

t33_tsp_2 (TMd-
DysxRurz2wWfqFBtxdbUC5yeHXKbN77S)

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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 $k7_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tsp_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_tex_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (((v4_pre_topc X1 X0) \vee (v4_pre_topc X2 X0)) \Rightarrow (k3_tex_4 X0 \\ & (k9_subset_1 (u1_struct_0 X0) X1 X2) = k9_subset_1 (u1_struct_0 \\ & X0) (k3_tex_4 X0 X1) (k3_tex_4 X0 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_pre_topc X1 X0) \Rightarrow (m1_subset_1 (u1_struct_0 X1) (k1_zfmisc_1 (u1_struct_0 X0)))) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k3_xboole_0 (k3_xboole_0 X0 X1) X2 = k3_xboole_0 X0 (k3_xboole_0 X1 X2) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow (k9_subset_1 X0 X1 X2 = k3_xboole_0 X1 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X0 = X0 \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 X0))\Rightarrow(m1_subset_1 (k9_subset_1 X0 X1 X2) (k1_zfmisc_1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(m1_subset_1 (k7_relset_1 X0 X1 X2 X3) (k1_zfmisc_1 X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_pre_topc X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k3_tex_4 X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v2_pre_topc X0)\wedge(l1_pre_topc X0)))\wedge((\neg v2_struct_0 X1)\wedge((v2_tsp_2 X1 X0)\wedge(m1_pre_topc X1 X0))))\Rightarrow((v1_funct_1 (k1_tsp_2 X0 X1))\wedge((v1_funct_2 (k1_tsp_2 X0 X1) (u1_struct_0 X0) (u1_struct_0 X1))\wedge((v5_pre_topc (k1_tsp_2 X0 X1) X0 X1)\wedge(m1_subset_1 (k1_tsp_2 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))))) \quad (9)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v2_pre_topc X0)\wedge(l1_pre_topc X0)))\Rightarrow(\forall X1.(((\neg v2_struct_0 X1)\wedge((v2_tsp_2 X1 X0)\wedge(m1_pre_topc X1 X0)))\Rightarrow(\forall X2.(((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1))\wedge((v5_pre_topc X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1))))))))\Rightarrow((X2 = k1_tsp_2 X0 X1)\Leftrightarrow(\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((X3 = u1_struct_0 X1)\Rightarrow(\forall X4.(m1_subset_1 X4 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(k9_subset_1 (u1_struct_0 X0) X3 (k3_tex_4 X0 X4) = k7_relset_1 (u1_struct_0 X0) (u1_struct_0 X1) X2 X4)))))))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 X0))\Rightarrow(k9_subset_1 X0 X1 X2 = k9_subset_1 X0 X2 X1) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_tsp_2 X1 X0) \wedge (m1_pre_topc \\ & X1 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (((v4_pre_topc X2 X0) \vee (v4_pre_topc X3 X0)) \Rightarrow (k7_relset_1 \\ & (u1_struct_0 X0) (u1_struct_0 X1) (k1_tsp_2 X0 X1) (k9_subset_1 \\ & (u1_struct_0 X0) X2 X3) = k9_subset_1 (u1_struct_0 X1) (k7_relset_1 \\ & (u1_struct_0 X0) (u1_struct_0 X1) (k1_tsp_2 X0 X1) X2) (k7_relset_1 \\ & (u1_struct_0 X0) (u1_struct_0 X1) (k1_tsp_2 X0 X1) X3)))))) \end{aligned}$$