

## t38\_borsuk\_4

(TMJzV85k2R75cEoo72gu4pVK6cDvGQ5i5Gh)

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Let  $v1\_topreal2 : \iota \Rightarrow o$  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  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $r2\_borsuk\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_topreal1 : \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $r1\_t\_0topsp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v5\_rltopsp1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_rltopsp1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_compts\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_2) \wedge (m2\_subset\_1 \ np\_2 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_2 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_2 \ k1\_numbers)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 \ X0) \wedge (l1\_pre\_topc \ X0)) \wedge \\ & ((\neg v2\_struct\_0 \ X1) \wedge (l1\_pre\_topc \ X1))) \Rightarrow ((r2\_borsuk\_3 \ X0 \ X1) \Leftrightarrow \\ & (r1\_t\_0topsp \ X0 \ X1)) \end{aligned} \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$v6\_membered \ k4\_ordinal1 \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v7\_ordinal1 \ X0) \Rightarrow ((\neg v2\_struct\_0 \ (k15\_euclid \ X0)) \wedge \\ & (v5\_rltopsp1 \ (k15\_euclid \ X0))) \end{aligned} \quad (5)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_topreal1 \quad (6)$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1\_pre\_topc \ X0)\Rightarrow(\forall X1.(m1\_pre\_topc \ X1 \ X0)\Rightarrow(l1\_pre\_topc \ X1)) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_rltopsp1 \ X0)\Rightarrow((l1\_rlvect\_1 \ X0)\wedge(l1\_pre\_topc \ X0)) \quad (9)$$

Assume the following.

$$m1\_subset\_1 \ k1\_topreal1 \ (k1\_zfmisc\_1 \ (u1\_struct\_0 \ (k15\_euclid \ np\_2))) \quad (10)$$

Assume the following.

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

Assume the following.

$$\forall X0.(v7\_ordinal1 \ X0)\Rightarrow((v5\_rltopsp1 \ (k15\_euclid \ X0))\wedge(l1\_rltopsp1 \ (k15\_euclid \ X0))) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 \ X0 \ (k1\_zfmisc\_1 \ (u1\_struct\_0 \ (k15\_euclid \\ & np\_2))))\Rightarrow((v1\_topreal2 \ X0)\Leftrightarrow(\exists X1.((v1\_funct\_1 \ X1)\wedge \\ & (v1\_funct\_2 \ X1 \ (u1\_struct\_0 \ (k1\_pre\_topc \ (k15\_euclid \ np\_2) \ k1\_topreal1)) \\ & (u1\_struct\_0 \ (k1\_pre\_topc \ (k15\_euclid \ np\_2) \ X0)))\wedge(m1\_subset\_1 \\ & X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (u1\_struct\_0 \ (k1\_pre\_topc \ (k15\_euclid \\ & np\_2) \ k1\_topreal1)) \ (u1\_struct\_0 \ (k1\_pre\_topc \ (k15\_euclid \ np\_2) \\ & X0))))))\wedge(v3\_tops\_2 \ X1 \ (k1\_pre\_topc \ (k15\_euclid \ np\_2) \ k1\_topreal1) \\ & (k1\_pre\_topc \ (k15\_euclid \ np\_2) \ X0)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc \ X0)\Rightarrow(\forall X1.(l1\_pre\_topc \ X1)\Rightarrow(( \\ & r1\_t\_0topsp \ X0 \ X1)\Leftrightarrow(\exists X2.((v1\_funct\_1 \ X2)\wedge((v1\_funct\_2 \\ & X2 \ (u1\_struct\_0 \ X0) \ (u1\_struct\_0 \ X1))\wedge(m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ (u1\_struct\_0 \ X0) \ (u1\_struct\_0 \ X1))))))\wedge(v3\_tops\_2 \\ & X2 \ X0 \ X1)))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))) \Rightarrow ((v1\_topreal2 X0) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge (v2\_compts\_1 X0 (k15\_euclid np\_2)))) \quad (15)$$

Assume the following.

$$\forall X0.(v6\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v7\_ordinal1 X1)) \quad (16)$$

**Theorem 1**

$$\forall X0.((v1\_topreal2 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))))) \Rightarrow (r2\_borsuk\_3 (k1\_pre\_topc (k15\_euclid np\_2) k1\_topreal1) (k1\_pre\_topc (k15\_euclid np\_2) X0))$$