

t21_matroid0
(TMQ7ovACMscsVrYZgDN4iuXszD4kzdJr1cj)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_pencil_1 : \iota \Rightarrow o$ be given. Let $v1_matroid0 : \iota \Rightarrow o$ be given. Let $v2_matroid0 : \iota \Rightarrow o$ be given. Let $v4_matroid0 : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_card_1 : \iota \Rightarrow \iota$ be given. Let $k4_matroid0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_matroid0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1. ((v3_pre_topc X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0)))) \Rightarrow (\forall X2. (r1_tarski X2 X1) \Rightarrow ((v3_pre_topc \\ & X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (v1_finset_1 X0) \Rightarrow (\forall X1. (v1_finset_1 X1) \Rightarrow ((r1_tarski X0 X1) \wedge (k5_card_1 X0 = k5_card_1 X1)) \Rightarrow (X0 = X1)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\ & X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & (\forall X2. ((v3_pre_topc X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (u1_struct_0 X0)))) \Rightarrow ((r1_matroid0 X0 X2 X1) \Leftrightarrow ((r1_tarski X2 X1) \wedge \\ & (k5_card_1 X2 = k4_matroid0 X0 X1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\ X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\ (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ (\exists X2.((v3_pre_topc X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0)))) \wedge ((r1_tarski X2 X1) \wedge (k5_card_1 X2 = k4_matroid0 \\ X0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 X0) \wedge ((v4_matroid0 \\ X0) \wedge (l1_pre_topc X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\exists X2.((v3_pre_topc X2 X0) \wedge (m1_subset_1 \\ X2 (k1_zfmisc_1 (u1_struct_0 X0)))) \wedge (r1_matroid0 X0 X2 X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 X0 \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. (v1_finset_1 X0) \Rightarrow (v1_finset_1 (k3_xboole_0 \\ X0 X1)) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow ((r1_matroid0 X0 X1 X2) \Leftrightarrow ((v3_pre_topc X1 X0) \wedge \\ ((r1_tarski X1 X2) \wedge (\forall X3. (m1_subset_1 X3 (k1_zfmisc_1 (\\ u1_struct_0 X0))) \Rightarrow (((v3_pre_topc X3 X0) \wedge ((r1_tarski X3 X2) \wedge (\\ r1_tarski X1 X3)))) \Rightarrow (X1 = X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (10)$$

Theorem 1

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\ X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\ (\forall X1. ((v1_finset_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ u1_struct_0 X0)))) \Rightarrow ((v3_pre_topc X1 X0) \Leftrightarrow (k5_card_1 X1 = k4_matroid0 \\ X0 X1))) \end{aligned}$$