

l39\_midsp\_3 (TMMhu-  
vYaw44UUZMk8925D8Kx58SB2A2yoQR)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m2\_midsp\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $v4\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_midsp\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_midsp\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_midsp\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_midsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_midsp\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_2 : \iota$  be given. Let  $k8\_midsp\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.((\neg v2\_struct\_0 \\ & X1) \wedge ((v2\_midsp\_1 X1) \wedge (l1\_midsp\_3 X1 (k2\_nat\_1 X0 np\_2)))) \Rightarrow ( \\ & \forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3.(m2\_finseq\_2 \\ & X3 (u1\_struct\_0 X1) (k4\_finseq\_2 (k2\_nat\_1 X0 np\_1) (u1\_struct\_0 \\ & X1)))) \Rightarrow (\forall X4.((v4\_midsp\_2 X4 X1) \wedge (l1\_midsp\_2 X4 X1)) \Rightarrow (\forall X5. \\ & (m2\_finseq\_2 X5 (u1\_struct\_0 (u1\_midsp\_2 X1 X4)) (k4\_finseq\_2 \\ & (k2\_nat\_1 X0 np\_1) (u1\_struct\_0 (u1\_midsp\_2 X1 X4)))) \Rightarrow ((k8\_midsp\_3 \\ & X0 X1 X4 X2 X3 = X5) \Leftrightarrow (k7\_midsp\_3 X0 X1 X4 X2 X5 = X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(m2\_midsp\_3 \\ & X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3. \\ & (m2\_finseq\_2 X3 (u1\_struct\_0 X1) (k4\_finseq\_2 (k2\_nat\_1 X0 np\_1) \\ & (u1\_struct\_0 X1))) \Rightarrow (\forall X4.((v4\_midsp\_2 X4 X1) \wedge (l1\_midsp\_2 \\ & X4 X1)) \Rightarrow (\forall X5.(m2\_finseq\_2 X5 (u1\_struct\_0 (u1\_midsp\_2 \\ & X1 X4)) (k4\_finseq\_2 (k2\_nat\_1 X0 np\_1) (u1\_struct\_0 (u1\_midsp\_2 \\ & X1 X4)))) \Rightarrow ((k8\_midsp\_3 X0 X1 X4 X2 X3 = X5) \Rightarrow (k10\_midsp\_3 X0 X1 X4 X5 = \\ & k9\_midsp\_2 X1 X4 X2 (k4\_midsp\_3 X0 X1 X2 X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(m2\_midsp\_3 \\ & X1 X0) \Rightarrow ((\neg v2\_struct\_0 X1) \wedge ((v2\_midsp\_1 X1) \wedge (l1\_midsp\_3 X1 (k2\_nat\_1 \\ & X0 np\_2)))))) \end{aligned} \tag{3}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(m2\_midsp\_3 \\ & X1 X0) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3. \\ & (m2\_finseq\_2 X3 (u1\_struct\_0 X1) (k4\_finseq\_2 (k2\_nat\_1 X0 np\_1) \\ & (u1\_struct\_0 X1))) \Rightarrow (\forall X4.((v4\_midsp\_2 X4 X1) \wedge (l1\_midsp\_2 \\ & X4 X1)) \Rightarrow (\forall X5.(m2\_finseq\_2 X5 (u1\_struct\_0 (u1\_midsp\_2 \\ & X1 X4)) (k4\_finseq\_2 (k2\_nat\_1 X0 np\_1) (u1\_struct\_0 (u1\_midsp\_2 \\ & X1 X4)))) \Rightarrow ((k7\_midsp\_3 X0 X1 X4 X2 X5 = X3) \Rightarrow (k10\_midsp\_3 X0 X1 X4 X5 = \\ & k9\_midsp\_2 X1 X4 X2 (k4\_midsp\_3 X0 X1 X2 X3)))))))))) \end{aligned}$$