

t55_bvfunc26
(TMcaN4QSDicxeX6eRcrS5pKfj4U88H9ypkF)

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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 $k6_margrel1 : \iota$ 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 $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_bvfunc26 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_bvfunc26 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bvfunc26 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_margrel1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge \\
& ((v1_funct_2 X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\
& (k5_bvfunc_1 X0 (k5_bvfunc_1 X0 X1 X2) X3) (k5_bvfunc_1 X0 X1 (k5_bvfunc_1 \\
& X0 X2 X3))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\
& (k6_bvfunc26 X0 X1 X2) (k1_bvfunc_1 X0 (k5_bvfunc_1 X0 X1 X2))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge \\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\ & (k5_bvfunc26 X0 X1 X2) (k1_bvfunc_1 X0 (k2_bvfunc_1 X0 X1 X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge \\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\ & (k1_bvfunc_1 X0 (k2_bvfunc_1 X0 X1 X2)) (k5_bvfunc_1 X0 (k1_bvfunc_1 \\ & X0 X1) (k1_bvfunc_1 X0 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 \\ & X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow (k5_bvfunc_1 X0 X1 X2 = k3_bvfunc_1 X1 X2) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 \\ & X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow (k5_bvfunc26 X0 X1 X2 = k1_bvfunc26 X1 X2) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge \\ (v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (\\ k2_zfmisc_1 X0 k6_margrel1))))))\Rightarrow(k1_bvfunc_1 X0 X1 = k13_margrel1 \\ X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))))\Rightarrow((v1_funct_1 (k6_bvfunc26 X0 X1 X2))\wedge(\\ (v1_funct_2 (k6_bvfunc26 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ (k6_bvfunc26 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))))\Rightarrow((v1_funct_1 (k5_bvfunc_1 X0 X1 X2))\wedge(\\ (v1_funct_2 (k5_bvfunc_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ (k5_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))))\Rightarrow((v1_funct_1 (k5_bvfunc26 X0 X1 X2))\wedge(\\ (v1_funct_2 (k5_bvfunc26 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ (k5_bvfunc26 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))))\Rightarrow((v1_funct_1 (k2_bvfunc_1 X0 X1 X2))\wedge(\\ (v1_funct_2 (k2_bvfunc_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ (k2_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 X1) \wedge \\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((v1_funct_1 (k1_bvfunc_1 \\ X0 X1)) \wedge ((v1_funct_2 (k1_bvfunc_1 X0 X1) X0 k6_margrel1) \wedge (m1_subset_1 \\ & (k1_bvfunc_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 \\ X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))) \Rightarrow (k5_bvfunc_1 X0 X1 X2 = k5_bvfunc_1 X0 X2 \\ & X1) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 \\ X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))) \Rightarrow (k5_bvfunc26 X0 X1 X2 = k5_bvfunc26 X0 X2 \\ & X1) \end{aligned} \quad (15)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge \\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge \\ & ((v1_funct_2 X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\ & (k6_bvfunc26 X0 X1 (k5_bvfunc26 X0 X2 X3)) (k1_bvfunc_1 X0 (k5_bvfunc_1 \\ X0 (k5_bvfunc_1 X0 X1 (k1_bvfunc_1 X0 X2)) (k1_bvfunc_1 X0 X3)))))) \end{aligned}$$