

# t13\_fintopo2

## (TMQa8EPCALLuayer7uN5pzcGUyRm4rSW22H)

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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  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_fin\_topo : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_margrel1 : \iota$  be given. Let  $k2\_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_fin\_topo : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_margrel1 : \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((X1 \in k5\_fin\_topo X0 X2) \Leftrightarrow (\exists X3. \\ & (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \wedge (\exists X4.(m1\_subset\_1 X4 \\ & (u1\_struct\_0 X0)) \wedge ((k1\_fintopo2 X0 X1 X3 X2 = k8\_margrel1) \wedge (k2\_fintopo2 \\ & X0 X1 X4 X2 = k8\_margrel1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((k4\_fintopo2 X0 X1 X2 = k8\_margrel1) \Leftrightarrow \\ & (X1 \in X2)))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)) \Rightarrow (k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 \\ & (k5\_fin\_topo X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (k6\_fin\_topo \\ X0 X1 = k9\_subset\_1 (u1\_struct\_0 X0) X1 (k5\_fin\_topo X0 X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (X2 = k3\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 \\ (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (((X1 \in X2) \Rightarrow (k4\_fintopo2 X0 X1 \\ X2 = k8\_margrel1)) \wedge ((\neg X1 \in X2) \Rightarrow (k4\_fintopo2 X0 X1 X2 = k7\_margrel1)))))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 \\ (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((X1 \in k6\_fin\_topo X0 X2) \Leftrightarrow ((\exists X3. \\ (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \wedge (\exists X4. (m1\_subset\_1 X4 \\ (u1\_struct\_0 X0)) \wedge ((k1\_fintopo2 X0 X1 X3 X2 = k8\_margrel1) \wedge (k2\_fintopo2 \\ X0 X1 X4 X2 = k8\_margrel1)))))) \wedge (k4\_fintopo2 X0 X1 X2 = k8\_margrel1)))))) \end{aligned}$$