

## t76\_monoid\_0

(TMNKBw8bEm9mWmwLoskPZ2babELvrkKc9zw)

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Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k16\_monoid\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k14\_monoid\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k15\_monoid\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l4\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $g3\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_group\_1 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m2\_monoid\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_monoid\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v22\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k12\_monoid\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_monoid\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. k4\_binop\_1 (u1\_struct\_0 (k15\_monoid\_0 X0)) (u2\_algstr\_0 (k15\_monoid\_0 X0)) = k6\_partfun1 X0 \quad (1)$$

Assume the following.

$$\forall X0. u2\_algstr\_0 (k15\_monoid\_0 X0) = k1\_realset1 (k14\_monoid\_0 X0) (k1\_funct\_2 X0 X0) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l4\_algstr\_0 X0)) \Rightarrow ((v4\_vectsp\_1 X0) \Rightarrow (k5\_struct\_0 X0 = k4\_binop\_1 (u1\_struct\_0 X0) (u2\_algstr\_0 X0))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0) X0)))) \Rightarrow (\forall X2. \forall X3. (g3\_algstr\_0 X0 X1 = g3\_algstr\_0 X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \quad (4)$$

Assume the following.

$$\forall X0.(\neg v2\_struct\_0 (k15\_monoid\_0 X0)) \wedge ((v15\_algstr\_0 (k15\_monoid\_0 X0)) \wedge (v1\_group\_1 (k15\_monoid\_0 X0))) \quad (5)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v1\_funct\_1 (u2\_algstr\_0 X0)) \wedge ((v1\_funct\_2 (u2\_algstr\_0 X0) (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (u2\_algstr\_0 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) (u1\_struct\_0 X0)))))) \quad (6)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow (\forall X1.(m2\_monoid\_0 X1 X0) \Rightarrow (l3\_algstr\_0 X1)) \quad (7)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow (\forall X1.(m1\_monoid\_0 X1 X0) \Rightarrow (l4\_algstr\_0 X1)) \quad (8)$$

Assume the following.

$$\forall X0.(v22\_algstr\_0 (k16\_monoid\_0 X0)) \wedge ((v4\_vectsp\_1 (k16\_monoid\_0 X0)) \wedge (m1\_monoid\_0 (k16\_monoid\_0 X0) (k15\_monoid\_0 X0))) \quad (9)$$

Assume the following.

$$\forall X0.(v15\_algstr\_0 (k15\_monoid\_0 X0)) \wedge (m2\_monoid\_0 (k15\_monoid\_0 X0) (k12\_monoid\_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(v15\_algstr\_0 (k12\_monoid\_0 X0)) \wedge ((v1\_monoid\_0 (k12\_monoid\_0 X0)) \wedge (l3\_algstr\_0 (k12\_monoid\_0 X0))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v15\_algstr\_0 X1) \wedge (m2\_monoid\_0 X1 (k12\_monoid\_0 X0))) \Rightarrow ((X1 = k15\_monoid\_0 X0) \Leftrightarrow (u1\_struct\_0 X1 = k1\_funct\_2 X0 X0)) \quad (12)$$

Assume the following.

$$\forall X0.k14\_monoid\_0 X0 = u2\_algstr\_0 (k12\_monoid\_0 X0) \quad (13)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow (\forall X1.(l4\_algstr\_0 X1) \Rightarrow ((m1\_monoid\_0 X1 X0) \Leftrightarrow (g3\_algstr\_0 (u1\_struct\_0 X1) (u2\_algstr\_0 X1) = g3\_algstr\_0 (u1\_struct\_0 X0) (u2\_algstr\_0 X0)))) \quad (14)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \Rightarrow (\forall X1. (m1\_monoid\_0 X1 X0) \Rightarrow (\neg v2\_struct\_0 X1)) \quad (15)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v15\_algstr\_0 X0) \Rightarrow (X0 = g3\_algstr\_0 (u1\_struct\_0 X0) (u2\_algstr\_0 X0))) \quad (16)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(u1\_struct\_0 (k16\_monoid\_0 X0) = k1\_funct\_2 X0 X0) \wedge \\ & ((u2\_algstr\_0 (k16\_monoid\_0 X0) = k1\_realset1 (k14\_monoid\_0 X0) \\ & (k1\_funct\_2 X0 X0)) \wedge (k5\_struct\_0 (k16\_monoid\_0 X0) = k6\_partfun1 \\ & X0)) \end{aligned}$$