

t15_bvfunc_8 (TMJAnYwixBtK- TJGsMEBbL1JozvFTcEmUN22)

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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 $k6_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_bvfunc_1 : \iota \Rightarrow \iota$ 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 $k1_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_bvfunc_1 : \iota \Rightarrow \iota$ be given. Let $k13_margrel1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 \\ & (k6_bvfunc_1 X0 X1 X2) (k5_bvfunc_1 X0 (k2_bvfunc_1 X0 (k1_bvfunc_1 \\ & X0 X1) X2) (k2_bvfunc_1 X0 X1 (k1_bvfunc_1 X0 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 (\\ & k5_bvfunc_1 X0 X1 (k11_bvfunc_1 X0) X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 (\\ & k2_bvfunc_1 X0 X1 (k12_bvfunc_1 X0) X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ & k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 (\\ & k2_bvfunc_1 X0 X1 (k11_bvfunc_1 X0) (k11_bvfunc_1 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow ((r2_funct_2 X0 k6_margrel1 (k1_bvfunc_1 X0 (k12_bvfunc_1 X0)) (k11_bvfunc_1 X0)) \wedge (r2_funct_2 X0 k6_margrel1 (k1_bvfunc_1 X0 (k11_bvfunc_1 X0)) (k12_bvfunc_1 X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (k1_bvfunc_1 X0 X1 = k13_margrel1 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((v1_funct_1 (k5_bvfunc_1 X0 X1 X2)) \wedge ((v1_funct_2 (k5_bvfunc_1 X0 X1 X2) X0 k6_margrel1) \wedge (m1_subset_1 (k5_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((v1_funct_1 (k2_bvfunc_1 X0 X1 X2)) \wedge ((v1_funct_2 (k2_bvfunc_1 X0 X1 X2) X0 k6_margrel1) \wedge (m1_subset_1 (k2_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow ((v1_funct_1 (k1_bvfunc_1 X0 X1)) \wedge ((v1_funct_2 (k1_bvfunc_1 X0 X1) X0 k6_margrel1) \wedge (m1_subset_1 (k1_bvfunc_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & ((v1_funct_1 (k12_bvfunc_1 X0)) \wedge \\ & ((v1_funct_2 (k12_bvfunc_1 X0) X0 k6_margrel1) \wedge (m1_subset_1 \\ & (k12_bvfunc_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & ((v1_funct_1 (k11_bvfunc_1 X0)) \wedge \\ & ((v1_funct_2 (k11_bvfunc_1 X0) X0 k6_margrel1) \wedge (m1_subset_1 \\ & (k11_bvfunc_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. & ((\neg v1_xboole_0 X0) \wedge (((v1_funct_1 \\ X1) \wedge ((v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 k6_margrel1)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 \\ X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 k6_margrel1)))))) \Rightarrow (k5_bvfunc_1 X0 X1 X2 = k5_bvfunc_1 X0 X2 \\ X1)) \end{aligned} \quad (13)$$

Theorem 1

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & (\forall X1.((v1_funct_1 X1) \wedge (\\ (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\ k2_zfmisc_1 X0 k6_margrel1)))))) \Rightarrow (r2_funct_2 X0 k6_margrel1 (\\ k6_bvfunc_1 X0 X1 (k11_bvfunc_1 X0)) X1)) \end{aligned}$$