

t9\_bvfunc11 (TM-  
FENdgcRXSTk4mRPyLWwhiu2YshcevD4Hh)

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  $k1\_bvfunc\_2 : \iota \Rightarrow \iota$  be given. Let  $m1\_eqrel\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_bvfunc\_2 : \iota \Rightarrow \iota \Rightarrow o$  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  $k7\_bvfunc\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (k1\_zfmisc\_1 (k1\_bvfunc\_2 X0))) \Rightarrow (\forall X3.(m1\_eqrel\_1 X3 X0) \Rightarrow \\ & (\forall X4.(m1\_eqrel\_1 X4 X0) \Rightarrow (r1\_bvfunc\_1 X0 (k6\_bvfunc\_2 X0 \\ & X1 X2 X3) (k7\_bvfunc\_2 X0 X1 X2 X4)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (k1\_zfmisc\_1 (k1\_bvfunc\_2 X0))) \Rightarrow (\forall X3.(m1\_eqrel\_1 X3 X0) \Rightarrow \\ & (\forall X4.(m1\_eqrel\_1 X4 X0) \Rightarrow ((v2\_bvfunc\_2 X2 X0) \Rightarrow (r2\_funct\_2 \\ & X0 k6\_margrel1 (k6\_bvfunc\_2 X0 (k6\_bvfunc\_2 X0 X1 X2 X3) X2 X4) (k6\_bvfunc\_2 \\ & X0 (k6\_bvfunc\_2 X0 X1 X2 X4) X2 X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\
& ((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 X0 k6\_margrel1)\wedge(m1\_subset\_1 \\
& X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1))))))\wedge((m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k1\_bvf\_func\_2 X0))\wedge(m1\_eqrel\_1 X3 X0))))\Rightarrow((v1\_funct\_1 \\
& (k6\_bvf\_func\_2 X0 X1 X2 X3)\wedge((v1\_funct\_2 (k6\_bvf\_func\_2 X0 X1 X2 X3) \\
& X0 k6\_margrel1)\wedge(m1\_subset\_1 (k6\_bvf\_func\_2 X0 X1 X2 X3) (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k6\_margrel1))))))
\end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge( \\
& (v1\_funct\_2 X1 X0 k6\_margrel1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
& k2\_zfmisc\_1 X0 k6\_margrel1))))))\Rightarrow(\forall X2.(m1\_subset\_1 X2 \\
& (k1\_zfmisc\_1 (k1\_bvf\_func\_2 X0))\Rightarrow(\forall X3.(m1\_eqrel\_1 X3 X0)\Rightarrow \\
& (\forall X4.(m1\_eqrel\_1 X4 X0)\Rightarrow((v2\_bvf\_func\_2 X2 X0)\Rightarrow(r1\_bvf\_func\_1 \\
& X0 (k6\_bvf\_func\_2 X0 (k6\_bvf\_func\_2 X0 X1 X2 X3) X2 X4) (k7\_bvf\_func\_2 X0 \\
& (k6\_bvf\_func\_2 X0 X1 X2 X4) X2 X3))))))
\end{aligned}$$