

# t38\_fintopo3

## (TMZi2s4spKSdVh1UANR6C5pPjeX8fCteTTG)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k9\_fintopo3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_fintopo3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k8\_fintopo3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((\neg v1\_xboole\_0 \ X1) \wedge \\ & (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & \ X2 \ X0 \ X1) \Leftrightarrow (m1\_subset\_1 \ X2 \ X1)) \end{aligned} \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 \ X0) \wedge \\ & (((v1\_funct\_1 \ X2) \wedge ((v1\_funct\_2 \ X2 \ X0 \ X1) \wedge (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ & \ (k2\_zfmisc\_1 \ X0 \ X1)))))) \wedge (m1\_subset\_1 \ X3 \ X0))) \Rightarrow (k3\_funct\_2 \ X0 \\ & \ X1 \ X2 \ X3 = k1\_funct\_1 \ X2 \ X3) \end{aligned} \quad (4)$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))))\Rightarrow((v1\_funct\_1 \\ & (k8\_fintopo3 X0 X1))\wedge((v1\_funct\_2 (k8\_fintopo3 X0 X1) k5\_numbers \\ & (k1\_zfmisc\_1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 (k8\_fintopo3 X0 \\ & X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))))))) \end{aligned} \quad (6)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(m1\_subset\_1 ( \\ & k3\_funct\_2 X0 X1 X2 X3) X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers)\wedge(v7\_ordinal1 \\ & X1))\Rightarrow(m2\_subset\_1 (k2\_nat\_1 X0 X1) k1\_numbers k5\_numbers) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\forall X2. \\ & (v7\_ordinal1 X2)\Rightarrow(k9\_fintopo3 X0 X1 X2 = k1\_funct\_1 (k8\_fintopo3 \\ & X0 X1) X2))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow(\forall X2. \\ & ((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 k5\_numbers (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X0)))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers ( \\ & k1\_zfmisc\_1 (u1\_struct\_0 X0))))))))\Rightarrow((X2 = k8\_fintopo3 X0 X1)\Leftrightarrow \\ & ((\forall X3.(m1\_subset\_1 X3 k5\_numbers)\Rightarrow(\forall X4.(m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow((X4 = k3\_funct\_2 k5\_numbers \\ & (k1\_zfmisc\_1 (u1\_struct\_0 X0)) X2 X3)\Rightarrow(k3\_funct\_2 k5\_numbers \\ & (k1\_zfmisc\_1 (u1\_struct\_0 X0)) X2 (k2\_nat\_1 X3 np\_1) = k1\_fintopo3 \\ & X0 X4))))\wedge(k3\_funct\_2 k5\_numbers (k1\_zfmisc\_1 (u1\_struct\_0 X0)) \\ & X2 k6\_numbers = X1)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (13)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 k5\_numbers) \Rightarrow (k9\_fintopo3 X0 X1 (k2\_nat\_1 X2 np\_1) = \\ & k1\_fintopo3 X0 (k9\_fintopo3 X0 X1 X2)))) \end{aligned}$$