

t4\_t\_0topsp  
(TMQekkXQ5uvWufeNB9DxD52kyyH1EgM8j3i)

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  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $k4\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $k6\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_t\_0topsp : \iota \Rightarrow \iota$  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  $k7\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k11\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_borsuk\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  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  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_t\_0topsp : \iota \Rightarrow \iota$  be given. Let  $v1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v3\_relat\_2 X2) \wedge ((v8\_relat\_2 \\ & X2) \wedge ((v1\_partfun1 X2 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X1 X1)))))) \Rightarrow (\neg (X0 \in k7\_eqrel\_1 X1 X2) \wedge (\forall X3. (m1\_subset\_1 \\ & X3 X1) \Rightarrow (X0 \neq k6\_eqrel\_1 X1 X1 X2 X3))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge (m1\_eqrel\_1 X1 (u1\_struct\_0 \\ & X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0) \Rightarrow (X2 \in k3\_funct\_2 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 (k11\_borsuk\_1 X0 X1)) (k12\_borsuk\_1 \\ & X0 X1) X2))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v3\_relat\_2 X2)\wedge((v8\_relat\_2 \\ & X2)\wedge((v1\_partfun1 X2 X0)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0))))))\Rightarrow(\forall X3.(X3 \in X0)\Rightarrow((X1 \in k6\_eqrel\_1 X0 X0 X2 X3)\Leftrightarrow \\ & (k6\_eqrel\_1 X0 X0 X2 X3 = k6\_eqrel\_1 X0 X0 X2 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v3\_relat\_2 X1)\wedge((v8\_relat\_2 X1)\wedge((v1\_partfun1 \\ & X1 X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))\Rightarrow \quad (5) \\ & (k8\_eqrel\_1 X0 X1 = k7\_eqrel\_1 X0 X1) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 \\ & (u1\_struct\_0 X0)) \end{aligned} \quad (6)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ & X0)))\Rightarrow((v1\_funct\_1 (k4\_t\_0topsp X0)\wedge(v1\_funct\_2 (k4\_t\_0topsp \\ & X0) (u1\_struct\_0 X0) (u1\_struct\_0 (k3\_t\_0topsp X0)))\wedge((v5\_pre\_topc \\ & (k4\_t\_0topsp X0) X0 (k3\_t\_0topsp X0))\wedge(m1\_subset\_1 (k4\_t\_0topsp \\ & X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 ( \\ & k3\_t\_0topsp X0)))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0))\Rightarrow(m1\_subset\_1 ( \\ & k3\_funct\_2 X0 X1 X2 X3) X1) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow((\neg v1\_xboole\_0 \\ & (k2\_t\_0topsp X0))\wedge(m1\_eqrel\_1 (k2\_t\_0topsp X0) (u1\_struct\_0 \\ & X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_pre\_topc X0))\Rightarrow((v1\_partfun1 \\ & (k1\_t\_0topsp X0) (u1\_struct\_0 X0))\wedge((v3\_relat\_2 (k1\_t\_0topsp \\ & X0))\wedge((v8\_relat\_2 (k1\_t\_0topsp X0))\wedge(m1\_subset\_1 (k1\_t\_0topsp \\ & X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0)) \wedge \\ & (m1\_eqrel\_1\ X1\ (u1\_struct\_0\ X0))) \Rightarrow ((v1\_pre\_topc\ (k11\_borsuk\_1 \\ & X0\ X1)) \wedge ((v2\_pre\_topc\ (k11\_borsuk\_1\ X0\ X1)) \wedge (l1\_pre\_topc\ (k11\_borsuk\_1 \\ & X0\ X1)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0)) \Rightarrow (\forall X1. \\ & (m1\_eqrel\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2. ((v1\_pre\_topc\ X2) \wedge \\ & ((v2\_pre\_topc\ X2) \wedge (l1\_pre\_topc\ X2))) \Rightarrow ((X2 = k11\_borsuk\_1\ X0\ X1) \Leftrightarrow \\ & ((u1\_struct\_0\ X2 = X1) \wedge (u1\_pre\_topc\ X2 = ReplSep\ (toset\ (\lambda X3 : \\ & \iota.m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ X1)))\ (\lambda X3 : \iota.k3\_tarSKI \\ & X3 \in u1\_pre\_topc\ X0)\ (\lambda X3 : \iota.X3)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0))) \Rightarrow (k4\_t\_0topsp\ X0 = k12\_borsuk\_1\ X0\ (k2\_t\_0topsp\ X0)) \quad (14)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0))) \Rightarrow (k3\_t\_0topsp\ X0 = k11\_borsuk\_1\ X0\ (k2\_t\_0topsp\ X0)) \quad (15)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0\ X0) \wedge (l1\_pre\_topc\ X0)) \Rightarrow (k2\_t\_0topsp\ X0 = k8\_eqrel\_1\ (u1\_struct\_0\ X0)\ (k1\_t\_0topsp\ X0)) \quad (16)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (k3\_funct\_2 \\ & (u1\_struct\_0\ X0)\ (u1\_struct\_0\ (k3\_t\_0topsp\ X0))\ (k4\_t\_0topsp \\ & X0)\ X1 = k6\_eqrel\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (k1\_t\_0topsp \\ & X0)\ X1)) \end{aligned}$$