

t10\_bvfunc\_9 (TMaqATfYXcGxXXGzMK-  
sRunW4fUaaPJcmUmG)

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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  $r1\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k12\_bvfunc\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 X0 k6\_margrel1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (r2\_funct\_2 X0 k6\_margrel1 \\ & (k9\_bvfunc\_1 X0 (k2\_bvfunc\_1 X0 X1 X2) X3) (k9\_bvfunc\_1 X0 X1 (k9\_bvfunc\_1 \\ & X0 X2 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow ((r2\_funct\_2 X0 k6\_margrel1 \\ & X2 (k12\_bvfunc\_1 X0)) \Rightarrow (r2\_funct\_2 X0 k6\_margrel1 (k9\_bvfunc\_1 \\ & X0 X1 X2) (k12\_bvfunc\_1 X0)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\
& (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
& k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\
& ((v1\_funct\_2 X3 X0 k6\_margrel1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow ((r2\_funct\_2 X0 k6\_margrel1 \\
& (k9\_bvfunc\_1 X0 X1 (k9\_bvfunc\_1 X0 X2 X3)) (k12\_bvfunc\_1 X0)) \Rightarrow ( \\
& r2\_funct\_2 X0 k6\_margrel1 (k9\_bvfunc\_1 X0 (k9\_bvfunc\_1 X0 X1 X2) \\
& (k9\_bvfunc\_1 X0 X1 X3)) (k12\_bvfunc\_1 X0))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\
& (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
& k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (r2\_funct\_2 X0 k6\_margrel1 \\
& (k9\_bvfunc\_1 X0 X1 (k9\_bvfunc\_1 X0 X2 (k2\_bvfunc\_1 X0 X1 X2))) (k12\_bvfunc\_1 \\
& X0))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ( \\
& (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\
& k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow ((r2\_funct\_2 X0 k6\_margrel1 \\
& (k9\_bvfunc\_1 X0 X1 X2) (k12\_bvfunc\_1 X0)) \Leftrightarrow (r1\_bvfunc\_1 X0 X1 X2))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X1)))))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\
& X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\
& X3) \Leftrightarrow (X2 = X3))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge(((v1\_funct\_1 \\ & X1)\wedge((v1\_funct\_2 X1 X0 k6\_margrel1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1))))))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 \\ & X2 X0 k6\_margrel1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 k6\_margrel1))))))\Rightarrow((v1\_funct\_1 (k9\_bvfunc\_1 X0 X1 X2))\wedge( \\ & (v1\_funct\_2 (k9\_bvfunc\_1 X0 X1 X2) X0 k6\_margrel1)\wedge(m1\_subset\_1 \\ & (k9\_bvfunc\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge(((v1\_funct\_1 \\ & X1)\wedge((v1\_funct\_2 X1 X0 k6\_margrel1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1))))))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 \\ & X2 X0 k6\_margrel1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 k6\_margrel1))))))\Rightarrow((v1\_funct\_1 (k2\_bvfunc\_1 X0 X1 X2))\wedge( \\ & (v1\_funct\_2 (k2\_bvfunc\_1 X0 X1 X2) X0 k6\_margrel1)\wedge(m1\_subset\_1 \\ & (k2\_bvfunc\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1))))))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge \\ & ((v1\_funct\_2 X2 X0 k6\_margrel1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1))))))\Rightarrow(\forall X3.((v1\_funct\_1 X3)\wedge \\ & ((v1\_funct\_2 X3 X0 k6\_margrel1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1))))))\Rightarrow(r1\_bvfunc\_1 X0 (k9\_bvfunc\_1 \\ & X0 X1 X2) (k9\_bvfunc\_1 X0 (k2\_bvfunc\_1 X0 X1 X3) (k2\_bvfunc\_1 X0 X2 \\ & X3)))))) \end{aligned}$$