X1) \wedge ((v1_funct_2\ X1\ (k2_zfmisc_1\ (u1_struct_0 \\ & X0)\ (u1_struct_0\ X0))\ (u1_struct_0\ k1_complfld)) \wedge ((v2_bilinear \\ & X1\ k1_complfld\ X0\ X0) \wedge ((v4_bilinear\ X1\ k1_complfld\ X0\ X0) \wedge ((v3_hermitan \\ & X1\ X0) \wedge ((v5_hermitan\ X1\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ & (k2_zfmisc_1\ (u1_struct_0\ X0)\ (u1_struct_0\ X0))\ (u1_struct_0 \\ & k1_complfld)))))))))) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (u1_struct_0 \\ & X0)) \Rightarrow ((k3_complex1\ (k2_binop_1\ (u1_struct_0\ X0)\ (u1_struct_0 \\ & X0)\ (u1_struct_0\ k1_complfld)\ X1\ X2\ X2) = k6_numbers) \Rightarrow (((v5_bilinear \\ & X1\ k1_complfld\ X0\ X0) \wedge (v6_bilinear\ X1\ k1_complfld\ X0\ X0)) \vee (X2 = \\ & k4_struct_0\ X0)))) \end{aligned}$$