t31_tsep_2 (TML-pahE1iu3G7cnBgKPZ8tq8jW3QvNCBPrU)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_pre\_topc : \iota \Rightarrow o$ be given. Let $l1\_pre\_topc : \iota \Rightarrow o$ be given. Let $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4\_tsep\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $u1\_pre\_topc : \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $r2\_tsep\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_tsep\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\forall X1.\ (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.\ (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X3.\ (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (((r2\_tsep\_2\ X0\ X1\ X2) \wedge (r2\_tsep\_2\ X0\ X2\ X3)) \Rightarrow (X1 = X3))))) \tag{1}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0) \Rightarrow (\forall X1.(m1\_pre\_topc\ X1\ X0) \Rightarrow (\forall X2.(m1\_pre\_topc\ X2\ X0) \Rightarrow ((u1\_struct\_0\ X1 = u1\_struct\_0\ X2) \Rightarrow (g1\_pre\_topc\ (u1\_struct\_0\ X1)\ (u1\_pre\_topc\ X1) = g1\_pre\_topc\ (u1\_struct\_0\ X2)\ (u1\_pre\_topc\ X2))))) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0) \Rightarrow (\forall X1.(m1\_pre\_topc\ X1\ X0) \Rightarrow (m1\_subset\_1\ (u1\_struct\_0\ X1)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0))) \wedge (((\neg v2\_struct\_0\ X1) \wedge (m1\_pre\_topc\ X1\ X0)) \wedge ((\neg v2\_struct\_0\ X2) \wedge (m1\_pre\_topc\ X2\ X0)))) \Rightarrow ((r4\_tsep\_2\ X0\ X1\ X2) \Leftrightarrow (r3\_tsep\_2\ X0\ X1\ X2)) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0) \Rightarrow (l1\_struct\_0\ X0) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0)))\Rightarrow(\forall X1.(m1\_pre\_topc\ X1\ X0)\Rightarrow(\forall X2.(m1\_pre\_topc\ X2\ X0)\Rightarrow((r3\_tsep\_2\ X0\ X1\ X2)\Leftrightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(((X3 = u1\_struct\_0\ X1)\wedge(X4 = u1\_struct\_0\ X2))\Rightarrow(r2\_tsep\_2\ X0\ X3\ X4)))))))) \tag{6}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(m1\_pre\_topc\ X1\ X0))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge(m1\_pre\_topc\ X2\ X0))\Rightarrow(\forall X3.((\neg v2\_struct\_0\ X3)\wedge(m1\_pre\_topc\ X3\ X0))\Rightarrow(((r4\_tsep\_2\ X0\ X1\ X2)\wedge(r4\_tsep\_2\ X0\ X2\ X3))\Rightarrow(g1\_pre\_topc\ (u1\_struct\_0\ X1)\ (u1\_pre\_topc\ X1) = g1\_pre\_topc\ (u1\_struct\_0\ X3)\ (u1\_pre\_topc\ X3))))))$$