

# t53\_monoid\_0 (TM- FAuaYJ7SghJrbHMyfUYLirWeWLB3zXVfp)

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Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k7\_monoid\_0 : \iota$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k24\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $m2\_monoid\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_monoid\_0 : \iota$  be given. Let  $k11\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_group\_1 : \iota \Rightarrow o$  be given. Let  $v17\_monoid\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2\_struct\_0 X0) \wedge (m2\_monoid\_0 X0 k6\_monoid\_0)) \Rightarrow \\
 & (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 \\
 & X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow \\
 & (\forall X4.(m1\_subset\_1 X4 k1\_numbers) \Rightarrow (((X1 = X3) \wedge (X2 = X4)) \Rightarrow \\
 & (k6\_algstr\_0 X0 X1 X2 = k11\_binop\_2 X3 X4))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. ((v7\_ordinal1 X0) \wedge (v7\_ordinal1 X1)) \Rightarrow ( \\
 & k24\_binop\_2 X0 X1 = k3\_xcmplx\_0 X0 X1)
 \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. ((v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \Rightarrow (k11\_binop\_2 \\
 & X0 X1 = k3\_xcmplx\_0 X0 X1)
 \end{aligned} \tag{4}$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \tag{5}$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 \ X0)\wedge((\neg v1\_xboole\_0 \ X1)\wedge \\ (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0))))\Rightarrow(\forall X2.(m2\_subset\_1 \\ X2 \ X0 \ X1)\Rightarrow(m1\_subset\_1 \ X2 \ X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} (\neg v2\_struct\_0 \ k7\_monoid\_0)\wedge((v15\_algstr\_0 \ k7\_monoid\_0)\wedge(( \\ v1\_group\_1 \ k7\_monoid\_0)\wedge((v17\_monoid\_0 \ k7\_monoid\_0)\wedge(m2\_monoid\_0 \\ k7\_monoid\_0 \ k6\_monoid\_0)))) \end{aligned} \quad (8)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 \ X0)\wedge((v15\_algstr\_0 \ X0)\wedge((v1\_group\_1 \\ X0)\wedge((v17\_monoid\_0 \ X0)\wedge(m2\_monoid\_0 \ X0 \ k6\_monoid\_0)))))\Rightarrow(( \\ X0 = k7\_monoid\_0)\Leftrightarrow(u1\_struct\_0 \ X0 = k5\_numbers)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k4\_ordinal1)\Rightarrow(v7\_ordinal1 \ X0) \quad (11)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 \ X0)\Rightarrow(v1\_xreal\_0 \ X0) \quad (12)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m2\_subset\_1 \ X0 \ k1\_numbers \ k5\_numbers)\Rightarrow(\forall X1. \\ (m2\_subset\_1 \ X1 \ k1\_numbers \ k5\_numbers)\Rightarrow(\forall X2.(m1\_subset\_1 \\ X2 \ (u1\_struct\_0 \ k7\_monoid\_0))\Rightarrow(\forall X3.(m1\_subset\_1 \ X3 \ (u1\_struct\_0 \\ k7\_monoid\_0))\Rightarrow(((X0 = X2)\wedge(X1 = X3))\Rightarrow(k6\_algstr\_0 \ k7\_monoid\_0 \\ X2 \ X3 = k24\_binop\_2 \ X0 \ X1)))))) \end{aligned}$$