

t14\_borsuk\_2 (TM-  
ctN8LW1tYdvQNMPBsZBGJDswduTTpzdyo)

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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_topmetr : \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\
& X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X4. ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 \\
& X4 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X4 \\
& (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 \\
& X0)))))) \Rightarrow (\forall X5. ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 (u1\_struct\_0 \\
& k5\_topmetr) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 ( \\
& k2\_zfmisc\_1 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 X0)))))) \Rightarrow \\
& (\neg (v5\_pre\_topc X4 k5\_topmetr X0) \wedge ((X1 = k1\_funct\_1 X4 k6\_numbers) \wedge \\
& ((X2 = k1\_funct\_1 X4 np\_1) \wedge (v5\_pre\_topc X5 k5\_topmetr X0) \wedge ( \\
& X2 = k1\_funct\_1 X5 k6\_numbers) \wedge ((X3 = k1\_funct\_1 X5 np\_1) \wedge (\forall X6. \\
& ((v1\_funct\_1 X6) \wedge ((v1\_funct\_2 X6 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 \\
& X0)) \wedge (m1\_subset\_1 X6 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& k5\_topmetr) (u1\_struct\_0 X0)))))) \Rightarrow (\neg (v5\_pre\_topc X6 k5\_topmetr \\
& X0) \wedge ((X1 = k1\_funct\_1 X6 k6\_numbers) \wedge ((X3 = k1\_funct\_1 X6 np\_1) \wedge \\
& (r1\_tarski (k2\_relset\_1 (u1\_struct\_0 X0) X6) (k4\_subset\_1 (u1\_struct\_0 \\
& X0) (k2\_relset\_1 (u1\_struct\_0 X0) X4) (k2\_relset\_1 (u1\_struct\_0 \\
& X0) X5))))))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((l1\_pre\_topc\ X0)\wedge((m1\_subset\_1 \\ & X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(\forall X3. \\ & (m1\_borsuk\_2\ X3\ X0\ X1\ X2)\Rightarrow((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (u1\_struct\_0 \\ & k5\_topmetr)\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ ( \\ & k2\_zfmisc\_1\ (u1\_struct\_0\ k5\_topmetr)\ (u1\_struct\_0\ X0))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0))\wedge( \\ & (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge((m1\_subset\_1\ X2\ (u1\_struct\_0 \\ & X0))\wedge((m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\wedge((m1\_borsuk\_2\ X4\ X0\ X1 \\ & X2)\wedge(m1\_borsuk\_2\ X5\ X0\ X2\ X3))))))\Rightarrow(m1\_borsuk\_2\ (k1\_borsuk\_2 \\ & X0\ X1\ X2\ X3\ X4\ X5)\ X0\ X1\ X3) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0 \\ & X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r1\_borsuk\_2 \\ & X0\ X1\ X2)\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (u1\_struct\_0 \\ & k5\_topmetr)\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ ( \\ & k2\_zfmisc\_1\ (u1\_struct\_0\ k5\_topmetr)\ (u1\_struct\_0\ X0))))))\Rightarrow \\ & ((m1\_borsuk\_2\ X3\ X0\ X1\ X2)\Leftrightarrow((v5\_pre\_topc\ X3\ k5\_topmetr\ X0)\wedge((k1\_funct\_1 \\ & X3\ k6\_numbers = X1)\wedge(k1\_funct\_1\ X3\ np\_1 = X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0 \\ & X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r1\_borsuk\_2 \\ & X0\ X1\ X2)\Leftrightarrow(\exists X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (u1\_struct\_0 \\ & k5\_topmetr)\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ ( \\ & k2\_zfmisc\_1\ (u1\_struct\_0\ k5\_topmetr)\ (u1\_struct\_0\ X0))))))\wedge \\ & ((v5\_pre\_topc\ X3\ k5\_topmetr\ X0)\wedge((k1\_funct\_1\ X3\ k6\_numbers = X1)\wedge \\ & (k1\_funct\_1\ X3\ np\_1 = X2)))))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc \\ & X0)))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2. \\ & (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3 \\ & (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_borsuk\_2\ X4\ X0\ X1\ X2)\Rightarrow(\forall X5. \\ & (m1\_borsuk\_2\ X5\ X0\ X2\ X3)\Rightarrow(((v5\_pre\_topc\ X4\ k5\_topmetr\ X0)\wedge((v5\_pre\_topc \\ & X5\ k5\_topmetr\ X0)\wedge((k1\_funct\_1\ X4\ k6\_numbers = X1)\wedge((k1\_funct\_1 \\ & X4\ np\_1 = X2)\wedge((k1\_funct\_1\ X5\ k6\_numbers = X2)\wedge(k1\_funct\_1\ X5\ np\_1 = \\ & X3))))))\Rightarrow((v5\_pre\_topc\ (k1\_borsuk\_2\ X0\ X1\ X2\ X3\ X4\ X5)\ k5\_topmetr \\ & X0)\wedge((k1\_funct\_1\ (k1\_borsuk\_2\ X0\ X1\ X2\ X3\ X4\ X5)\ k6\_numbers = X1)\wedge \\ & (k1\_funct\_1\ (k1\_borsuk\_2\ X0\ X1\ X2\ X3\ X4\ X5)\ np\_1 = X3)))))) \end{aligned}$$