

t11_bvfunc_3 (TM-
cRgD1qqEwXWEbiH77sJTUy1oWPdye82GE)

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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 $k1_bvfunc_2 : \iota \Rightarrow \iota$ 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 $k6_margrel1 : \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_eqrel_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\
 & \quad (k1_bvfunc_2 X0))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\
 & \quad X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & \quad X0 k6_margrel1)))))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
 & \quad X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & \quad X0 k6_margrel1)))))) \Rightarrow (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow (r1_bvfunc_1 \\
 & \quad X0 (k5_bvfunc_1 X0 X2 X3) (k5_bvfunc_1 X0 (k7_bvfunc_2 X0 X2 X1 X4) \\
 & \quad (k7_bvfunc_2 X0 X3 X1 X4))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\
 & \quad (k1_bvfunc_2 X0))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\
 & \quad X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & \quad X0 k6_margrel1)))))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
 & \quad X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & \quad X0 k6_margrel1)))))) \Rightarrow (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow (r1_bvfunc_1 \\
 & \quad X0 (k5_bvfunc_1 X0 (k6_bvfunc_2 X0 X2 X1 X4) (k6_bvfunc_2 X0 X3 X1 \\
 & \quad X4) (k5_bvfunc_1 X0 X2 X3))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge \\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge \\
& ((v1_funct_2 X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (((r1_bvfunc_1 X0 X1 X2) \wedge (\\
& r1_bvfunc_1 X0 X2 X1)) \Rightarrow (r2_funct_2 X0 k6_margrel1 X1 X2)) \wedge (((r1_bvfunc_1 \\
& X0 X1 X2) \wedge (r1_bvfunc_1 X0 X2 X3)) \Rightarrow (r1_bvfunc_1 X0 X1 X3))))))
\end{aligned} \tag{3}$$

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\
& (((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 \\
& X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))) \wedge ((m1_subset_1 \\
& X2 (k1_zfmisc_1 (k1_bvfunc_2 X0))) \wedge (m1_eqrel_1 X3 X0)))) \Rightarrow ((v1_funct_1 \\
& (k7_bvfunc_2 X0 X1 X2 X3)) \wedge ((v1_funct_2 (k7_bvfunc_2 X0 X1 X2 X3) \\
& X0 k6_margrel1) \wedge (m1_subset_1 (k7_bvfunc_2 X0 X1 X2 X3) (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\
& (((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 \\
& X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))) \wedge ((m1_subset_1 \\
& X2 (k1_zfmisc_1 (k1_bvfunc_2 X0))) \wedge (m1_eqrel_1 X3 X0)))) \Rightarrow ((v1_funct_1 \\
& (k6_bvfunc_2 X0 X1 X2 X3)) \wedge ((v1_funct_2 (k6_bvfunc_2 X0 X1 X2 X3) \\
& X0 k6_margrel1) \wedge (m1_subset_1 (k6_bvfunc_2 X0 X1 X2 X3) (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 \\ & X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow ((v1_funct_1 (k5_bvfunc_1 X0 X1 X2)) \wedge (\\ & (v1_funct_2 (k5_bvfunc_1 X0 X1 X2) X0 k6_margrel1) \wedge (m1_subset_1 \\ & (k5_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (7)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k1_bvfunc_2 X0))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\ & X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1)))))) \Rightarrow (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow (r1_bvfunc_1 \\ & X0 (k6_bvfunc_2 X0 (k5_bvfunc_1 X0 X2 X3) X1 X4) (k5_bvfunc_1 X0 (\\ & k7_bvfunc_2 X0 X2 X1 X4) (k7_bvfunc_2 X0 X3 X1 X4)))))) \end{aligned}$$