

t42\_yellow12

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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  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k14\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k10\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k13\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v2\_pre\_topc X2) \wedge (l1\_pre\_topc \\ & X2)))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)) \wedge ((v5\_pre\_topc X3 X0 X1) \wedge (m1\_subset\_1 X3 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow \\ & (\forall X4.((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X2)) \wedge ((v5\_pre\_topc X4 X0 X2) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X2)))))) \Rightarrow ((v1\_funct\_1 \\ & (k14\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1) (u1\_struct\_0 X2) \\ & X3 X4) \wedge ((v1\_funct\_2 (k14\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X2) X3 X4) (u1\_struct\_0 X0) (u1\_struct\_0 (k2\_borsuk\_1 \\ & X1 X2))) \wedge ((v5\_pre\_topc (k14\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X2) X3 X4) X0 (k2\_borsuk\_1 X1 X2)) \wedge (m1\_subset\_1 \\ & (k14\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1) (u1\_struct\_0 X2) \\ & X3 X4) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & (k2\_borsuk\_1 X1 X2)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow ((v1\_funct\_1 (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1))) \wedge ((v1\_funct\_2 (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) (u1\_struct\_0 (k2\_borsuk\_1 X0 X1)) (u1\_struct\_0 X1)) \wedge ((v5\_pre\_topc \\ & (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (k2\_borsuk\_1 \\ & X0 X1) X1) \wedge (m1\_subset\_1 (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 (k2\_borsuk\_1 X0 X1)) \\ & (u1\_struct\_0 X1)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow ((v1\_funct\_1 (k9\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1))) \wedge ((v1\_funct\_2 (k9\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) (u1\_struct\_0 (k2\_borsuk\_1 X0 X1)) (u1\_struct\_0 X0)) \wedge ((v5\_pre\_topc \\ & (k9\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (k2\_borsuk\_1 X0 \\ & X1) X0) \wedge (m1\_subset\_1 (k9\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 (k2\_borsuk\_1 X0 X1)) \\ & (u1\_struct\_0 X0)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1\_xboole\_0 \\ & X1) \wedge ((\neg v1\_xboole\_0 X2) \wedge (((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 \\ & X1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \wedge ((v1\_funct\_1 \\ & X4) \wedge ((v1\_funct\_2 X4 X0 X2) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X2)))))) \Rightarrow (k14\_funct\_3 X0 X1 X2 X3 X4 = k13\_funct\_3 X3 X4) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge \\ & (l1\_pre\_topc X0))) \wedge ((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1)))) \Rightarrow ((\neg v2\_struct\_0 (k2\_borsuk\_1 X0 X1)) \wedge ((v1\_pre\_topc (k2\_borsuk\_1 \\ & X0 X1)) \wedge (v2\_pre\_topc (k2\_borsuk\_1 X0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow (l1\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1\_funct\_1 (k9\_funct\_3 X0 X1))\wedge((v1\_funct\_2 \\ & (k9\_funct\_3 X0 X1) (k2\_zfmisc\_1 X0 X1) X0)\wedge(m1\_subset\_1 (k9\_funct\_3 \\ & X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1) X0)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v2\_pre\_topc X0)\wedge(l1\_pre\_topc X0))\wedge \\ & ((v2\_pre\_topc X1)\wedge(l1\_pre\_topc X1)))\Rightarrow((v1\_pre\_topc (k2\_borsuk\_1 \\ & X0 X1))\wedge((v2\_pre\_topc (k2\_borsuk\_1 X0 X1))\wedge(l1\_pre\_topc (k2\_borsuk\_1 \\ & X0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0 \\ & X1)\wedge((\neg v1\_xboole\_0 X2)\wedge(((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 \\ & X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\wedge((v1\_funct\_1 \\ & X4)\wedge((v1\_funct\_2 X4 X0 X2)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X2)))))))\Rightarrow((v1\_funct\_1 (k14\_funct\_3 X0 X1 X2 X3 X4))\wedge((v1\_funct\_2 \\ & (k14\_funct\_3 X0 X1 X2 X3 X4) X0 (k2\_zfmisc\_1 X1 X2))\wedge(m1\_subset\_1 \\ & (k14\_funct\_3 X0 X1 X2 X3 X4) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (k2\_zfmisc\_1 \\ & X1 X2)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1\_funct\_1 (k10\_funct\_3 X0 X1))\wedge((v1\_funct\_2 \\ & (k10\_funct\_3 X0 X1) (k2\_zfmisc\_1 X0 X1) X1)\wedge(m1\_subset\_1 (k10\_funct\_3 \\ & X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1) X1)))) \end{aligned} \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow ((v1\_funct\_1 (k14\_funct\_3 (k2\_zfmisc\_1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1)) (u1\_struct\_0 X1) (u1\_struct\_0 X0) (k10\_funct\_3 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (k9\_funct\_3 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1)))) \wedge ((v1\_funct\_2 (k14\_funct\_3 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0) (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (k9\_funct\_3 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1))) (u1\_struct\_0 (k2\_borsuk\_1 \\ & X0 X1)) (u1\_struct\_0 (k2\_borsuk\_1 X1 X0))) \wedge ((v5\_pre\_topc (k14\_funct\_3 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X0) (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X1)) (k9\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1))) (k2\_borsuk\_1 \\ & X0 X1) (k2\_borsuk\_1 X1 X0)) \wedge (m1\_subset\_1 (k14\_funct\_3 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0) (k10\_funct\_3 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) (k9\_funct\_3 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1))) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 (k2\_borsuk\_1 X0 X1)) (u1\_struct\_0 (k2\_borsuk\_1 X1 \\ & X0)))))))))) \end{aligned}$$