

t16\_bcialg\_6 (TMTEwZvczS-  
saCRw4aPb4UhG8PuAL6UYFhcA)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v4\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v5\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $v7\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $l2\_bcialg\_1 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_bcialg\_1 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k3\_bcialg\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k19\_binop\_2 : \iota \Rightarrow \iota$  be given. Let  $k6\_bcialg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_bcialg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_bcialg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (u1\_struct\_0 X0)) \Rightarrow (k2\_bcialg\_1 X0 (k1\_bcialg\_1 X0 X1 X2) = k1\_bcialg\_1 \\ & X0 (k2\_bcialg\_1 X0 X1) (k2\_bcialg\_1 X0 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1\_subset\_1 X1 (k1\_zfmisc\_1 X2)) \wedge (v1\_xboole\_0 X2)) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k2\_bcialg\_1 X0 \\ & X1 \in k5\_bcialg\_1 X0)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\
& X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\
& (\forall X1.(m2\_subset\_1 X1 (u1\_struct\_0 X0) (k5\_bcialg\_1 X0)) \Rightarrow \\
& (\forall X2.(m2\_subset\_1 X2 (u1\_struct\_0 X0) (k5\_bcialg\_1 X0)) \Rightarrow \\
& (\forall X3.(v7\_ordinal1 X3) \Rightarrow (k3\_bcialg\_6 X0 X3 (k6\_bcialg\_1 \\
& X0 X1 X2) = k1\_bcialg\_1 X0 (k3\_bcialg\_6 X0 X3 X1) (k3\_bcialg\_6 X0 X3 \\
& X2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\
& X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\
& (\forall X1.(m2\_subset\_1 X1 (u1\_struct\_0 X0) (k5\_bcialg\_1 X0)) \Rightarrow \\
& (\forall X2.(v7\_ordinal1 X2) \Rightarrow (k3\_bcialg\_6 X0 X2 (k2\_bcialg\_1 \\
& X0 X1) = k3\_bcialg\_6 X0 (k19\_binop\_2 X2) X1)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 \\
& X0) \wedge ((v4\_bcialg\_1 X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge \\
& (l2\_bcialg\_1 X0)))))) \wedge ((m1\_subset\_1 X1 (k5\_bcialg\_1 X0)) \wedge (m1\_subset\_1 \\
& X2 (k5\_bcialg\_1 X0)))) \Rightarrow (k6\_bcialg\_1 X0 X1 X2 = k1\_bcialg\_1 X0 X1 \\
& X2)
\end{aligned} \tag{8}$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Rightarrow (m1\_subset\_1 X2 X0))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 \\
& X0) \wedge ((v4\_bcialg\_1 X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge \\
& (l2\_bcialg\_1 X0)))))) \wedge ((m1\_subset\_1 X1 (k5\_bcialg\_1 X0)) \wedge (m1\_subset\_1 \\
& X2 (k5\_bcialg\_1 X0)))) \Rightarrow (m2\_subset\_1 (k6\_bcialg\_1 X0 X1 X2) (u1\_struct\_0 \\
& X0) (k5\_bcialg\_1 X0))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & ((\neg v1\_xboole\_0 (k5\_bcialg\_1 X0)) \wedge (m1\_subset\_1 (k5\_bcialg\_1 \\ & X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \end{aligned} \quad (12)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_bcialg\_1 X0) \wedge ((v4\_bcialg\_1 \\ & X0) \wedge ((v5\_bcialg\_1 X0) \wedge ((v7\_bcialg\_1 X0) \wedge (l2\_bcialg\_1 X0)))))) \Rightarrow \\ & (\forall X1. (m2\_subset\_1 X1 (u1\_struct\_0 X0) (k5\_bcialg\_1 X0)) \Rightarrow \\ & (\forall X2. (m2\_subset\_1 X2 (u1\_struct\_0 X0) (k5\_bcialg\_1 X0)) \Rightarrow \\ & (\forall X3. (v7\_ordinal1 X3) \Rightarrow (k3\_bcialg\_6 X0 (k19\_binop\_2 X3) \\ & (k6\_bcialg\_1 X0 X1 X2) = k1\_bcialg\_1 X0 (k3\_bcialg\_6 X0 (k19\_binop\_2 \\ & X3) X1) (k3\_bcialg\_6 X0 (k19\_binop\_2 X3) X2)))))) \end{aligned}$$