

t46\_topalg\_1  
(TMF1RQY6g978QZmurkGvckc61ehsXkMCycE)

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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  $r1\_borsuk\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_topalg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_topalg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r3\_borsuk\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_borsuk\_6 X0 X1 X2) \Rightarrow (\forall X3. \\ & (m1\_borsuk\_2 X3 X0 X1 X2) \Rightarrow (\forall X4.(m1\_borsuk\_2 X4 X0 X1 X2) \Rightarrow \\ & ((X4 \in k6\_eqrel\_1 (k1\_topalg\_1 X0 X1 X2) (k1\_topalg\_1 X0 X1 X2) (k3\_topalg\_1 \\ & X0 X1 X2) X3) \Leftrightarrow (r3\_borsuk\_2 X0 X1 X2 X3 X4)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 \\ & X2) \wedge ((v1\_partfun1 X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0)))))) \Rightarrow (\forall X3.(X3 \in X0) \Rightarrow ((X1 \in k6\_eqrel\_1 X0 X0 X2 X3) \Leftrightarrow \\ & (k6\_eqrel\_1 X0 X0 X2 X3 = k6\_eqrel\_1 X0 X0 X2 X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_borsuk\_6 X0 X1 X2) \Rightarrow ((\neg \\ & v1\_xboole\_0 (k3\_topalg\_1 X0 X1 X2)) \wedge ((v1\_partfun1 (k3\_topalg\_1 \\ & X0 X1 X2) (k1\_topalg\_1 X0 X1 X2)) \wedge ((v3\_relat\_2 (k3\_topalg\_1 X0 X1 \\ & X2)) \wedge (v8\_relat\_2 (k3\_topalg\_1 X0 X1 X2))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc \\ & X0) \wedge (l1\_pre\_topc X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k3\_topalg\_1 \\ & X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_topalg\_1 X0 X1 X2) (k1\_topalg\_1 \\ & X0 X1 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_pre\_topc X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (X3 = k1\_topalg\_1 X0 X1 X2) \Leftrightarrow (\forall X4. \\ & (X4 \in X3) \Leftrightarrow (m1\_borsuk\_2 X4 X0 X1 X2)))))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_borsuk\_6 X0 X1 X2) \Rightarrow (\forall X3. \\ & (m1\_borsuk\_2 X3 X0 X1 X2) \Rightarrow (\forall X4. (m1\_borsuk\_2 X4 X0 X1 X2) \Rightarrow \\ & ((k6\_eqrel\_1 (k1\_topalg\_1 X0 X1 X2) (k1\_topalg\_1 X0 X1 X2) (k3\_topalg\_1 \\ & X0 X1 X2) X3 = k6\_eqrel\_1 (k1\_topalg\_1 X0 X1 X2) (k1\_topalg\_1 X0 X1 \\ & X2) (k3\_topalg\_1 X0 X1 X2) X4) \Leftrightarrow (r3\_borsuk\_2 X0 X1 X2 X3 X4))))))) \end{aligned}$$