

t9_bintree1
(TMFuGzfKbSe9C5HFu18LqDrCz5XYFw7tHDT)

October 27, 2020

Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v3_trees_2 : \iota \Rightarrow o$ be given. Let $v2_bintree1 : \iota \Rightarrow o$ be given. Let $k6_trees_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_trees_1 : \iota \Rightarrow o$ be given. Let $v1_bintree1 : \iota \Rightarrow o$ be given. Let $k13_trees_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v1_trees_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1_xboole_0 X1) \wedge (v1_trees_1 X1)) \Rightarrow (((v1_bintree1 X0) \wedge (v1_bintree1 \\ & X1)) \Leftrightarrow (v1_bintree1 (k13_trees_3 X0 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v3_trees_2 \\ & X1))) \Rightarrow (\forall X2. ((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge (v3_trees_2 \\ & X2))) \Rightarrow (k9_xtuple_0 (k6_trees_4 X0 X1 X2) = k13_trees_3 (k9_xtuple_0 \\ & X1) (k9_xtuple_0 X2))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v3_trees_2 X0))) \Rightarrow \\ & ((\neg v1_xboole_0 (k9_xtuple_0 X0)) \wedge (v1_trees_1 (k9_xtuple_0 X0))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v1_funct_1 \\ & X1) \wedge (v3_trees_2 X1))) \wedge ((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge (v3_trees_2 \\ & X2)))) \Rightarrow ((v1_relat_1 (k6_trees_4 X0 X1 X2)) \wedge ((v1_funct_1 (k6_trees_4 \\ & X0 X1 X2)) \wedge (v3_trees_2 (k6_trees_4 X0 X1 X2)))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v3_trees_2 X0))) \Rightarrow \\ & ((v2_bintree1 X0) \Leftrightarrow (v1_bintree1 (k9_xtuple_0 X0))) \end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v3_trees_2 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v3_trees_2 X1))) \Rightarrow \\ & (\forall X2.((v2_bintree1 X0) \wedge (v2_bintree1 X1)) \Leftrightarrow (v2_bintree1 \\ & (k6_trees_4 X2 X0 X1)))) \end{aligned}$$