

t4_monoid_1
(TMQTSU49Tr31X6Jet6zup2UuWb1jtcRh8zr)

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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 $v2_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. \forall X2. ((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \Rightarrow (\forall X3. ((v1_funct_1 \\
& X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X1 X0)))) \Rightarrow (\forall X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 X1 X0) \wedge \\
& (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))) \Rightarrow (\forall X5. \\
& ((v1_funct_1 X5) \wedge ((v1_funct_2 X5 X1 X0) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X1 X0)))) \Rightarrow ((v2_binop_1 X2 X0) \Rightarrow (r2_funct_2 X1 X0 \\
& (k6_funcop_1 X0 X1 X2 (k6_funcop_1 X0 X1 X2 X3 X4) X5) (k6_funcop_1 \\
& X0 X1 X2 X3 (k6_funcop_1 X0 X1 X2 X4 X5))))))
\end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\
& X0)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0)\wedge \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) \\
& X0))))))\wedge(((v1_funct_1 X3)\wedge((v1_funct_2 X3 X1 X0)\wedge(m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))))))\wedge((v1_funct_1 X4)\wedge((v1_funct_2 \\
& X4 X1 X0)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))))))\Rightarrow \\
& (k6_funcop_1 X0 X1 X2 X3 X4 = k3_funcop_1 X2 X3 X4)
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\
& \forall X6.((\neg v1_xboole_0 X1)\wedge((\neg v1_xboole_0 X2)\wedge((\neg v1_xboole_0 \\
& X3)\wedge(((v1_funct_1 X4)\wedge((v1_funct_2 X4 (k2_zfmisc_1 X1 X2) X3)\wedge \\
& (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) \\
& X3))))))\wedge(((v1_funct_1 X5)\wedge((v1_funct_2 X5 X0 X1)\wedge(m1_subset_1 \\
& X5 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\wedge((v1_funct_1 X6)\wedge((v1_funct_2 \\
& X6 X0 X2)\wedge(m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 X0 X2))))))\Rightarrow \\
& (k3_monoid_1 X0 X1 X2 X3 X4 X5 X6 = k3_funcop_1 X4 X5 X6)
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(\forall X2.((v1_funct_1 \\
& X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X1 X1) X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1))))))\Rightarrow(\forall X3.((v1_funct_1 \\
& X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1))))))\Rightarrow(\forall X4.((v1_funct_1 X4)\wedge((v1_funct_2 X4 X0 X1)\wedge \\
& (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow(\forall X5. \\
& ((v1_funct_1 X5)\wedge((v1_funct_2 X5 X0 X1)\wedge(m1_subset_1 X5 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1))))))\Rightarrow((v2_binop_1 X2 X1)\Rightarrow(r2_funct_2 X0 X1 \\
& (k3_monoid_1 X0 X1 X1 X1 X2 (k3_monoid_1 X0 X1 X1 X1 X2 X3 X4) X5) (k3_monoid_1 \\
& X0 X1 X1 X1 X2 X3 (k3_monoid_1 X0 X1 X1 X1 X2 X4 X5))))))
\end{aligned}$$