

t8_bvfunc_4

(TMJsTdVqckoJmwC5rgeKVUjuSHuocT3ijYN)

October 27, 2020

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 $k6_margrel1 : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_margrel1 : \iota \Rightarrow \iota$ be given. Let $k15_margrel1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_margrel1 : \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 \\ & X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow (k5_bvfunc_1 X0 X1 X2 = k3_bvfunc_1 X1 X2) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 X1) \wedge \\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (k1_bvfunc_1 X0 X1 = k13_margrel1 \\ & X1) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge(v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(k15_margrel1 X0 X1 = k13_margrel1 X1)$$
(4)

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))))\Rightarrow((v1_funct_1 (k9_bvfunc_1 X0 X1 X2))\wedge((v1_funct_2 (k9_bvfunc_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 (k9_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))$$
(5)

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))))\Rightarrow((v1_funct_1 (k5_bvfunc_1 X0 X1 X2))\wedge((v1_funct_2 (k5_bvfunc_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 (k5_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))$$
(6)

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow((v1_funct_1 (k1_bvfunc_1 X0 X1))\wedge((v1_funct_2 (k1_bvfunc_1 X0 X1) X0 k6_margrel1)\wedge(m1_subset_1 (k1_bvfunc_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))$$
(7)

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 k6_margrel1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow((X3 = k9_bvfunc_1 X0 X1 X2)\Leftrightarrow(\forall X4.(m1_subset_1 X4 X0)\Rightarrow(k3_funct_2 X0 k6_margrel1 X3 X4 = k5_xboolean (k9_margrel1 (k3_funct_2 X0 k6_margrel1 X1 X4) (k3_funct_2 X0 k6_margrel1 X2 X4))))))$$
(8)

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge \\
& ((v1_funct_2 X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((X3 = k5_bvfunc_1 X0 X1 X2) \Leftrightarrow \\
& (\forall X4.(m1_subset_1 X4 X0) \Rightarrow (k3_funct_2 X0 k6_margrel1 X3 \\
& X4 = k5_xboolean (k3_funct_2 X0 k6_margrel1 X1 X4) (k3_funct_2 X0 \\
& k6_margrel1 X2 X4))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((X2 = k15_margrel1 X0 X1) \Leftrightarrow (\\
& \forall X3.(m1_subset_1 X3 X0) \Rightarrow (k3_funct_2 X0 k6_margrel1 X2 X3 = \\
& k9_margrel1 (k3_funct_2 X0 k6_margrel1 X1 X3))))))
\end{aligned} \tag{10}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\
& (k9_bvfunc_1 X0 X1 X2) (k5_bvfunc_1 X0 (k1_bvfunc_1 X0 X1) X2)))
\end{aligned}$$