

t39_connsp_1

(TMUoEUeidR8e31wY6wauTnCqDn7V5LQMwiq)

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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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_connsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_connsp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_tarski : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k5_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (r1_tarski X0 (k3_tarski X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (4)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (X1 \in k1_connsp_1 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 X0)))\Rightarrow(k5_setfam_1 X0 X1 = k3_tarski X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((l1_pre_topc X0)\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k1_connsp_1 X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow \\ ((X2 = k1_connsp_1 X0 X1)\Leftrightarrow(\exists X3.(m1_subset_1 X3 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 X0))))\wedge(\forall X4.(m1_subset_1 X4 \\ (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((X4 \in X3)\Leftrightarrow((v2_connsp_1 X4 X0)\wedge(X1 \in X4))))\wedge(k5_setfam_1 (u1_struct_0 X0) X3 = X2)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1)\Leftrightarrow((r1_tarski X0 X1)\wedge(r1_tarski X1 X0)) \quad (10)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge((v2_pre_topc X0)\wedge(l1_pre_topc X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(((v2_connsp_1 X1 X0)\wedge(r1_tarski (k1_connsp_1 X0 X2) X1))\Rightarrow(X1 = k1_connsp_1 X0 X2)))) \end{aligned}$$