

t42_helly
(TMUe115so9EQ5aoa7jaBJLrYHiuLfY26EzT)

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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 $k3_helly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_glib_001 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m3_glib_001 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v1_funct_1 \\ & X0) \wedge ((v1_finset_1 X0) \wedge ((v1_glib_000 X0) \wedge (v3_glib_002 X0)))))) \Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (k6_glib_000 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (k6_glib_000 X0)) \Rightarrow (k13_glib_001 X0 (k2_helly X0 X1 X2) = k13_glib_001 \\ & X0 (k2_helly X0 X2 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. k3_xboole_0 (k3_xboole_0 X0 X1) X2 = k3_xboole_0 X0 (k3_xboole_0 X1 X2) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow (k9_subset_1 X0 X1 X2 = k3_xboole_0 X1 X2) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_relat_1 X0) \wedge \\ & ((v4_relat_1 X0 k5_numbers) \wedge ((v1_funct_1 X0) \wedge ((v1_finset_1 \\ & X0) \wedge ((v1_glib_000 X0) \wedge (v3_glib_002 X0)))))) \wedge ((m1_subset_1 \\ & X1 (k6_glib_000 X0)) \wedge ((m1_subset_1 X2 (k6_glib_000 X0)) \wedge (m1_subset_1 \\ & X3 (k6_glib_000 X0)))))) \Rightarrow (m1_subset_1 (k3_helly X0 X1 X2 X3) (k6_glib_000 \\ & X0)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X0)\wedge((v4_relat_1 \\ & X0 k5_numbers)\wedge((v1_funct_1 X0)\wedge((v1_finset_1 X0)\wedge((v1_glib_000 \\ & X0)\wedge(v3_glib_002 X0))))))\wedge((m1_subset_1 X1 (k6_glib_000 X0))\wedge \\ & (m1_subset_1 X2 (k6_glib_000 X0))))\Rightarrow((v5_glib_001 (k2_helly \\ & X0 X1 X2) X0)\wedge(m3_glib_001 (k2_helly X0 X1 X2) X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v4_relat_1 X0 k5_numbers)\wedge \\ & ((v1_funct_1 X0)\wedge((v1_finset_1 X0)\wedge(v1_glib_000 X0))))))\wedge(m3_glib_001 \\ & X1 X0))\Rightarrow(((v1_finset_1 (k13_glib_001 X0 X1))\wedge(m1_subset_1 (k13_glib_001 \\ & X0 X1) (k1_zfmisc_1 (k6_glib_000 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v4_relat_1 X0 k5_numbers)\wedge((v1_funct_1 \\ & X0)\wedge((v1_finset_1 X0)\wedge((v1_glib_000 X0)\wedge(v3_glib_002 X0))))))\Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (k6_glib_000 X0))\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 (k6_glib_000 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k6_glib_000 \\ & X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (k6_glib_000 X0))\Rightarrow((X4 = k3_helly \\ & X0 X1 X2 X3)\Leftrightarrow(k9_subset_1 (k6_glib_000 X0) (k9_subset_1 (k6_glib_000 \\ & X0) (k13_glib_001 X0 (k2_helly X0 X1 X2)) (k13_glib_001 X0 (k2_helly \\ & X0 X2 X3))) (k13_glib_001 X0 (k2_helly X0 X3 X1)) = k1_tarski X4)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (8)$$

Theorem 1

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge((v4_relat_1 X0 k5_numbers)\wedge((v1_funct_1 \\ & X0)\wedge((v1_finset_1 X0)\wedge((v1_glib_000 X0)\wedge(v3_glib_002 X0))))))\Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (k6_glib_000 X0))\Rightarrow(\forall X2.(m1_subset_1 \\ & X2 (k6_glib_000 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k6_glib_000 \\ & X0))\Rightarrow(k3_helly X0 X1 X2 X3 = k3_helly X0 X2 X1 X3)))) \end{aligned}$$