

t12_bcialg_3

(TMYPH3xgVafBDwk4nM17QFZj8CRbbcN9cF2M)

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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_bcialg_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v8_bcialg_1 : \iota \Rightarrow o$ be given. Let $k2_bcialg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $v5_bcialg_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_bcialg_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_bcialg_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
 & (((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 X0) \wedge ((\\
 & v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge (l2_bcialg_1 \\
 & X0))))))) \Leftrightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((k2_bcialg_2 \\
 & X0 X1 = np_1) \wedge (v5_bcialg_2 X1 X0)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
 & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (((v1_bcialg_2 \\
 & X1 X0) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Leftrightarrow ((v5_bcialg_2 X1 X0) \wedge \\
 & (k2_bcialg_2 X0 X1 = np_1))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
 & ((\exists X1. (m1_subset_1 X1 (u1_struct_0 X0)) \wedge (v4_bcialg_2 \\
 & X1 X0)) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (v1_bcialg_2 \\
 & X1 X0)))
 \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v4_bcialg_2 \\ X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (r1_bcialg_1 \\ X0 X2 X1)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v2_bcialg_3 \\ X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 \\ X0 X2 X1 = k4_struct_0 X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l2_bcialg_1 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ (u1_struct_0 X0)) \Rightarrow ((r1_bcialg_1 X0 X1 X2) \Leftrightarrow (k1_bcialg_1 X0 X1 X2 = \\ k4_struct_0 X0)))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\ ((\exists X1.(m1_subset_1 X1 (u1_struct_0 X0)) \wedge (v2_bcialg_3 \\ X1 X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\ (l2_bcialg_1 X0)))))))) \end{aligned}$$