

# t31\_fintopo6 (TMZSoaYxTLDoCkRPuQFux- Hug44qHahBizvQ)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v1\_fin\_topo : \iota \Rightarrow o$  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  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_fin\_topo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_fintopo6 : \iota \Rightarrow o$  be given. Let  $r1\_fintopo4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_fin\_topo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_fin\_topo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (((v1\_fin\_topo \\
& X0) \wedge (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow \\
& (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow \\
& (\neg (X1 = k4\_subset\_1 (u1\_struct\_0 X0) X2 X3) \wedge (r1\_xboole\_0 X2 X3) \wedge \\
& ((r1\_fintopo4 X0 X2 X3) \wedge ((X2 \neq k1\_struct\_0 X0) \wedge (X3 \neq k1\_struct\_0 \\
& X0)))))) \Rightarrow (v4\_fin\_topo X1 X0))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (((v3\_orders\_2 \\
& X0) \wedge ((k2\_struct\_0 X0 = k4\_subset\_1 (u1\_struct\_0 X0) X1 X2) \wedge (r1\_fintopo4 \\
& X0 X1 X2))) \Rightarrow ((v2\_fin\_topo X1 X0) \wedge (v3\_fin\_topo X1 X0))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 \\
& X0)) \wedge ((m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow ((r1\_fintopo4 X0 X1 X2) \Rightarrow \\
& (r1\_fintopo4 X0 X2 X1))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (l1\_struct\_0 X0) \quad (4)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (m1\_subset\_1 (k2\_struct\_0 X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow ((v1\_fintopo6 X0) \Leftrightarrow (v4\_fin\_topo (k2\_struct\_0 X0) X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))) \Rightarrow (k4\_subset\_1 X0 X1 X2 = k4\_subset\_1 X0 X2 X1) \quad (7)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (((v3\_orders\_2 X0) \wedge ((v1\_fin\_topo X0) \wedge (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (\neg(k2\_struct\_0 X0 = k4\_subset\_1 (u1\_struct\_0 X0) X1 X2) \wedge ((X1 \neq k1\_struct\_0 X0) \wedge ((X2 \neq k1\_struct\_0 X0) \wedge ((v3\_fin\_topo X1 X0) \wedge ((v3\_fin\_topo X2 X0) \wedge (r1\_xboole\_0 X1 X2)))))))))) \Rightarrow (v1\_fintopo6 X0))$$