t22_matroid0 (TMGqRK5owVrWhQXbTyGj5W3QjhK1ijzen7d)

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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 $m1\_matroid0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_card\_1 : \iota \Rightarrow \iota$ 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 $r1\_matroid0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $k2\_struct\_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v3\_pencil\_1\ X0) \wedge ((v1\_matroid0\ X0) \wedge ((v4\_matroid0\ X0) \wedge (l1\_pre\_topc\ X0))))) \Rightarrow (((\neg v2\_struct\_0\ X0) \wedge ((\neg v3\_pencil\_1\ X0) \wedge ((v1\_matroid0\ X0) \wedge ((v2\_matroid0\ X0) \wedge (l1\_pre\_topc\ X0))))) \Leftrightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.((v3\_pre\_topc\ X2\ X0) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \Rightarrow (\forall X3.((v3\_pre\_topc\ X3\ X0) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \Rightarrow (((r1\_matroid0\ X0\ X2\ X1) \wedge (r1\_matroid0\ X0\ X3\ X1)) \Rightarrow (k5\_card\_1\ X2 = k5\_card\_1\ X3))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v3\_pencil\_1\ X0) \wedge ((v4\_matroid0\ X0) \wedge (l1\_pre\_topc\ X0))) \Rightarrow (\forall X1.(m1\_matroid0\ X1\ X0) \Rightarrow ((v3\_pre\_topc\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0) \Rightarrow (l1\_struct\_0\ X0) \tag{3}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0) \Rightarrow (m1\_subset\_1\ (k2\_struct\_0\ X0)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v3\_pencil\_1\ X0) \wedge ((v4\_matroid0\ X0) \wedge (l1\_pre\_topc\ X0))) \Rightarrow (\forall X1.((v3\_pre\_topc\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \Rightarrow ((m1\_matroid0\ X1\ X0) \Leftrightarrow (r1\_matroid0\ X0\ X1\ (k2\_struct\_0\ X0)))) \tag{5}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v3\_pencil\_1\ X0)\wedge((v1\_matroid0\ X0)\wedge((v2\_matroid0\ X0)\wedge((v4\_matroid0\ X0)\wedge(l1\_pre\_topc\ X0))))))\Rightarrow(\forall X1.(m1\_matroid0\ X1\ X0)\Rightarrow(\forall X2.(m1\_matroid0\ X2\ X0)\Rightarrow(k5\_card\_1\ X1 = k5\_card\_1\ X2)))$$