

t9\_matroid0  
(TMGm2LsQq1h4G3raHZUAEang4gFRXkVJFiG)

October 27, 2020

Let  $v4\_taxonom2 : \iota \Rightarrow o$  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  $k2\_matroid0 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $k1\_matroid0 : \iota \Rightarrow \iota$  be given. Let  $k8\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  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.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0 : \iota \Rightarrow \iota \Rightarrow o.\forall X1.\forall X2.(\forall X3.\neg (X3 \in X2) \wedge (\forall X4.\neg(X4 \in X1) \wedge (X0 X3 X4))) \Rightarrow (\exists X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X2 X1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X1)))))) \wedge (\forall X4.(X4 \in X2) \Rightarrow (X0 X4 (k1\_funct\_1 X3 X4)))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski\ X0\ X0 \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge \\ (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1 \\ X2\ X0\ X1)\Leftrightarrow(m1\_subset\_1\ X2\ X1)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge \\ (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1 \\ X2\ X0\ X1)\Rightarrow(m1\_subset\_1\ X2\ X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(v1\_pre\_topc\ (k2\_matroid0\ X0))\wedge(l1\_pre\_topc\ (k2\_matroid0\ X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_pre\_topc\ X1)\wedge(l1\_pre\_topc\ X1))\Rightarrow( \\ (X1 = k2\_matroid0\ X0)\Leftrightarrow((u1\_struct\_0\ X1 = k3\_tarski\ X0)\wedge(k1\_matroid0 \\ X1 = ReplSep\ (toset\ (\lambda X2 : \iota.m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k3\_tarski \\ X0))))\ (\lambda X2 : \iota.\forall X3.\neg(X3 \in X0)\wedge(\forall X4.\neg r1\_tarski \\ (k8\_subset\_1\ (k3\_tarski\ X0)\ X2\ X3)\ (k1\_tarski\ X4))))\ (\lambda X2 : \iota. \\ X2)))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k3\_tarski\ X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow (\exists X3.(X2 \in X3)\wedge(X3 \in X0))) \quad (11)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(v1\_xboole\_0\ X1)) \quad (12)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(v4\_taxonom2\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (u1\_struct\_0\ (k2\_matroid0\ X0))))\Rightarrow(\exists X2.((v1\_funct\_1\ X2)\wedge \\ ((v1\_funct\_2\ X2\ X1\ X0)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ X1\ X0))))\wedge(\forall X3.(X3 \in X1)\Rightarrow(X3 \in k1\_funct\_1\ X2\ X3)))) \end{aligned}$$