

t18_bvfunc_3 (TMLcfqxGBTmNbts- dzAJ7uhyp7wYQAs31CaV)

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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 $k9_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboolean : \iota \Rightarrow o$ be given. Let $k5_xboolean : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_margrel1 : \iota$ be given. Let $k3_xboolean : \iota \Rightarrow \iota$ be given. Let $k8_margrel1 : \iota$ be given. Let $k9_margrel1 : \iota \Rightarrow \iota$ be given. Let $k7_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboolean : \iota$ be given. Let $k1_xboolean : \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_bvfunc_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_bvfunc_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k6_numbers : \iota$ be given. Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (k5_xboolean X0 \ k7_margrel1 = X0) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xboolean X0) \Rightarrow & (((X0 = k7_margrel1) \Rightarrow (k3_xboolean \\ X0 = k8_margrel1)) \wedge & ((k3_xboolean X0 = k8_margrel1) \Rightarrow (X0 = k7_margrel1))) \wedge \\ & (((X0 = k8_margrel1) \Rightarrow (k3_xboolean X0 = k7_margrel1)) \wedge ((k3_xboolean \\ X0 = k7_margrel1) \Rightarrow & (X0 = k8_margrel1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Rightarrow (k5_xboolean X0 \ k8_margrel1 = k8_margrel1) \quad (3)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 \ k6_margrel1) \Rightarrow (k9_margrel1 X0 = k3_xboolean X0) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1))))))\Rightarrow(k9_bvfunc_1 X0 X1 X2 = k7_bvfunc_1 X1 X2) \end{aligned} \quad (5)$$

Assume the following.

$$k8_margrel1 = k2_xboolean \quad (6)$$

Assume the following.

$$k7_margrel1 = k1_xboolean \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(k3_funct_2 X0 \\ & X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 \\ & X1 X0)\wedge(m1_eqrel_1 X2 X0)))\Rightarrow(k15_bvfunc_1 X0 X1 X2 = k11_eqrel_1 \\ & X0 X1 X2) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k6_margrel1)\Rightarrow(k9_margrel1 (k9_margrel1 X0) = X0) \quad (10)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k6_margrel1)\Rightarrow(m1_subset_1 (k9_margrel1 X0) k6_margrel1) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 X0 k6_margrel1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 k6_margrel1))))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 k6_margrel1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 k6_margrel1))))))\Rightarrow((v1_funct_1 (k9_bvfunc_1 X0 X1 X2))\wedge(\\ & (v1_funct_2 (k9_bvfunc_1 X0 X1 X2) X0 k6_margrel1)\wedge(m1_subset_1 \\ & (k9_bvfunc_1 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$m1_subset_1 \ k8_margrel1 \ k6_margrel1 \quad (13)$$

Assume the following.

$$m1_subset_1 \ k7_margrel1 \ k6_margrel1 \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 \ X0) \wedge \\ & (((v1_funct_1 \ X1) \wedge ((v1_funct_2 \ X1 \ X0 \ k6_margrel1) \wedge (m1_subset_1 \\ & \ X1 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ k6_margrel1)))))) \wedge ((m1_subset_1 \\ & \ X2 \ (k1_zfmisc_1 \ (k1_bvfunc_2 \ X0))) \wedge (m1_eqrel_1 \ X3 \ X0)))) \Rightarrow ((v1_funct_1 \\ & \ (k6_bvfunc_2 \ X0 \ X1 \ X2 \ X3)) \wedge ((v1_funct_2 \ (k6_bvfunc_2 \ X0 \ X1 \ X2 \ X3) \\ & \ X0 \ k6_margrel1) \wedge (m1_subset_1 \ (k6_bvfunc_2 \ X0 \ X1 \ X2 \ X3) \ (k1_zfmisc_1 \\ & \ (k2_zfmisc_1 \ X0 \ k6_margrel1)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 \ X0) \wedge ((m1_eqrel_1 \\ & \ X1 \ X0) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k1_bvfunc_2 \ X0)))))) \Rightarrow (m1_eqrel_1 \\ & \ (k5_bvfunc_2 \ X0 \ X1 \ X2) \ X0) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 \ X0) \wedge \\ & (((v1_funct_1 \ X2) \wedge ((v1_funct_2 \ X2 \ X0 \ X1) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \\ & \ (k2_zfmisc_1 \ X0 \ X1)))))) \wedge (m1_subset_1 \ X3 \ X0))) \Rightarrow (m1_subset_1 \ (\\ & \ k3_funct_2 \ X0 \ X1 \ X2 \ X3) \ X1) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 \ X0) \wedge ((m1_subset_1 \\ & \ X1 \ X0) \wedge (m1_eqrel_1 \ X2 \ X0))) \Rightarrow (m1_subset_1 \ (k11_eqrel_1 \ X0 \ X1 \ X2) \\ & \ (k1_zfmisc_1 \ X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 \ X0) \Rightarrow (\forall X1.((v1_funct_1 \ X1) \wedge (\\ & \ (v1_funct_2 \ X1 \ X0 \ k6_margrel1) \wedge (m1_subset_1 \ X1 \ (k1_zfmisc_1 \ (\\ & \ k2_zfmisc_1 \ X0 \ k6_margrel1)))))) \Rightarrow (\forall X2.(m1_subset_1 \ X2 \\ & \ (k1_zfmisc_1 \ (k1_bvfunc_2 \ X0))) \Rightarrow (\forall X3.(m1_eqrel_1 \ X3 \ X0) \Rightarrow \\ & \ (k6_bvfunc_2 \ X0 \ X1 \ X2 \ X3 = k16_bvfunc_1 \ X0 \ X1 \ (k5_bvfunc_2 \ X0 \ X3 \ X2)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge \\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge \\
& ((v1_funct_2 X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow ((X3 = k9_bvfunc_1 X0 X1 X2) \Leftrightarrow \\
& (\forall X4.(m1_subset_1 X4 X0) \Rightarrow (k3_funct_2 X0 k6_margrel1 X3 \\
& X4 = k5_xboolean (k9_margrel1 (k3_funct_2 X0 k6_margrel1 X1 X4)) \\
& (k3_funct_2 X0 k6_margrel1 X2 X4))))))
\end{aligned} \tag{20}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\
& (\forall X2.(m1_eqrel_1 X2 X0) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 \\
& X0)) \Rightarrow ((X3 = k11_eqrel_1 X0 X1 X2) \Leftrightarrow ((X1 \in X3) \wedge (X3 \in X2))))))
\end{aligned} \tag{21}$$

Assume the following.

$$\forall X0.(v1_xboolean X0) \Leftrightarrow ((X0 = k1_xboolean) \vee (X0 = k2_xboolean)) \tag{22}$$

Assume the following.

$$k2_xboolean = np_1 \tag{23}$$

Assume the following.

$$k1_xboolean = k6_numbers \tag{24}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge (\\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (\forall X2.(m1_eqrel_1 X2 X0) \Rightarrow \\
& (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 k6_margrel1) \wedge \\
& (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow \\
& ((X3 = k16_bvfunc_1 X0 X1 X2) \Leftrightarrow (\forall X4.(m1_subset_1 X4 X0) \Rightarrow (\\
& (\forall X5.(m1_subset_1 X5 X0) \Rightarrow ((X5 \in k15_bvfunc_1 X0 X4 X2) \Rightarrow \\
& (k3_funct_2 X0 k6_margrel1 X1 X5 = k8_margrel1)))) \Rightarrow (k3_funct_2 \\
& X0 k6_margrel1 X3 X4 = k8_margrel1)) \wedge ((\exists X5.(m1_subset_1 \\
& X5 X0) \wedge ((X5 \in k15_bvfunc_1 X0 X4 X2) \wedge (k3_funct_2 X0 k6_margrel1 \\
& X1 X5 \neq k8_margrel1)))) \Rightarrow (k3_funct_2 X0 k6_margrel1 X3 X4 = k7_margrel1))))))
\end{aligned} \tag{25}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge \\
& (v1_funct_2 X1 X0 k6_margrel1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (\\
& k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 k6_margrel1)))) \Rightarrow ((r1_bvfunc_1 X0 X1 X2) \Leftrightarrow (\forall X3. \\
& (m1_subset_1 X3 X0) \Rightarrow ((k3_funct_2 X0 k6_margrel1 X1 X3 = k8_margrel1) \Rightarrow \\
& (k3_funct_2 X0 k6_margrel1 X2 X3 = k8_margrel1))))))
\end{aligned} \tag{26}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((v1_xboolean X0) \wedge (v1_xboolean X1)) \Rightarrow (\\
& k5_xboolean X0 X1 = k5_xboolean X1 X0)
\end{aligned} \tag{27}$$

Assume the following.

$$\forall X0. (m1_subset_1 X0 k6_margrel1) \Rightarrow (v1_xboolean X0) \tag{28}$$

Theorem 1

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\
& (k1_bvfunc_2 X0))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\
& X2 X0 k6_margrel1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 k6_margrel1)))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 X0 k6_margrel1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 k6_margrel1)))) \Rightarrow (\forall X4. (m1_eqrel_1 X4 X0) \Rightarrow (r1_bvfunc_1 \\
& X0 (k9_bvfunc_1 X0 X2 X3) (k9_bvfunc_1 X0 (k6_bvfunc_2 X0 X2 X1 X4) \\
& X3))))))
\end{aligned}$$