

t7\_fintopo2  
(TMFAT3B66j3RuoUh5xxCYKqAn8heGax71L4)

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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  $k2\_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_margrel1 : \iota$  be given. Let  $k1\_fin\_topo : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_margrel1 : \iota$  be given. Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (m1\_subset\_1 (k3\_subset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. ((l1\_orders\_2 X0) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k1\_fin\_topo X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 ( \\ & u1\_struct\_0 X0))) \Rightarrow (((X2 \in k1\_fin\_topo X0 X1) \wedge (X2 \in k3\_subset\_1 \\ & (u1\_struct\_0 X0) X3)) \Rightarrow (k2\_fintopo2 X0 X1 X2 X3 = k8\_margrel1)) \wedge \\ & ((\neg (X2 \in k1\_fin\_topo X0 X1) \wedge (X2 \in k3\_subset\_1 (u1\_struct\_0 X0) X3)) \Rightarrow \\ & (k2\_fintopo2 X0 X1 X2 X3 = k7\_margrel1)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 ( \\
& u1\_struct\_0 X0))) \Rightarrow (((X2 \in k1\_fin\_topo X0 X1) \wedge (X2 \in X3)) \Rightarrow (k1\_fintopo2 \\
& X0 X1 X2 X3 = k8\_margrel1)) \wedge ((\neg(X2 \in k1\_fin\_topo X0 X1) \wedge (X2 \in X3)) \Rightarrow \\
& (k1\_fintopo2 X0 X1 X2 X3 = k7\_margrel1))))))
\end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 ( \\
& u1\_struct\_0 X0))) \Rightarrow ((k2\_fintopo2 X0 X1 X2 X3 = k8\_margrel1) \Leftrightarrow ((X2 \in \\
& k1\_fin\_topo X0 X1) \wedge (X2 \in k3\_subset\_1 (u1\_struct\_0 X0) X3))))))
\end{aligned}$$