

t4_filter_2 (TMcdAcHTeB- sdX8xNnsvX53MhCVHbabNe5nq)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ 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 $k1_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r6_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge \\
& \quad (m1_subset_1 X1 (k1_zfmisc_1 X0))) \Rightarrow (\forall X2. ((v1_funct_1 \\
& \quad X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \Rightarrow (\forall X3. ((v1_funct_1 \\
& \quad X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \Rightarrow (\forall X4. ((v1_funct_1 \\
& \quad X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1)))) \Rightarrow (\forall X5. ((v1_funct_1 \\
& \quad X5) \wedge ((v1_funct_2 X5 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1)))) \Rightarrow (((X4 = k1_realset1 X2 \\
& \quad X1) \wedge (X5 = k1_realset1 X3 X1)) \Rightarrow (((r4_binop_1 X0 X2 X3) \Rightarrow (r4_binop_1 \\
& \quad X1 X4 X5)) \wedge ((r5_binop_1 X0 X2 X3) \Rightarrow (r5_binop_1 X1 X4 X5)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\
& \quad X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& \quad X0 X0) X0)))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (\\
& \quad k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X2 \\
& \quad (k2_zfmisc_1 X0 X0) X0)))) \Rightarrow ((r6_binop_1 X0 X1 X2) \Leftrightarrow ((r4_binop_1 \\
& \quad X0 X1 X2) \wedge (r5_binop_1 X0 X1 X2))))
\end{aligned} \tag{2}$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0))) \Rightarrow (\forall X2.((v1_funct_1 \\ X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3.((v1_funct_1 \\ X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X4.((v1_funct_1 \\ X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (\forall X5.((v1_funct_1 \\ X5) \wedge ((v1_funct_2 X5 (k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (((X4 = k1_realset1 X2 \\ X1) \wedge ((X5 = k1_realset1 X3 X1) \wedge (r6_binop_1 X0 X2 X3))) \Rightarrow (r6_binop_1 \\ & X1 X4 X5)))))) \end{aligned}$$