

t3\_t\_0topsp  
(TMX56wwfXdvXz7zRevonGqNBpCh68cKTcKU)

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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  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $k6\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $v3\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k8\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $m1\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $k11\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 \\ & X2) \wedge ((v1\_partfun1 X2 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X1 X1)))))) \Rightarrow (\neg (X0 \in k7\_eqrel\_1 X1 X2) \wedge (\forall X3. (m1\_subset\_1 \\ & X3 X1) \Rightarrow (X0 \neq k6\_eqrel\_1 X1 X1 X2 X3))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge ((v1\_partfun1 \\ & X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\ & (k8\_eqrel\_1 X0 X1 = k7\_eqrel\_1 X0 X1) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_eqrel\_1 X1 X0)\Rightarrow(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(l1\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(m1\_subset\_1 (k6\_eqrel\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 X1)) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow((\neg v1\_xboole\_0 (k2\_t\_0topsp X0))\wedge(m1\_eqrel\_1 (k2\_t\_0topsp X0) (u1\_struct\_0 X0))) \quad (9)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow((v1\_partfun1 (k1\_t\_0topsp X0) (u1\_struct\_0 X0))\wedge((v3\_relat\_2 (k1\_t\_0topsp X0))\wedge((v8\_relat\_2 (k1\_t\_0topsp X0))\wedge(m1\_subset\_1 (k1\_t\_0topsp X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0))))))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge(m1\_eqrel\_1 X1 (u1\_struct\_0 X0)))\Rightarrow((v1\_pre\_topc (k11\_borsuk\_1 X0 X1))\wedge((v2\_pre\_topc (k11\_borsuk\_1 X0 X1))\wedge(l1\_pre\_topc (k11\_borsuk\_1 X0 X1)))) \quad (11)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1.(m1\_eqrel\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.((v1\_pre\_topc X2)\wedge((v2\_pre\_topc X2)\wedge(l1\_pre\_topc X2)))\Rightarrow((X2 = k11\_borsuk\_1 X0 X1)\Leftrightarrow((u1\_struct\_0 X2 = X1)\wedge(u1\_pre\_topc X2 = ReplSep (toset (\lambda X3 : \iota.m1\_subset\_1 X3 (k1\_zfmisc\_1 X1))) (\lambda X3 : \iota.k3\_tarski X3 \in u1\_pre\_topc X0) (\lambda X3 : \iota.X3)))))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0)))\Rightarrow(k3\_t\_0topsp X0 = k11\_borsuk\_1 X0 (k2\_t\_0topsp X0)) \quad (13)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (k2\_t\_0topsp X0 = k8\_eqrel\_1 (u1\_struct\_0 X0) (k1\_t\_0topsp X0)) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v3\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge ((v1\_partfun1 \\ & X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \Rightarrow \\ & (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \Rightarrow \\ & ((X2 = k7\_eqrel\_1 X0 X1) \Leftrightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & X0)) \Rightarrow ((X3 \in X2) \Leftrightarrow (\exists X4. (X4 \in X0) \wedge (X3 = k6\_eqrel\_1 X0 X0 X1 X4)))))) \end{aligned} \quad (15)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 (k3\_t\_0topsp \\ & X0))) \Leftrightarrow (\exists X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \wedge (X1 = k6\_eqrel\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0) (k1\_t\_0topsp X0) X2))) \end{aligned}$$