

t29_filter_1

(TMQH6CtG3gfUDRBCgbXferQuPcGSUYymVVH)

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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 $r6_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_filter_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
 & (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 \\
 & X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
 & X0 X0) X0)))))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (\\
 & k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 \\
 & X4 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 \\
 & X5 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (((r5_binop_1 X0 X2 X3) \wedge (r5_binop_1 \\
 & X1 X4 X5)) \Leftrightarrow (r5_binop_1 (k2_zfmisc_1 X0 X1) (k6_filter_1 X0 X1 X2 \\
 & X4) (k6_filter_1 X0 X1 X3 X5))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
 & (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 \\
 & X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
 & X0 X0) X0)))))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (\\
 & k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 \\
 & X4 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 \\
 & X5 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (((r4_binop_1 X0 X2 X3) \wedge (r4_binop_1 \\
 & X1 X4 X5)) \Leftrightarrow (r4_binop_1 (k2_zfmisc_1 X0 X1) (k6_filter_1 X0 X1 X2 \\
 & X4) (k6_filter_1 X0 X1 X3 X5))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\
& ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge((v1_funct_1 X3)\wedge((\\
& v1_funct_2 X3 (k2_zfmisc_1 X1 X1) X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1))))))\Rightarrow((v1_funct_1 (k6_filter_1 \\
& X0 X1 X2 X3)\wedge((v1_funct_2 (k6_filter_1 X0 X1 X2 X3) (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1) (k2_zfmisc_1 X0 X1)) (k2_zfmisc_1 X0 X1))\wedge(\\
& m1_subset_1 (k6_filter_1 X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) (k2_zfmisc_1 X0 X1)) (k2_zfmisc_1 \\
& X0 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 \\
& X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X0 X0) X0))))\Rightarrow(\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 (\\
& k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X0) X0))))\Rightarrow((r6_binop_1 X0 X1 X2)\Leftrightarrow((r4_binop_1 \\
& X0 X1 X2)\wedge(r5_binop_1 X0 X1 X2))))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(\neg v1_xboole_0 X1)\Rightarrow \\
& (\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 X0 \\
& X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X0 X0) X0))))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 X3 (\\
& k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X0) X0))))\Rightarrow(\forall X4.((v1_funct_1 X4)\wedge((v1_funct_2 \\
& X4 (k2_zfmisc_1 X1 X1) X1)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X1 X1) X1))))\Rightarrow(\forall X5.((v1_funct_1 X5)\wedge((v1_funct_2 \\
& X5 (k2_zfmisc_1 X1 X1) X1)\wedge(m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X1 X1) X1))))\Rightarrow(((r6_binop_1 X0 X2 X3)\wedge(r6_binop_1 \\
& X1 X4 X5))\Leftrightarrow(r6_binop_1 (k2_zfmisc_1 X0 X1) (k6_filter_1 X0 X1 X2 \\
& X4) (k6_filter_1 X0 X1 X3 X5))))))
\end{aligned}$$