

t7\_compl\_sp  
(TMKosPrt2JKZfrWsUNFHhX4XWzJMFSjpQDB)

October 27, 2020

Let  $l1\_metric\_1 : \iota \Rightarrow o$  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  $k5\_numbers : \iota$  be given. Let  $k9\_setfam\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_pcomps\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v6\_compl\_sp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_compl\_sp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_compl\_sp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_compl\_sp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_compl\_sp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_compl\_sp : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k8\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(l1\_metric\_1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & \quad (u1\_struct\_0 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & \quad (u1\_struct\_0 (k3\_pcomps\_1 X0)))) \Rightarrow ((X2 = X1) \Rightarrow (((v2\_compl\_sp X1 \\ & X0) \Rightarrow (v3\_pre\_topc X2 (k3\_pcomps\_1 X0))) \wedge ((v3\_pre\_topc X2 (k3\_pcomps\_1 \\ & X0)) \Rightarrow (v2\_compl\_sp X1 X0)) \wedge (((v3\_compl\_sp X1 X0) \Rightarrow (v4\_pre\_topc \\ & X2 (k3\_pcomps\_1 X0))) \wedge ((v4\_pre\_topc X2 (k3\_pcomps\_1 X0)) \Rightarrow (v3\_compl\_sp \\ & \quad X1 X0)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((\neg v1\_xboole\_0 X1) \wedge (\neg v1\_xboole\_0 X3) \wedge (((v1\_funct\_1 X4) \wedge (( \\ & v1\_funct\_2 X4 X0 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \wedge ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 X2 X3) \wedge (m1\_subset\_1 \\ & X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X3)))))) \Rightarrow ((r1\_funct\_2 X0 X1 \\ & \quad X2 X3 X4 X5) \Leftrightarrow (X4 = X5)) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.k9\_setfam\_1 X0 = k1\_zfmisc\_1 X0 \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0))))))\wedge(v7\_ordinal1 X2))\Rightarrow(k8\_nat\_1 X0 X1 X2 = k1\_funct\_1 X1 X2) \quad (4)$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0 (k1\_zfmisc\_1 X0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0))))))\wedge(v7\_ordinal1 X2))\Rightarrow(m1\_subset\_1 (k8\_nat\_1 X0 X1 X2) X0) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_metric\_1 X0)\Rightarrow(l1\_pre\_topc (k3\_pcomps\_1 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_metric\_1 X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0)))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0))))))\Rightarrow((v7\_compl\_sp X1 X0)\Leftrightarrow(\forall X2.(v7\_ordinal1 X2)\Rightarrow(v3\_compl\_sp (k8\_nat\_1 (k9\_setfam\_1 (u1\_struct\_0 X0)) X1 X2) X0)))))) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_metric\_1 X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0)))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0))))))\Rightarrow((v6\_compl\_sp X1 X0)\Leftrightarrow(\forall X2.(v7\_ordinal1 X2)\Rightarrow(v2\_compl\_sp (k8\_nat\_1 (k9\_setfam\_1 (u1\_struct\_0 X0)) X1 X2) X0)))))) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0)))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0))))))\Rightarrow((v5\_compl\_sp X1 X0)\Leftrightarrow(\forall X2.(v7\_ordinal1 X2)\Rightarrow(v4\_pre\_topc (k8\_nat\_1 (k9\_setfam\_1 (u1\_struct\_0 X0)) X1 X2) X0)))))) \quad (10)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0)))\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0))))))\Rightarrow((v4\_compl\_sp X1 X0)\Leftrightarrow(\forall X2.(v7\_ordinal1 X2)\Rightarrow(v3\_pre\_topc (k8\_nat\_1 (k9\_setfam\_1 (u1\_struct\_0 X0)) X1 X2) X0)))))) \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(l1\_metric\_1 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge (( \\ & v1\_funct\_2 X1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 X0))) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 \\ & X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers \\ & (k9\_setfam\_1 (u1\_struct\_0 (k3\_pcomps\_1 X0)))) \wedge (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 \\ & (k3\_pcomps\_1 X0)))))) \Rightarrow ((r1\_funct\_2 k5\_numbers (k9\_setfam\_1 \\ & (u1\_struct\_0 (k3\_pcomps\_1 X0))) k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 \\ & X0)) X2 X1) \Rightarrow (((v6\_compl\_sp X1 X0) \Rightarrow (v4\_compl\_sp X2 (k3\_pcomps\_1 \\ & X0))) \wedge ((v4\_compl\_sp X2 (k3\_pcomps\_1 X0)) \Rightarrow (v6\_compl\_sp X1 X0)) \wedge \\ & ((v7\_compl\_sp X1 X0) \Rightarrow (v5\_compl\_sp X2 (k3\_pcomps\_1 X0))) \wedge ((v5\_compl\_sp \\ & X2 (k3\_pcomps\_1 X0)) \Rightarrow (v7\_compl\_sp X1 X0))))))))) \end{aligned}$$