

t23_helly
(TMaKA22eaNKcKZSocid762ui3w3cjc5MZeh)

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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 $m3_glib_001 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_glib_001 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k1_helly : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $v1_int_1 : \iota \Rightarrow o$ be given. Let $v1_abian : \iota \Rightarrow o$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v6_membered : \iota \Rightarrow o$ be given. Let $v1_card_1 : \iota \Rightarrow o$ be given. Let $v3_xxreal_2 : \iota \Rightarrow o$ be given. Let $v4_xxreal_2 : \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_glib_000 : \iota \Rightarrow \iota$ be given. Let $k7_glib_000 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_membered : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 \\ & X1))) \Rightarrow ((\neg(\neg r1_tarski X0 X1) \wedge (r1_xxreal_0 (k3_finseq_1 X0) (k3_finseq_1 \\ & (k1_helly X0 X1)))) \wedge (\neg(\neg r1_xxreal_0 (k3_finseq_1 X0) (k3_finseq_1 \\ & (k1_helly X0 X1)))) \wedge (r1_tarski X0 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_int_1 X0) \wedge (\neg v1_abian X0)) \Rightarrow (\forall X1.((v1_int_1 \\ & X1) \wedge (\neg v1_abian X1)) \Rightarrow ((\neg r1_xxreal_0 X0 X1) \Rightarrow (r1_xxreal_0 (k2_xcmplx_0 \\ & X1 np_2) X0))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v1_funct_1 \\ X0) \wedge ((v1_finset_1 X0) \wedge (v1_glib_000 X0)))))) \Rightarrow (\forall X1.(m3_glib_001 \\ X1 X0) \Rightarrow (\forall X2.(m3_glib_001 X2 X0) \Rightarrow (\neg(k3_glib_001 X0 X1 = k3_glib_001 \\ X0 X2) \wedge (v1_abian (k3_finseq_1 (k1_helly X1 X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} ((v2_xreal_0 np_2) \wedge (m2_subset_1 np_2 k1_numbers k5_numbers)) \wedge \\ ((m1_subset_1 np_2 k5_numbers) \wedge (m1_subset_1 np_2 k1_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (m2_finseq_1 X1 X0) \Leftrightarrow (m1_finseq_1 X1 X0) \quad (6)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow \\ (k3_finseq_1 X0 = k1_card_1 X0) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((m1_subset_1 X0 k5_numbers) \wedge (v7_ordinal1 \\ X1)) \Rightarrow (k2_nat_1 X0 X1 = k2_xcmplx_0 X0 X1) \end{aligned} \quad (9)$$

Assume the following.

$$\neg v1_finset_1 k4_ordinal1 \quad (10)$$

Assume the following.

$$v6_membered k4_ordinal1 \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge \\ ((v1_funct_1 X0) \wedge ((v1_finset_1 X0) \wedge (v1_glib_000 X0)))))) \wedge (m3_glib_001 \\ X1 X0) \Rightarrow ((\neg v1_xboole_0 (k1_card_1 X1)) \wedge ((v1_card_1 (k1_card_1 \\ X1)) \wedge (\neg v1_abian (k1_card_1 X1)))) \end{aligned} \quad (12)$$

Assume the following.

$$(\neg v3_xxreal_2\ k1_numbers) \wedge (\neg v4_xxreal_2\ k1_numbers) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1\ X0) \wedge ((v4_relat_1\ X0\ k5_numbers) \wedge ((v1_funct_1 \\ X0) \wedge ((v1_finset_1\ X0) \wedge (v1_glib_000\ X0)))))) \Rightarrow (\forall X1. (m3_glib_001 \\ X1\ X0) \Rightarrow (m2_finseq_1\ X1\ (k2_xboole_0\ (k6_glib_000\ X0)\ (k7_glib_000 \\ X0)))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (m2_finseq_1\ X1\ X0) \Rightarrow ((v1_funct_1\ X1) \wedge (\\ (v1_finseq_1\ X1) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ k5_numbers \\ X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (m1_finseq_1\ X1\ X0) \Rightarrow ((v1_relat_1\ X1) \wedge (\\ (v1_funct_1\ X1) \wedge (v1_finseq_1\ X1))) \end{aligned} \quad (16)$$

Assume the following.

$$m1_subset_1\ k5_numbers\ (k1_zfmisc_1\ k1_numbers) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1\ X0) \wedge ((v1_funct_1\ X0) \wedge (v1_finseq_1\ X0))) \Rightarrow \\ (m2_subset_1\ (k3_finseq_1\ X0)\ k1_numbers\ k5_numbers) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((v1_relat_1\ X0) \wedge ((v1_funct_1\ X0) \wedge (v1_finseq_1 \\ X0))) \wedge ((v1_relat_1\ X1) \wedge ((v1_funct_1\ X1) \wedge (v1_finseq_1\ X1)))) \Rightarrow \\ ((v1_relat_1\ (k1_helly\ X0\ X1)) \wedge ((v1_funct_1\ (k1_helly\ X0\ X1)) \wedge \\ (v1_finseq_1\ (k1_helly\ X0\ X1)))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0. (v6_membered\ X0) \Rightarrow ((v6_membered\ X0) \wedge (v3_xxreal_2\ X0)) \quad (20)$$

Assume the following.

$$\forall X0. (v7_ordinal1\ X0) \Rightarrow (v1_int_1\ X0) \quad (21)$$

Assume the following.

$$\forall X0. (v6_membered\ X0) \Rightarrow (v5_membered\ X0) \quad (22)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v1_finset_1 X0) \quad (23)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v6_membered X0) \quad (24)$$

Assume the following.

$$\forall X0.(v6_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v7_ordinal1 X1)) \quad (25)$$

Assume the following.

$$\forall X0.(v5_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_int_1 X1)) \quad (26)$$

Theorem 1

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v1_funct_1 \\ & X0) \wedge ((v1_finset_1 X0) \wedge (v1_glib_000 X0)))))) \Rightarrow (\forall X1.(m3_glib_001 \\ X1 X0) \Rightarrow (\forall X2.(m3_glib_001 X2 X0) \Rightarrow ((k3_glib_001 X0 X1 = k3_glib_001 \\ X0 X2) \Rightarrow ((r1_tarski X1 X2) \vee (r1_xxreal_0 (k2_nat_1 (k3_finseq_1 \\ (k1_helly X1 X2)) np_2) (k3_finseq_1 X1)))))) \end{aligned}$$