

t53\_borsuk\_5 (TMLxCWX-  
iTqi4qMuDUUyq4yTLXCDhJgR4SGa)

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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  $k3\_topmetr : \iota$  be given. Let  $v1\_xreal.0 : \iota \Rightarrow o$  be given. Let  $k2\_rcomp.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xxreal.0 : \iota$  be given. Let  $k1\_xxreal.0 : \iota$  be given. Let  $r1\_connsp.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xxreal.0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal.0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xboole.0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_xxreal.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xxreal.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xxreal.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_rcomp.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_rcomp.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal.0 X0) \Rightarrow (\forall X1.(v1\_xxreal.0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal.0 X2) \Rightarrow (\forall X3.(v1\_xxreal.0 X3) \Rightarrow ((r1\_xxreal.0 \\ & X0 X1) \Rightarrow (r1\_xboole.0 (k4\_xxreal.1 X2 X0) (k2\_xxreal.1 X1 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xxreal.0 X0) \Rightarrow (\forall X1.(v1\_xxreal.0 X1) \Rightarrow (\forall X2. \\ & (v1\_xxreal.0 X2) \Rightarrow (\forall X3.(v1\_xxreal.0 X3) \Rightarrow ((r1\_xxreal.0 \\ & X0 X1) \Rightarrow (r1\_xboole.0 (k3\_xxreal.1 X2 X0) (k4\_xxreal.1 X1 X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset.1 X0 (k1\_zfmisc.1 (u1\_struct.0 k3\_topmetr))) \Rightarrow \\ & (\forall X1.(v1\_xreal.0 X1) \Rightarrow ((X0 = k2\_rcomp.1 k2\_xxreal.0 X1) \Rightarrow \\ & (k2\_pre\_topc k3\_topmetr X0 = k4\_rcomp.1 k2\_xxreal.0 X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset.1 X0 (k1\_zfmisc.1 (u1\_struct.0 k3\_topmetr))) \Rightarrow \\ & (\forall X1.(v1\_xreal.0 X1) \Rightarrow ((X0 = k2\_rcomp.1 X1 k1\_xxreal.0) \Rightarrow \\ & (k2\_pre\_topc k3\_topmetr X0 = k3\_rcomp.1 X1 k1\_xxreal.0))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1\_xxreal.0 X0) \wedge (v1\_xxreal.0 X1)) \Rightarrow ( \\ & r1\_xxreal.0 X0 X0) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0)\wedge(v1\_xreal\_0 X1))\Rightarrow(k4\_rcomp\_1 X0 X1 = k3\_xxreal\_1 X0 X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xreal\_0 X0)\wedge(v1\_xxreal\_0 X1))\Rightarrow(k3\_rcomp\_1 X0 X1 = k2\_xxreal\_1 X0 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0)\wedge(v1\_xxreal\_0 X1))\Rightarrow(k2\_rcomp\_1 X0 X1 = k4\_xxreal\_1 X0 X1) \quad (8)$$

Assume the following.

$$v1\_xxreal\_0 k2\_xxreal\_0 \quad (9)$$

Assume the following.

$$v1\_xxreal\_0 k1\_xxreal\_0 \quad (10)$$

Assume the following.

$$(v2\_pre\_topc k3\_topmetr)\wedge(l1\_pre\_topc k3\_topmetr) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0)))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0)))\Rightarrow((r1\_connsp\_1 X0 X1 X2)\Leftrightarrow((r1\_xboole\_0 (k2\_pre\_topc \\ X0 X1) X2)\wedge(r1\_xboole\_0 X1 (k2\_pre\_topc X0 X2)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xxreal\_0 X0) \quad (13)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 k3\_topmetr)))\Rightarrow \\ (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 k3\_topmetr)))\Rightarrow \\ (\forall X2.(v1\_xreal\_0 X2)\Rightarrow(((X0 = k2\_rcomp\_1 k2\_xxreal\_0 X2)\wedge \\ (X1 = k2\_rcomp\_1 X2 k1\_xxreal\_0))\Rightarrow(r1\_connsp\_1 k3\_topmetr X0 X1)))) \end{aligned}$$