t13_connsp_1 (TMGcWRYuy4jJhG6fnQZJCYKex5YeDKSve2Z)

October 27, 2020

Let $v2\_pre\_topc : \iota \Rightarrow o$ be given. Let $l1\_pre\_topc : \iota \Rightarrow o$ be given. Let $v1\_connsp\_1 : \iota \Rightarrow o$ 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 $v4\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k2\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $r1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.r1\_xboole\_0\ (k4\_xboole\_0\ X0\ X1)\ X1 \tag{1}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (((k2\_struct\_0\ X0 = k4\_subset\_1\ (u1\_struct\_0\ X0)\ X1\ X2) \wedge (r1\_xboole\_0\ X1\ X2)) \Rightarrow (X2 = k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1)))) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow ((\neg(X1 \neq k2\_struct\_0\ X0) \wedge (k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1 = k1\_xboole\_0)) \wedge (\neg(k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1 \neq k1\_xboole\_0) \wedge (X1 = k2\_struct\_0\ X0)))) \tag{3}$$

Assume the following.

$$\forall X0.((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0)) \Rightarrow (\forall X1.\ (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.\ (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (((k2\_struct\_0\ X0 = k4\_subset\_1\ (u1\_struct\_0\ X0)\ X1\ X2) \wedge (r1\_connsp\_1\ X0\ X1\ X2)) \Rightarrow ((v3\_pre\_topc\ X1\ X0) \wedge ((v4\_pre\_topc\ X1\ X0) \wedge ((v3\_pre\_topc\ X2\ X0) \wedge (v4\_pre\_topc\ X2\ X0))))))) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(((v3\_pre\_topc\ X1\ X0)\Rightarrow(k2\_pre\_topc\ X0\ (k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1) = k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1))\wedge(((v2\_pre\_topc\ X0)\wedge(k2\_pre\_topc\ X0\ (k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1) = k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1))\Rightarrow(v3\_pre\_topc\ X1\ X0)))) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(((v4\_pre\_topc\ X1\ X0)\Rightarrow(k2\_pre\_topc\ X0\ X1 = X1))\wedge(((v2\_pre\_topc\ X0)\wedge(k2\_pre\_topc\ X0\ X1 = X1))\Rightarrow(v4\_pre\_topc\ X1\ X0)))) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow((r1\_connsp\_1\ X0\ X1\ X2)\Rightarrow(r1\_xboole\_0\ X1\ X2)))) \tag{7}$$

Assume the following.

$$\forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow((v1\_connsp\_1\ X0)\Leftrightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\neg(X1\neq k1\_struct\_0\ X0)\wedge((X1\neq k2\_struct\_0\ X0)\wedge(r1\_xboole\_0\ (k2\_pre\_topc\ X0\ X1)\ (k2\_pre\_topc\ X0\ (k7\_subset\_1\ (u1\_struct\_0\ X0)\ (k2\_struct\_0\ X0)\ X1))))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_xboole\_0\ X0\ X1)\Rightarrow(r1\_xboole\_0\ X1\ X0) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(k7\_subset\_1\ X0\ X1\ X2 = k4\_xboole\_0\ X1\ X2) \tag{10}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{11}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(m1\_subset\_1\ (k2\_struct\_0\ X0)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \tag{12}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(k2\_struct\_0\ X0 = u1\_struct\_0\ X0) \tag{13}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0) \Rightarrow (k1\_struct\_0\ X0 = k1\_xboole\_0) \tag{14}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0) \Rightarrow ((v1\_connsp\_1\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\neg (k2\_struct\_0\ X0 = k4\_subset\_1\ (u1\_struct\_0\ X0)\ X1\ X2) \wedge ((r1\_connsp\_1\ X0\ X1\ X2) \wedge ((X1 \neq k1\_struct\_0\ X0) \wedge (X2 \neq k1\_struct\_0\ X0))))))) \tag{15}$$

Theorem 1

$$\forall X0.((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0)) \Rightarrow ((v1\_connsp\_1\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\neg (v3\_pre\_topc\ X1\ X0) \wedge ((v4\_pre\_topc\ X1\ X0) \wedge ((X1 \neq k1\_struct\_0\ X0) \wedge (X1 \neq k2\_struct\_0\ X0))))))$$