

# t21\_topalg\_3

(TMU4QLzJK7VEMQ6rpoCRzvfs5c6jC6JvYYZ)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k17\_borsuk\_1 : \iota$  be given. Let  $v3\_funct\_1 : \iota \Rightarrow o$  be given. Let  $m1\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_topmetr : \iota$  be given. Let  $k6\_struct\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (X1 \in X0) \Rightarrow (k1\_funct\_1 (k2\_funcop\_1 X0 X2) X1 = X2) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & ((v3\_funct\_1 X2) \wedge (m1\_borsuk\_2 X2 X0 X1 X1)) \Rightarrow (r2\_funct\_2 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 X0) X2 (k6\_struct\_0 k5\_topmetr X0 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge(m1\_subset\_1 X2 X0))\Rightarrow(k8\_funcop\_1 X0 X1 X2 = k2\_funcop\_1 X1 X2) \quad (5)$$

Assume the following.

$$k5\_topmetr = k17\_borsuk\_1 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge(((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(k3\_funct\_2 X0 X1 X2 X3 = k1\_funct\_1 X2 X3) \quad (7)$$

Assume the following.

$$(\neg v2\_struct\_0 k17\_borsuk\_1)\wedge((v1\_pre\_topc k17\_borsuk\_1)\wedge(v2\_pre\_topc k17\_borsuk\_1)) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.((v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l1\_pre\_topc X0)\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(\forall X3.(m1\_borsuk\_2 X3 X0 X1 X2)\Rightarrow((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 k5\_topmetr) (u1\_struct\_0 X0)))))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(l1\_struct\_0 X0) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge(m1\_subset\_1 X2 X0))\Rightarrow(((v1\_funct\_1 (k8\_funcop\_1 X0 X1 X2))\wedge((v1\_funct\_2 (k8\_funcop\_1 X0 X1 X2) X1 X0)\wedge(m1\_subset\_1 (k8\_funcop\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))))) \quad (13)$$

Assume the following.

$$l1\_pre\_topc\ k17\_borsuk\_1 \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.k2\_funcop\_1\ X0\ X1 = k2\_zfmisc\_1\ X0\ (k1\_tarSKI\ X1) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_struct\_0\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge \\ (l1\_struct\_0\ X1)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1)) \Rightarrow \\ (k6\_struct\_0\ X0\ X1\ X2 = k8\_funcop\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0 \\ X0\ X2)))) \end{aligned} \quad (16)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2. \\ (m1\_subset\_1\ X2\ (u1\_struct\_0\ k17\_borsuk\_1)) \Rightarrow (\forall X3.((v3\_funct\_1 \\ X3) \wedge (m1\_borsuk\_2\ X3\ X0\ X1\ X1)) \Rightarrow (k3\_funct\_2\ (u1\_struct\_0\ k17\_borsuk\_1) \\ (u1\_struct\_0\ X0)\ X3\ X2 = X1)))))) \end{aligned}$$