

# t36\_borsuk\_1 (TMPNWumSURhd- CTfN2efAn4WkFuSi5XJBSUL)

October 27, 2020

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  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

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.

$$\begin{aligned} \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge (m1\_eqrel\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (X2 \in k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 (k11\_borsuk\_1 X0 X1)) (k12\_borsuk\_1 X0 X1) X2))) \quad (3) \end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow ((\neg v1\_xboole\_0 (k1\_connsp\_1 X0 X1)) \wedge (v2\_connsp\_1 (k1\_connsp\_1 X0 X1) X0)) \quad (4)$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow (\forall X1. (m1\_pre\_topc X1 X0) \Rightarrow (l1\_pre\_topc X1)) \quad (5)$$

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.

$$\forall X0.\forall X1.((l1\_pre\_topc X0)\wedge(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow(m1\_subset\_1 (k1\_connsp\_1 X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0)))\wedge(((\neg v2\_struct\_0 X1)\wedge(m1\_pre\_topc X1 X0))\wedge((\neg v1\_xboole\_0 X2)\wedge(m1\_eqrel\_1 X2 (u1\_struct\_0 X1)))))\Rightarrow((\neg v1\_xboole\_0 (k13\_borsuk\_1 X0 X1 X2))\wedge(m1\_eqrel\_1 (k13\_borsuk\_1 X0 X1 X2) (u1\_struct\_0 X0))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge(m1\_eqrel\_1 X1 (u1\_struct\_0 X0)))\Rightarrow((v1\_pre\_topc (k11\_borsuk\_1 X0 X1))\wedge((v2\_pre\_topc (k11\_borsuk\_1 X0 X1))\wedge(l1\_pre\_topc (k11\_borsuk\_1 X0 X1)))) \quad (9)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1.(m1\_eqrel\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.((v1\_pre\_topc X2)\wedge((v2\_pre\_topc X2)\wedge(l1\_pre\_topc X2)))\Rightarrow((X2 = k11\_borsuk\_1 X0 X1)\Leftrightarrow((u1\_struct\_0 X2 = X1)\wedge(u1\_pre\_topc X2 = ReplSep (toset (\lambda X3 : \iota.m1\_subset\_1 X3 (k1\_zfmisc\_1 X1))) (\lambda X3 : \iota.k3\_tarski X3 \in u1\_pre\_topc X0) (\lambda X3 : \iota.X3)))))) \quad (10)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(v1\_xboole\_0 X1)) \quad (11)$$

Assume the following.

$$\forall X0.((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\Rightarrow(\forall X1.(m1\_pre\_topc X1 X0)\Rightarrow(v2\_pre\_topc X1)) \quad (12)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge (m1\_pre\_topc X1 X0)) \Rightarrow ( \\ & \forall X2.((\neg v1\_xboole\_0 X2) \wedge (m1\_eqrel\_1 X2 (u1\_struct\_0 X1))) \Rightarrow \\ & (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((k3\_funct\_2 ( \\ & u1\_struct\_0 X0) (u1\_struct\_0 (k11\_borsuk\_1 X0 (k13\_borsuk\_1 X0 \\ & X1 X2))) (k12\_borsuk\_1 X0 (k13\_borsuk\_1 X0 X1 X2)) X3 \in u1\_struct\_0 \\ & (k11\_borsuk\_1 X1 X2)) \Rightarrow (X3 \in u1\_struct\_0 X1)))))) \end{aligned}$$