

## l34\_midsp\_2

(TMFMhXZc91Br8PzMNKXyUerrc8qb51cESFa)

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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  $v1\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_midsp\_2 : \iota \Rightarrow \iota$  be given. Let  $k15\_midsp\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_midsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v8\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\ & (u1\_struct\_0 X0)) \Rightarrow ((k3\_midsp\_1 X0 X1 X2 = X3) \Leftrightarrow (k8\_midsp\_1 X0 X1 \\ & X3 = k8\_midsp\_1 X0 X3 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 \\ & X0) \wedge (l1\_midsp\_1 X0))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0)))) \Rightarrow (k3\_midsp\_1 X0 X1 X2 = k1\_midsp\_1 X0 X1 X2) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow ((\neg v2\_struct\_0 (k15\_midsp\_1 X0)) \wedge (v8\_algstr\_0 (k15\_midsp\_1 \\ & X0))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 \\ & X0))) \Rightarrow ((v1\_funct\_1 (k5\_midsp\_2 X0)) \wedge ((v1\_funct\_2 (k5\_midsp\_2 \\ & X0) (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 \\ & (k15\_midsp\_1 X0))) \wedge (m1\_subset\_1 (k5\_midsp\_2 X0) (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \\ & (u1\_struct\_0 (k15\_midsp\_1 X0)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 X0))) \Rightarrow (l2\_algstr\_0 (k15\_midsp\_1 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 X0))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 (k15\_midsp\_1 X0))) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 (k15\_midsp\_1 X0)))))) \Rightarrow ((X1 = k5\_midsp\_2 X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0) \Rightarrow (k2\_binop\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 (k15\_midsp\_1 X0)) X1 X2 X3 = k8\_midsp\_1 X0 X2 X3)))))) \quad (6) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_midsp\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l2\_algstr\_0 X1)) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X1)))))) \Rightarrow ((v1\_midsp\_2 X2 X0 X1) \Leftrightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0) \Rightarrow ((k1\_midsp\_1 X0 X3 X4 = X5) \Leftrightarrow (k2\_binop\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X3 X5 = k2\_binop\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X5 X4)))))))))) \quad (7) \end{aligned}$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_midsp\_1 X0) \wedge (l1\_midsp\_1 X0))) \Rightarrow (v1\_midsp\_2 (k5\_midsp\_2 X0) X0 (k15\_midsp\_1 X0))$$