

t33\_connsp\_3  
(TMFxm3btgHVrJvkwWU5Cg4brr2iSffmboBm)

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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  $k6\_connsp\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_connsp\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((X2 \in X1) \Rightarrow (k6\_connsp\_3 X0 X1 X2 = k1\_connsp\_1 (k1\_pre\_topc X0 X1) (k2\_connsp\_3 X0 X1 X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. (m1\_pre\_topc X1 X0) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1))) \Rightarrow ((X2 = X3) \Rightarrow ((v2\_connsp\_1 X2 X0) \Leftrightarrow (v2\_connsp\_1 X3 X1)))))) \end{aligned} \quad (4)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \wedge \\ & ((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))) \Rightarrow ((\neg v2\_struct\_0 (k1\_pre\_topc X0 X1)) \wedge (v1\_pre\_topc (k1\_pre\_topc \\ & X0 X1))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge \\ & (l1\_pre\_topc X0))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow ((\neg v1\_xboole\_0 \\ & (k1\_connsp\_1 X0 X1)) \wedge (v2\_connsp\_1 (k1\_connsp\_1 X0 X1) X0)) \end{aligned} \tag{7}$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (m1\_pre\_topc X1 X0) \Rightarrow (l1\_pre\_topc X1)) \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1\_pre\_topc X0) \wedge ((m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)))) \Rightarrow (m1\_subset\_1 (k6\_connsp\_3 X0 X1 X2) (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1\_pre\_topc X0) \wedge ((m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)))) \Rightarrow (m1\_subset\_1 (k2\_connsp\_3 X0 X1 X2) (u1\_struct\_0 (k1\_pre\_topc \\ & X0 X1))) \end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1\_pre\_topc X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (u1\_struct\_0 X0)))) \Rightarrow ((v1\_pre\_topc (k1\_pre\_topc X0 X1)) \wedge (m1\_pre\_topc \\ & (k1\_pre\_topc X0 X1) X0)) \end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1\_pre\_topc X0) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0))) \Rightarrow (m1\_subset\_1 (k1\_connsp\_1 X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \end{aligned} \tag{12}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((X2 \in X1) \Rightarrow \\ & (v2\_connsp\_1 (k6\_connsp\_3 X0 X1 X2) X0)))) \end{aligned}$$