t50_tsep_1 (TMc3831aTYy4Zt2BccmEv39e52GqiqRTPX6)

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Let $v2\_pre\_topc : \iota \Rightarrow o$ 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 $r2\_tsep\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k7\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (((r1\_connsp\_1\ X0\ X1\ X2) \wedge ((r1\_tarski\ X3\ X1) \wedge (r1\_tarski\ X4\ X2))) \Rightarrow (r1\_connsp\_1\ X0\ X3\ X4))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k4\_xboole\_0\ X0\ (k2\_xboole\_0\ X1\ X2) = k3\_xboole\_0\ (k4\_xboole\_0\ X0\ X1)\ (k4\_xboole\_0\ X0\ X2) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.k4\_xboole\_0\ X0\ (k2\_xboole\_0\ X0\ X1) = k1\_xboole\_0 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k4\_xboole\_0\ (k2\_xboole\_0\ X0\ X1)\ X2 = k2\_xboole\_0\ (k4\_xboole\_0\ X0\ X2)\ (k4\_xboole\_0\ X1\ X2) \tag{4}$$

Assume the following.

$$\forall X0.k2\_xboole\_0\ X0\ k1\_xboole\_0 = X0 \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski\ (k3\_xboole\_0\ X0\ X1)\ X0 \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(k7\_subset\_1\ X0\ X1\ X2 = k4\_xboole\_0\ X1\ X2) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X0)))\Rightarrow(k4\_subset\_1\ X0\ X1\ X2 = k2\_xboole\_0\ X1\ X2) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(m1\_subset\_1\ (k7\_subset\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ X0)) \tag{9}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow((r2\_tsep\_1\ X0\ X1\ X2)\Leftrightarrow(r1\_connsp\_1\ X0\ (k7\_subset\_1\ (u1\_struct\_0\ X0)\ X1\ X2)\ (k7\_subset\_1\ (u1\_struct\_0\ X0)\ X2\ X1))))) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0\ X0\ X1 = k2\_xboole\_0\ X1\ X0 \tag{12}$$

Theorem 1

$$\forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow((r2\_tsep\_1\ X0\ X1\ X2)\Rightarrow(r2\_tsep\_1\ X0\ (k4\_subset\_1\ (u1\_struct\_0\ X0)\ X1\ X3)\ (k4\_subset\_1\ (u1\_struct\_0\ X0)\ X2\ X3))))))$$