

t5\_connsp\_1  
(TMEqLErpBVYuZeibe7Fn2JzheraR9aDeJFY)

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Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  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  $r1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (r1\_tarski X0 X1) \Rightarrow (k3\_xboole\_0 X0 X1 = X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (m1\_pre\_topc X1 X0) \Rightarrow \\ & (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow \\ & (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow \\ & ((X2 = X3) \Rightarrow (k2\_pre\_topc X1 X3 = k9\_subset\_1 (u1\_struct\_0 X1) (k2\_pre\_topc \\ & X0 X2) (k2\_struct\_0 X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. k3\_xboole\_0 (k3\_xboole\_0 X0 X1) X2 = k3\_xboole\_0 X0 (k3\_xboole\_0 X1 X2) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1\_pre\_topc X0) \wedge ((m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0)))) \Rightarrow ((r1\_connsp\_1 X0 X1 X2) \Rightarrow (r1\_connsp\_1 X0 \\ & X2 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow(k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_pre\_topc X1 X0)\Rightarrow(l1\_pre\_topc X1)) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(l1\_struct\_0 X0) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0)\Rightarrow(m1\_subset\_1 (k2\_struct\_0 X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_xboole\_0 X0 X1)\Leftrightarrow(k3\_xboole\_0 X0 X1 = k1\_xboole\_0) \quad (10)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0)\Rightarrow(k2\_struct\_0 X0 = u1\_struct\_0 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow((r1\_connsp\_1 X0 X1 X2)\Leftrightarrow((r1\_xboole\_0 (k2\_pre\_topc X0 X1) X2)\wedge(r1\_xboole\_0 X1 (k2\_pre\_topc X0 X2)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \quad (13)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1. (m1\_pre\_topc X1 X0)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (k1\_zfmisc\_1 (u1\_struct\_0 X1)))\Rightarrow(\forall X5.(m1\_subset\_1 X5 (k1\_zfmisc\_1 (u1\_struct\_0 X1)))\Rightarrow(((X4 = X2)\wedge((X5 = X3)\wedge(r1\_connsp\_1 X1 X4 X5))\Rightarrow(r1\_connsp\_1 X0 X2 X3)))))))))) \end{aligned}$$