

t37\_helly  
(TMQRxDx2a1Vr1yB1RqkrXqSjY9xoCLX9VkY)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_glib\_000 : \iota \Rightarrow o$  be given. Let  $v3\_glib\_002 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_glib\_000 : \iota \Rightarrow \iota$  be given. Let  $k13\_glib\_001 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_helly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_glib\_001 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m3\_glib\_001 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_glib\_001 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge ((v1\_glib\_000 X0) \wedge (v3\_glib\_002 X0)))))) \Rightarrow \\ & (\forall X1. (m1\_subset\_1 X1 (k6\_glib\_000 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k6\_glib\_000 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k6\_glib\_000 X0)) \Rightarrow \\ & ((X3 \in k13\_glib\_001 X0 (k2\_helly X0 X1 X2)) \Leftrightarrow (k2\_helly X0 X1 X2 = k7\_glib\_001 X0 (k2\_helly X0 X1 X3) (k2\_helly X0 X3 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge ((v1\_glib\_000 X0) \wedge (v3\_glib\_002 X0)))))) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (k6\_glib\_000 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k6\_glib\_000 X0)) \Rightarrow ((X1 \in k13\_glib\_001 X0 (k2\_helly X0 X1 X2)) \wedge \\ & (X2 \in k13\_glib\_001 X0 (k2\_helly X0 X1 X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1.(m3\_glib\_001 \\ & X1 X0) \Rightarrow (\forall X2.(m3\_glib\_001 X2 X0) \Rightarrow (r1\_tarski X1 (k7\_glib\_001 \\ & X0 X1 X2)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_glib\_000 X0)))))) \Rightarrow (\forall X1.(m3\_glib\_001 \\ & X1 X0) \Rightarrow (\forall X2.(m3\_glib\_001 X2 X0) \Rightarrow ((r1\_tarski X1 X2) \Rightarrow (r1\_tarski \\ & (k13\_glib\_001 X0 X1) (k13\_glib\_001 X0 X2)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\ & X0 k5\_numbers) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge ((v1\_glib\_000 \\ & X0) \wedge (v3\_glib\_002 X0)))))) \wedge ((m1\_subset\_1 X1 (k6\_glib\_000 X0) \wedge \\ & (m1\_subset\_1 X2 (k6\_glib\_000 X0)))) \Rightarrow ((v5\_glib\_001 (k2\_helly \\ & X0 X1 X2) X0) \wedge (m3\_glib\_001 (k2\_helly X0 X1 X2) X0))) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge ((v1\_glib\_000 X0) \wedge (v3\_glib\_002 X0)))))) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (k6\_glib\_000 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k6\_glib\_000 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k6\_glib\_000 \\ & X0)) \Rightarrow ((X3 \in k13\_glib\_001 X0 (k2\_helly X0 X1 X2)) \Leftrightarrow (r1\_tarski (k2\_helly \\ & X0 X1 X3) (k2\_helly X0 X1 X2)))))) \end{aligned}$$