

t53_monoid_1

(TMX4k5QntpnRAaYGDq24C8TrinrpRT6vCxY)

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Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k21_monoid_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 X0) \Rightarrow ((r3_binop_1 X0 X2 X1) \Rightarrow ((r3_binop_1 (k1_zfmisc_1 X0) (k6_domain_1 \\ & X0 X2) (k21_monoid_1 X0 X0 X0 X1)) \wedge ((v1_setwiseo (k21_monoid_1 \\ & X0 X0 X0 X1) (k1_zfmisc_1 X0)) \wedge (k4_binop_1 (k1_zfmisc_1 X0) (k21_monoid_1 \\ & X0 X0 X0 X1) = k6_domain_1 X0 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow ((v1_setwiseo X1 X0) \Leftrightarrow \\ & (r3_binop_1 X0 (k4_binop_1 X0 X1) X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\ & X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X0 X0) X0)))))) \Rightarrow (m1_subset_1 (k4_binop_1 X0 X1) X0) \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ (v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow ((v1_setwiseo X1 X0) \Rightarrow \\ ((v1_setwiseo (k21_monoid_1 X0 X0 X0 X1) (k1_zfmisc_1 X0)) \wedge ((r3_binop_1 \\ (k1_zfmisc_1 X0) (k6_domain_1 X0 (k4_binop_1 X0 X1)) (k21_monoid_1 \\ X0 X0 X0 X1)) \wedge (k4_binop_1 (k1_zfmisc_1 X0) (k21_monoid_1 X0 X0 X0 \\ X1) = k6_domain_1 X0 (k4_binop_1 X0 X1)))))) \end{aligned}$$