

# t10\_connsp\_1 (TMTvd- hVDGnTT1jQXbjVFxRPfd5XQgRxX4VU)

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Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_connsp\_1 : \iota \Rightarrow o$  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  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v4\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (((k2\_struct\_0 \\ & X0 = k4\_subset\_1 (u1\_struct\_0 X0) X1 X2) \wedge (r1\_connsp\_1 X0 X1 X2)) \Rightarrow \\ & ((v3\_pre\_topc X1 X0) \wedge ((v4\_pre\_topc X1 X0) \wedge ((v3\_pre\_topc X2 X0) \wedge \\ & (v4\_pre\_topc X2 X0))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (((v4\_pre\_topc X1 X0) \wedge ((v4\_pre\_topc X2 X0) \wedge \\ & (r1\_xboole\_0 X1 X2))) \Rightarrow (r1\_connsp\_1 X0 X1 X2)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0))) \Rightarrow ((r1\_connsp\_1 X0 X1 X2) \Rightarrow (r1\_xboole\_0 X1 X2)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc X0) \Rightarrow ((v1\_connsp\_1 X0) \Leftrightarrow (\forall X1.( \\ & m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2.( \\ & m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\neg(k2\_struct\_0 \\ & X0 = k4\_subset\_1 (u1\_struct\_0 X0) X1 X2) \wedge ((r1\_connsp\_1 X0 X1 X2) \wedge \\ & ((X1 \neq k1\_struct\_0 X0) \wedge (X2 \neq k1\_struct\_0 X0))))))))) \end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\Rightarrow((v1\_connsp\_1 \\ & X0)\Leftrightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow \\ & (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\Rightarrow \\ & (\neg(k2\_struct\_0\ X0 = k4\_subset\_1\ (u1\_struct\_0\ X0)\ X1\ X2)\wedge((X1\neq k1\_struct\_0 \\ & X0)\wedge((X2\neq k1\_struct\_0\ X0)\wedge((v4\_pre\_topc\ X1\ X0)\wedge((v4\_pre\_topc \\ & X2\ X0)\wedge(r1\_xboole\_0\ X1\ X2)))))))))) \end{aligned}$$