

t40_matroid0

(TMb9VxNst1FUSxVdPtoKBTwSQgB7TeD684v)

October 27, 2020

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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v5_matroid0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_matroid0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $r1_matroid0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ 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 $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\neg(X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\ & X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & ((v5_matroid0 X1 X0) \Leftrightarrow ((\neg v1_xboole_0 X1) \wedge (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow ((X2 \in X1) \Rightarrow (r1_matroid0 X0 (k7_subset_1 (\\ & u1_struct_0 X0) X1 (k6_domain_1 (u1_struct_0 X0) X2)) X1)))))) \quad (2) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\ & X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\ & (\forall X1.((v1_finset_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & u1_struct_0 X0)))) \Rightarrow ((v3_pre_topc X1 X0) \Leftrightarrow (k5_card_1 X1 = k4_matroid0 \\ & X0 X1))) \quad (3) \end{aligned}$$

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.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (k2_xboole_0 (k4_xboole_0 X1 (k1_tarski X0)) (k1_tarski X0) = X1) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (k7_subset_1 X0 X1 X2 = k4_xboole_0 X1 X2) \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow (k6_domain_1 X0 X1 = k1_tarski X1) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = k2_xboole_0 X1 X2) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. (v1_finset_1 X0) \Rightarrow (v1_finset_1 (k4_xboole_0 X0 X1)) \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (m1_subset_1 (k7_subset_1 X0 X1 X2) (k1_zfmisc_1 X0)) \quad (10)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow (m1_subset_1 (k6_domain_1 X0 X1) (k1_zfmisc_1 X0)) \quad (11)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v5_matroid0 X1 X0) \Leftrightarrow ((\neg v3_pre_topc X1 X0) \wedge (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((X2 \in X1) \Rightarrow (v3_pre_topc (k7_subset_1 (u1_struct_0 X0) X1 (k1_tarski X2)) X0)))))) \quad (12)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\
& X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((r2_matroid0 X0 X1 X2) \Leftrightarrow (k4_matroid0 \\
& X0 (k4_subset_1 (u1_struct_0 X0) X2 (k6_domain_1 (u1_struct_0 \\
& X0) X1)) = k4_matroid0 X0 X2))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\
& X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\
& ((v5_matroid0 X1 X0) \Rightarrow ((\neg v1_xboole_0 X1) \wedge (v1_finset_1 X1))))
\end{aligned} \tag{14}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v3_pencil_1 X0) \wedge ((v1_matroid0 \\
& X0) \wedge ((v2_matroid0 X0) \wedge ((v4_matroid0 X0) \wedge (l1_pre_topc X0)))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (((v5_matroid0 \\
& X1 X0) \wedge (X2 \in X1)) \Rightarrow (r2_matroid0 X0 X2 (k7_subset_1 (u1_struct_0 \\
& X0) X1 (k6_domain_1 (u1_struct_0 X0) X2))))))
\end{aligned}$$