

t21\_midsp\_1  
(TMNH8rVztx9UHWLCTPiLE36Yaiv9dmZXYVr)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_midsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_midsp\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r2\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k3\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\ & (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 \\ & X6 (u1\_struct\_0 X0)) \Rightarrow (((r1\_midsp\_1 X0 X1 X2 X3 X4) \wedge (r1\_midsp\_1 \\ & X0 X1 X2 X5 X6)) \Rightarrow (r1\_midsp\_1 X0 X3 X4 X5 X6))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 \\ & X1) \wedge (m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k3\_domain\_1 X0 X1 \\ & X2 = k2\_xtuple\_0 X2) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 \\ & X1) \wedge (m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k2\_domain\_1 X0 X1 \\ & X2 = k1\_xtuple\_0 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 \\ & (u1\_struct\_0 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. (l1\_midsp\_1 X0) \Rightarrow (l1\_struct\_0 X0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(m1\_subset\_1 (k3\_domain\_1 X0 X1 X2) X1)$$

(6)

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(m1\_subset\_1 (k2\_domain\_1 X0 X1 X2) X0)$$

(7)

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_midsp\_1 X0)\wedge(l1\_midsp\_1 X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))\Rightarrow((r2\_midsp\_1 X0 X1 X2)\Leftrightarrow(r1\_midsp\_1 X0 (k2\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1) (k3\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1) (k2\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X2) (k3\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X2))))))$$

(8)

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_midsp\_1 X0)\wedge(l1\_midsp\_1 X0)))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))\Rightarrow(((r2\_midsp\_1 X0 X1 X2)\wedge(r2\_midsp\_1 X0 X1 X3))\Rightarrow(r2\_midsp\_1 X0 X2 X3))))))$$