

t6_monoid_1

(TMVekYUS4s4jvin3Ku3xZFojbgEbTQJbweE)

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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 $v3_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_monoid_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. \forall X2. ((v1_funct_1 \\ & X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3. ((v1_funct_1 \\ & X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))))) \Rightarrow ((v3_binop_1 X2 X0) \Rightarrow (r2_funct_2 X1 X0 (k6_funcop_1 \\ & X0 X1 X2 X3 X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1_xboole_0 \\ & X0) \wedge (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) \\ & X0)))))) \wedge (((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \wedge ((v1_funct_1 X4) \wedge ((v1_funct_2 \\ & X4 X1 X0) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))))))))) \Rightarrow \\ & (k6_funcop_1 X0 X1 X2 X3 X4 = k3_funcop_1 X2 X3 X4) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & \forall X6. ((\neg v1_xboole_0 X1) \wedge ((\neg v1_xboole_0 X2) \wedge ((\neg v1_xboole_0 \\ & X3) \wedge (((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 X1 X2) X3) \wedge \\ & (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) \\ & X3)))))) \wedge (((v1_funct_1 X5) \wedge ((v1_funct_2 X5 X0 X1) \wedge (m1_subset_1 \\ & X5 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \wedge ((v1_funct_1 X6) \wedge ((v1_funct_2 \\ & X6 X0 X2) \wedge (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 X0 X2))))))))) \Rightarrow \\ & (k3_monoid_1 X0 X1 X2 X3 X4 X5 X6 = k3_funcop_1 X4 X5 X6) \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. (\neg v1_xboole_0 X1) \Rightarrow (\forall X2. ((v1_funct_1 \\ & X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (\forall X3. ((v1_funct_1 \\ & X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \Rightarrow ((v3_binop_1 X2 X1) \Rightarrow (r2_funct_2 X0 X1 (k3_monoid_1 \\ & X0 X1 X1 X1 X2 X3 X3) X3)))) \end{aligned}$$