

t40_bcialg_1
(TMHzCFSs5sQL2BHicegXHCBJY77utuNowU)

October 27, 2020

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 $k7_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_bcialg_1 : \iota \Rightarrow \iota$ be given. Let $k6_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
& (\forall X1. (m2_subset_1 X1 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow \\
& (\forall X2. (m2_subset_1 X2 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow \\
& (\forall X3. (m2_subset_1 X3 (u1_struct_0 X0) (k7_bcialg_1 X0 X1)) \Rightarrow \\
& (\forall X4. (m2_subset_1 X4 (u1_struct_0 X0) (k7_bcialg_1 X0 X2)) \Rightarrow \\
& (k1_bcialg_1 X0 X3 X4 \in k7_bcialg_1 X0 (k6_bcialg_1 X0 X1 X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
& (\forall X1. (m2_subset_1 X1 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow \\
& (\forall X2. (m2_subset_1 X2 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow \\
& (\forall X3. (m2_subset_1 X3 (u1_struct_0 X0) (k7_bcialg_1 X0 X2)) \Rightarrow \\
& (k1_bcialg_1 X0 X1 X3 = k6_bcialg_1 X0 X1 X2))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
& (k4_struct_0 X0 \in k5_bcialg_1 X0)
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow (k4_struct_0 X0 \in k4_bcialg_1 X0) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \wedge ((m1_subset_1 X1 (k5_bcialg_1 X0)) \wedge (m1_subset_1 X2 (k5_bcialg_1 X0)))) \Rightarrow (k6_bcialg_1 X0 X1 X2 = k1_bcialg_1 X0 X1 X2) \quad (6)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow (\forall X1. (m2_subset_1 X1 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow (\forall X2. (m2_subset_1 X2 (u1_struct_0 X0) (k7_bcialg_1 X0 X1)) \Rightarrow (k1_bcialg_1 X0 X1 X2 = k4_struct_0 X0))) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \wedge ((m1_subset_1 X1 (k5_bcialg_1 X0)) \wedge (m1_subset_1 X2 (k5_bcialg_1 X0)))) \Rightarrow (m2_subset_1 (k6_bcialg_1 X0 X1 X2) (u1_struct_0 X0) (k5_bcialg_1 X0)) \quad (8)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow ((v5_bcialg_1 X0) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 X1 X1 = k4_struct_0 X0))) \quad (9)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow (\forall X1. (m2_subset_1 X1 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow (k7_bcialg_1 X0 X1 = \text{ReplSep} (\text{toset} (\lambda X2 : \iota. m1_subset_1 X2 (u1_struct_0 X0)) (\lambda X2 : \iota. r1_bcialg_1 X0 X1 X2) (\lambda X2 : \iota. X2)))) \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
& (k4_bcialg_1 X0 = ReplSep (toset (\lambda X1 : \iota.m1_subset_1 X1 (u1_struct_0 \\
& X0))) (\lambda X1 : \iota.r1_bcialg_1 X0 (k4_struct_0 X0) X1) (\lambda X1 : \\
& \iota.X1))
\end{aligned} \tag{11}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
& X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
& (\forall X1.(m2_subset_1 X1 (u1_struct_0 X0) (k5_bcialg_1 X0)) \Rightarrow \\
& (\forall X2.(m2_subset_1 X2 (u1_struct_0 X0) (k7_bcialg_1 X0 X1)) \Rightarrow \\
& (\forall X3.(m2_subset_1 X3 (u1_struct_0 X0) (k7_bcialg_1 X0 X1)) \Rightarrow \\
& (k1_bcialg_1 X0 X2 X3 \in k4_bcialg_1 X0)))
\end{aligned}$$