

## t42\_midsp\_1

(TMHC1Kmr19uVmEUDYjMvbjrpCtPqw3Fhs3E)

October 27, 2020

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  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k7\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (r2\_midsp\_1 X0 (k1\_domain\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1 (k3\_midsp\_1 X0 X1 X2)) (k1\_domain\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X0) (k3\_midsp\_1 X0 X1 X2) X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (k7\_midsp\_1 X0 (k8\_midsp\_1 X0 X1 X2) (k8\_midsp\_1 \\ & X0 X2 X3) = k8\_midsp\_1 X0 X1 X3)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\ & ((r2\_midsp\_1 X0 (k1\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) \\ & X1 X2) (k1\_domain\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X3 X4)) \Rightarrow ( \\ & k8\_midsp\_1 X0 X1 X2 = k8\_midsp\_1 X0 X3 X4)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (v2\_midsp\_1 \\ & X0) \wedge (l1\_midsp\_1 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k3\_midsp\_1 X0 X1 X2) (u1\_struct\_0 \\ & X0)) \end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0)) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (k7\_midsp\_1 X0 (k8\_midsp\_1 \\ & X0 X1 (k3\_midsp\_1 X0 X1 X2)) (k8\_midsp\_1 X0 X1 (k3\_midsp\_1 X0 X1 X2)) = \\ & k8\_midsp\_1 X0 X1 X2))) \end{aligned}$$