

## t16\_tsp\_2

(TMU9Rsgj3j9Gstw9PMwJEKEpGcxBGwC5y5c)

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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  $v2\_tsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  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  $v4\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_tex\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_tsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0))) \Rightarrow ((v1\_tsp\_2 X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0))) \Rightarrow ((v4\_pre\_topc X2 X0) \Rightarrow (X2 = k3\_tex\_4 X0 (k9\_subset\_1 \\ (u1\_struct\_0 X0) X1 X2))))))) \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ (m1\_pre\_topc X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0))) \Rightarrow ((X2 = u1\_struct\_0 X1) \Rightarrow ((v1\_tsp\_2 X2 X0) \Leftrightarrow ( \\ v2\_tsp\_2 X1 X0)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)) \Rightarrow (k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (k8\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_pre\_topc\ X1\ X0)\Rightarrow(l1\_pre\_topc\ X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge(l1\_pre\_topc\ X0))\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\Rightarrow(m1\_subset\_1\ (k3\_tex\_4\ X0\ X1)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(l1\_pre\_topc\ X1)\Rightarrow(((m1\_pre\_topc\ X1\ X0)\Leftrightarrow((r1\_tarSKI\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0))\wedge(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X1))))\Rightarrow((v4\_pre\_topc\ X2\ X1)\Leftrightarrow(\exists X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\wedge((v4\_pre\_topc\ X3\ X0)\wedge(X2 = k8\_subset\_1\ (u1\_struct\_0\ X0)\ X3\ (u1\_struct\_0\ X1)))))))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(k8\_subset\_1\ X0\ X1\ X2 = k8\_subset\_1\ X0\ X2\ X1) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0\ X0\ X1 = k3\_xboole\_0\ X1\ X0 \quad (10)$$

**Theorem 1**

$$\forall X0.(((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0)))\Rightarrow(\forall X1.((v2\_tsp\_2\ X1\ X0)\wedge(m1\_pre\_topc\ X1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X1)))\Rightarrow((X3 = X2)\Rightarrow((v4\_pre\_topc\ X3\ X1)\Leftrightarrow((v4\_pre\_topc\ (k3\_tex\_4\ X0\ X2)\ X0)\wedge(X3 = k8\_subset\_1\ (u1\_struct\_0\ X0)\ (k3\_tex\_4\ X0\ X2)\ (u1\_struct\_0\ X1))))))))))$$