

# l37\_hermitan (TMNBWEygeZcEBnoc- nKW2FTVpJvvcABkKT3G)

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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  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $v3\_hermitan : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_hahnban1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_complfld : \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v36\_algstr\_0 : \iota \Rightarrow o$  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  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$k2\_complfld (k4\_struct\_0 k1\_complfld) = k4\_struct\_0 k1\_complfld \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_vectsp\_1 X0 k1\_complfld)) \Rightarrow \\ & (\forall X1. ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 k1\_complfld)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 k1\_complfld)))))) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (k2\_binop\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) (u1\_struct\_0 k1\_complfld) (k9\_bilinear k1\_complfld X0 X0 X1 \\ & (k7\_hahnban1 k1\_complfld X0)) X2 X3 = k4\_struct\_0 k1\_complfld))) \end{aligned} \quad (2)$$

Assume the following.

$$(\neg v2\_struct\_0 k1\_complfld) \wedge (v36\_algstr\_0 k1\_complfld) \quad (3)$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0.(l5\_algstr\_0 X0) \Rightarrow ((l4\_algstr\_0 X0) \wedge (l4\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l4\_algstr\_0 X0) \Rightarrow ((l3\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2\_struct\_0 \\ & X0) \wedge (l3\_algstr\_0 X0)) \wedge (((\neg v2\_struct\_0 X1) \wedge (l1\_vectsp\_1 X1 X0)) \wedge \\ & (((\neg v2\_struct\_0 X2) \wedge (l1\_vectsp\_1 X2 X0)) \wedge ((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X0)))))) \wedge \\ & ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 (u1\_struct\_0 X2) (u1\_struct\_0 \\ & X0)) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X2) (u1\_struct\_0 X0))))))))) \Rightarrow ((v1\_funct\_1 (k9\_bilinear X0 X1 \\ & X2 X3 X4)) \wedge ((v1\_funct\_2 (k9\_bilinear X0 X1 X2 X3 X4) (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X2)) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & (k9\_bilinear X0 X1 X2 X3 X4) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X2)) (u1\_struct\_0 X0)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l2\_struct\_0 X0)) \wedge \\ & (l1\_vectsp\_1 X1 X0)) \Rightarrow ((v1\_funct\_1 (k7\_hahnban1 X0 X1)) \wedge ((v1\_funct\_2 \\ & (k7\_hahnban1 X0 X1) (u1\_struct\_0 X1) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & (k7\_hahnban1 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) \\ & (u1\_struct\_0 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$(v36\_algstr\_0 k1\_complfld) \wedge (l6\_algstr\_0 k1\_complfld) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_vectsp\_1 X0 k1\_complfld)) \Rightarrow \\ & (\forall X1. ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0)) (u1\_struct\_0 k1\_complfld)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0)) (u1\_struct\_0 k1\_complfld)))))) \Rightarrow ((v3\_hermitan X1 X0) \Leftrightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (k2\_binop\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) (u1\_struct\_0 k1\_complfld) X1 X2 X3 = k2\_complfld (k2\_binop\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 k1\_complfld) X1 \\ & X3 X2)))))) \end{aligned} \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_vectsp\_1 X0 k1\_complfld)) \Rightarrow \\ & (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 k1\_complfld)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 k1\_complfld)))))) \Rightarrow (v3\_hermitan \\ & (k9\_bilinear k1\_complfld X0 X0 X1 (k7\_hahnban1 k1\_complfld X0) \\ & X0)) \end{aligned}$$