

# t5\_t\_0topsp (TMFVJBRNpbXDfGRYUGAmhjk- TjHxqjXYZNyw)

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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  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $k4\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $k4\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $k6\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k11\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_relat\_2 : \iota \Rightarrow o$  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  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $k2\_t\_0topsp : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k3\_funct\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 (k3\_t\_0topsp X0)) (k4\_t\_0topsp \\ & X0) X1 = k6\_eqrel\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (k1\_t\_0topsp \\ & X0) X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge (m1\_eqrel\_1 X1 (u1\_struct\_0 \\ & X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (X2 \in k3\_funct\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 (k11\_borsuk\_1 X0 X1)) (k12\_borsuk\_1 \\ & X0 X1) X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v3\_relat\_2 X3) \wedge \\ & ((v1\_partfun1 X3 X0) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0)))))) \Rightarrow ((X1 \in k6\_eqrel\_1 X0 X0 X3 X2) \Leftrightarrow (k4\_tarski X1 X2 \in X3)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0)))\wedge(((\neg v2\_struct\_0 X1)\wedge \\ & ((v2\_pre\_topc X1)\wedge(l1\_pre\_topc X1)))\wedge((m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0))\wedge(m1\_subset\_1 X3 (u1\_struct\_0 X1))))))\Rightarrow(k4\_borsuk\_1 X0 X1 \\ & X2 X3 = k4\_tarski X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X3 ( \\ & k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X2)))\Rightarrow((k4\_tarski X0 X1 \in X3)\Rightarrow((X0 \in \\ & X2)\wedge(X1 \in X2))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v3\_relat\_2 X2)\wedge((v8\_relat\_2 \\ & X2)\wedge((v1\_partfun1 X2 X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0))))))\Rightarrow(\forall X3.(X3 \in X0)\Rightarrow((k4\_tarski X3 X1 \in X2)\Leftrightarrow(k6\_eqrel\_1 \\ & X0 X0 X2 X3 = k6\_eqrel\_1 X0 X0 X2 X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow((\neg v1\_xboole\_0 \\ & (k2\_t\_0topsp X0))\wedge(m1\_eqrel\_1 (k2\_t\_0topsp X0) (u1\_struct\_0 \\ & X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow((v1\_partfun1 \\ & (k1\_t\_0topsp X0) (u1\_struct\_0 X0))\wedge((v3\_relat\_2 (k1\_t\_0topsp \\ & X0))\wedge((v8\_relat\_2 (k1\_t\_0topsp X0))\wedge(m1\_subset\_1 (k1\_t\_0topsp \\ & X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ & X0)))\Rightarrow(k4\_t\_0topsp X0 = k12\_borsuk\_1 X0 (k2\_t\_0topsp X0)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ & X0)))\Rightarrow(k3\_t\_0topsp X0 = k11\_borsuk\_1 X0 (k2\_t\_0topsp X0)) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ & X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow((k3\_funct\_2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 (k3\_t\_0topsp X0)) (k4\_t\_0topsp X0) X2 = k3\_funct\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 (k3\_t\_0topsp X0)) (k4\_t\_0topsp \\ & X0) X1)\Leftrightarrow(k4\_borsuk\_1 X0 X0 X2 X1 \in k1\_t\_0topsp X0)))) \end{aligned}$$