

t1_connsp_2

(TMPjhXaTe5NJvZuZgByUrnrghcMphGzvcyL)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $m1_connsp_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. r1_tarski X0 (k2_xboole_0 X0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (r1_tarski (k4_subset_1 (u1_struct_0 X0) \\ (k1_tops_1 X0 X1) (k1_tops_1 X0 X2)) (k1_tops_1 X0 (k4_subset_1 \\ (u1_struct_0 X0) X1 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((m1_subset_1 X1 (k1_zfmisc_1 \\ X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = \\ k2_xboole_0 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge \\ (l1_pre_topc X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\ (m1_connsp_2 X2 X0 X1) \Rightarrow (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ X0)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((m1_subset_1 X1 (k1_zfmisc_1 \\ X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (m1_subset_1 (k4_subset_1 \\ X0 X1 X2) (k1_zfmisc_1 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((l1_pre_topc\ X0)\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow(m1_subset_1\ (k1_tops_1\ X0\ X1)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2\in X0)\Rightarrow(X2\in X1)) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0\ X0)\wedge((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0)))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0))\Rightarrow((m1_connsp_2\ X2\ X0\ X1)\Leftrightarrow(X1\in k1_tops_1\ X0\ X2)))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ X0)))\Rightarrow(k4_subset_1\ X0\ X1\ X2 = k4_subset_1\ X0\ X2\ X1) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.k2_xboole_0\ X0\ X1 = k2_xboole_0\ X1\ X0 \quad (10)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0\ X0)\wedge((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0)))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))\Rightarrow(((m1_connsp_2\ X2\ X0\ X1)\wedge(m1_connsp_2\ X3\ X0\ X1))\Rightarrow(m1_connsp_2\ (k4_subset_1\ (u1_struct_0\ X0)\ X2\ X3)\ X0\ X1)))))))$$