t69_monoid_0 (TMc6p6zcqSthqPZRQgFEXvPhaAvhDEngmxc)

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Let $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k12\_monoid\_0 : \iota \Rightarrow \iota$ be given. Let $u2\_algstr\_0 : \iota \Rightarrow \iota$ be given. Let $k6\_partfun1 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l3\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v1\_group\_1 : \iota \Rightarrow o$ be given. Let $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_group\_1 : \iota \Rightarrow \iota$ be given. Let $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_relat\_1 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v15\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v3\_group\_1 : \iota \Rightarrow o$ be given. Let $v1\_monoid\_0 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ (u1\_struct\_0\ (k12\_monoid\_0\ X1))) \Leftrightarrow ((v1\_funct\_1\ X0) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X1)))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l3\_algstr\_0\ X0)) \Rightarrow ((v1\_group\_1\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow ((k6\_algstr\_0\ X0\ (k4\_binop\_1\ (u1\_struct\_0\ X0)\ (u2\_algstr\_0\ X0))\ X1 = X1) \wedge (k6\_algstr\_0\ X0\ X1\ (k4\_binop\_1\ (u1\_struct\_0\ X0)\ (u2\_algstr\_0\ X0))) = X1)))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v1\_group\_1\ X0) \wedge (l3\_algstr\_0\ X0))) \Rightarrow (k4\_binop\_1\ (u1\_struct\_0\ X0)\ (u2\_algstr\_0\ X0) = k1\_group\_1\ X0) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))) \Rightarrow ((r2\_relset\_1\ X0\ X1\ (k4\_relset\_1\ X0\ X0\ X0\ X1\ (k6\_partfun1\ X0)\ X2)\ X2) \wedge (r2\_relset\_1\ X0\ X1\ (k4\_relset\_1\ X0\ X1\ X1\ X1\ X2\ (k6\_partfun1\ X1))\ X2)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\Rightarrow((r2\_relset\_1\ X0\ X1\ X2\ X3)\Leftrightarrow(X2 = X3)) \tag{5}$$

Assume the following.

$$\forall X0.k6\_partfun1\ X0 = k4\_relat\_1\ X0 \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.((m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3))))\Rightarrow(k4\_relset\_1\ X0\ X1\ X2\ X3\ X4\ X5 = k3\_relat\_1\ X4\ X5) \tag{7}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ (k4\_relat\_1\ X0))\wedge(v1\_funct\_1\ (k4\_relat\_1\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.(\neg v2\_struct\_0\ (k12\_monoid\_0\ X0))\wedge((v15\_algstr\_0\ (k12\_monoid\_0\ X0))\wedge((v1\_group\_1\ (k12\_monoid\_0\ X0))\wedge((v3\_group\_1\ (k12\_monoid\_0\ X0))\wedge(v1\_monoid\_0\ (k12\_monoid\_0\ X0))))) \tag{9}$$

Assume the following.

$$\forall X0.(v1\_partfun1\ (k6\_partfun1\ X0)\ X0)\wedge(m1\_subset\_1\ (k6\_partfun1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0))) \tag{10}$$

Assume the following.

$$\forall X0.(l3\_algstr\_0\ X0)\Rightarrow(m1\_subset\_1\ (k1\_group\_1\ X0)\ (u1\_struct\_0\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(v15\_algstr\_0\ (k12\_monoid\_0\ X0))\wedge((v1\_monoid\_0\ (k12\_monoid\_0\ X0))\wedge(l3\_algstr\_0\ (k12\_monoid\_0\ X0))) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.((v15\_algstr\_0\ X1)\wedge((v1\_monoid\_0\ X1)\wedge(l3\_algstr\_0\ X1)))\Rightarrow((X1 = k12\_monoid\_0\ X0)\Leftrightarrow((u1\_struct\_0\ X1 = k4\_partfun1\ X0\ X0)\wedge(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(k6\_algstr\_0\ X1\ X2\ X3 = k3\_relat\_1\ X2\ X3))))) \tag{13}$$

Theorem 1

$$\forall X0.k4\_binop\_1\ (u1\_struct\_0\ (k12\_monoid\_0\ X0))\ (u2\_algstr\_0\ (k12\_monoid\_0\ X0)) = k6\_partfun1\ X0$$