

t37\_matroid0 (TMNVf-  
Pgm1TtXAZekVPacm2YTiiAJDRWxMhc)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  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  $k7\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_matroid0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (k2\_xboole\_0 (k4\_xboole\_0 X1 (k1\_tarski X0)) (k1\_tarski X0) = X1) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (k7\_subset\_1 X0 X1 X2 = k4\_xboole\_0 X1 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_finset\_1 X0) \wedge (v1\_finset\_1 X1)) \Rightarrow (v1\_finset\_1 (k2\_xboole\_0 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0.v1\_finset\_1 (k1\_tarski X0) \quad (6)$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(m1\_subset\_1 (k7\_subset\_1 X0 X1 X2) (k1\_zfmisc\_1 X0)) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0)))\Rightarrow((v5\_matroid0 X1 X0)\Leftrightarrow((\neg v3\_pre\_topc X1 X0)\wedge \\ (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow((X2 \in X1)\Rightarrow(v3\_pre\_topc \\ (k7\_subset\_1 (u1\_struct\_0 X0) X1 (k1\_tarski X2)) X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v3\_pencil\_1 X0)\wedge((v3\_matroid0 X0)\wedge(l1\_pre\_topc \\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0)))\Rightarrow((v3\_pre\_topc X1 X0)\Rightarrow((v1\_finset\_1 X1)\wedge(v3\_pre\_topc X1 \\ X0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow((v4\_matroid0 X0)\Rightarrow(v3\_matroid0 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v3\_pencil\_1 X0)\wedge((v1\_matroid0 X0)\wedge(l1\_pre\_topc \\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0)))\Rightarrow((v1\_xboole\_0 X1)\Rightarrow(v3\_pre\_topc X1 X0))) \end{aligned} \quad (12)$$

### Theorem 1

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((\neg v3\_pencil\_1 X0)\wedge((v1\_matroid0 \\ X0)\wedge((v2\_matroid0 X0)\wedge((v4\_matroid0 X0)\wedge(l1\_pre\_topc X0))))))\Rightarrow \\ (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow \\ ((v5\_matroid0 X1 X0)\Rightarrow((\neg v1\_xboole\_0 X1)\wedge(v1\_finset\_1 X1)))) \end{aligned}$$