

t3_monoid_1
(TMKnJe3Sdi2VNzLrhuqkSsk2pmjYHtpKCS5)

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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 $v1_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. \forall X2. ((v1_funct_1 \\ & X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \Rightarrow (\forall X3. ((v1_funct_1 \\ & X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))) \Rightarrow (\forall X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X1 X0) \wedge \\ & (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))) \Rightarrow ((v1_binop_1 \\ & X2 X0) \Rightarrow (r2_funct_2 X1 X0 (k6_funcop_1 X0 X1 X2 X3 X4) (k6_funcop_1 \\ & X0 X1 X2 X4 X3)))))) \end{aligned} \tag{1}$$

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.

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

Theorem 1

$$\begin{aligned}
& \forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(\forall X2.((v1_funct_1 \\
& X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X1 X1) X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1))))))\Rightarrow(\forall X3.((v1_funct_1 \\
& X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1))))))\Rightarrow(\forall X4.((v1_funct_1 X4)\wedge((v1_funct_2 X4 X0 X1)\wedge \\
& (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow((v1_binop_1 \\
& X2 X1)\Rightarrow(r2_funct_2 X0 X1 (k3_monoid_1 X0 X1 X1 X1 X2 X3 X4) (k3_monoid_1 \\
& X0 X1 X1 X1 X2 X4 X3))))))
\end{aligned}$$