

l49_bcialg_3

(TMa5tuSRBbtQLQxge22nXd4NebopYBYXmX4)

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 $v8_bcialg_1 : \iota \Rightarrow o$ be given. Let $v6_bcialg_3 : \iota \Rightarrow o$ be given. Let $l2_bcialg_1 : \iota \Rightarrow o$ be given. Let $v11_bcialg_3 : \iota \Rightarrow o$ 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 $k1_bcialg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\
 & (l2_bcialg_1 X0)))))) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge \\
 & ((v4_bcialg_1 X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 \\
 & X0) \wedge ((v11_bcialg_3 X0) \wedge (l2_bcialg_1 X0))))))) \Leftrightarrow (\forall X1. \\
 & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 \\
 & (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 (k1_bcialg_1 X0 X1 (k1_bcialg_1 \\
 & X0 X1 X2)) (k1_bcialg_1 X0 X1 X2) = k1_bcialg_1 X0 X2 (k1_bcialg_1 \\
 & X0 X2 X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
 & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 X0 \\
 & X1 (k4_struct_0 X0) = X1))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\
 & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge (l2_bcialg_1 X0)))))) \Rightarrow \\
 & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v2_bcialg_3 \\
 & X1 X0) \Leftrightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 \\
 & X0 X2 X1 = k4_struct_0 X0))))
 \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_bcialg_1 X0) \wedge ((v4_bcialg_1 \\ & X0) \wedge ((v5_bcialg_1 X0) \wedge ((v7_bcialg_1 X0) \wedge ((v8_bcialg_1 X0) \wedge \\ & ((v6_bcialg_3 X0) \wedge (l2_bcialg_1 X0)))))))) \Rightarrow ((v11_bcialg_3 X0) \Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v2_bcialg_3 \\ & X1 X0) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k1_bcialg_1 \\ & X0 X1 (k1_bcialg_1 X0 X1 X2) = X2)))))) \end{aligned}$$