

## l2\_bvfunc\_9

(TMFDmZyX84zJbf9uecAqQLesaHvoRxRnqvi)

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  $r1\_bvfunc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 X0 k6\_margrel1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (((r1\_bvfunc\_1 X0 X1 X2) \wedge ( \\ & r1\_bvfunc\_1 X0 X2 X1)) \Rightarrow (r2\_funct\_2 X0 k6\_margrel1 X1 X2)) \wedge (((r1\_bvfunc\_1 \\ & X0 X1 X2) \wedge (r1\_bvfunc\_1 X0 X2 X3)) \Rightarrow (r1\_bvfunc\_1 X0 X1 X3)))))) \\ & \tag{1} \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ( \\ & (v1\_funct\_2 X1 X0 k6\_margrel1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 ( \\ & k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 k6\_margrel1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 k6\_margrel1)))))) \Rightarrow (r1\_bvfunc\_1 X0 (k2\_bvfunc\_1 \\ & X0 X1 X2) X1)) \\ & \tag{2} \end{aligned}$$

Assume the following.

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

Assume the following.

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

**Theorem 1**

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