

# t41\_connsp\_1

(TMNpu8T9k9adZakR4tk4HfVDvgQaEsSqdsp)

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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  $v3\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $v2\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_setfam\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (r1\_tarski X0 (k3\_tarski X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0))) \Rightarrow ((v3\_connsp\_1 X1 X0) \Leftrightarrow (\exists X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \wedge (X1 = k1\_connsp\_1 X0 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (((v2\_connsp\_1 \\ X1 X0) \wedge (r1\_tarski (k1\_connsp\_1 X0 X2) X1)) \Rightarrow (X1 = k1\_connsp\_1 X0 \\ X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \Rightarrow (k5\_setfam\_1 X0 X1 = k3\_tarski X1) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge \\ (l1\_pre\_topc X0))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow ((\neg v1\_xboole\_0 \\ (k1\_connsp\_1 X0 X1)) \wedge (v2\_connsp\_1 (k1\_connsp\_1 X0 X1) X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((l1\_pre\_topc\ X0)\wedge(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)))\Rightarrow(m1\_subset\_1\ (k1\_connsp\_1\ X0\ X1)\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow \\ ((X2 = k1\_connsp\_1\ X0\ X1)\Leftrightarrow(\exists X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\wedge(\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow((X4 \in X3)\Leftrightarrow((v2\_connsp\_1\ X4\ X0)\wedge(X1 \in X4))))\wedge(k5\_setfam\_1\ (u1\_struct\_0\ X0)\ X3 = X2)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow((v3\_connsp\_1\ X1\ X0)\Leftrightarrow((v2\_connsp\_1\ X1\ X0)\wedge \\ (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(((v2\_connsp\_1\ X2\ X0)\wedge(r1\_tarski\ X1\ X2))\Rightarrow(X1 = X2)))))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0)))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(((v3\_connsp\_1\ X1\ X0)\wedge(X2 \in X1))\Rightarrow(X1 = k1\_connsp\_1\ X0\ X2)))) \end{aligned}$$