

t31_quantal1 (TM-
LxRmR723JT7Mg63W8XbTiQxQ1798xvV5E)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v4_lattice3 : \iota \Rightarrow o$ be given. Let $v7_quantal1 : \iota \Rightarrow o$ be given. Let $v8_quantal1 : \iota \Rightarrow o$ be given. Let $v20_quantal1 : \iota \Rightarrow o$ be given. Let $v21_quantal1 : \iota \Rightarrow o$ be given. Let $l3_quantal1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k9_quantal1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_quantal1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2_quantal1 : \iota \Rightarrow o$ be given. Let $l1_quantal1 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge ((v3_group_1 \\ & X0) \wedge ((v10_lattices X0) \wedge ((v4_lattice3 X0) \wedge ((v7_quantal1 X0) \wedge \\ & ((v8_quantal1 X0) \wedge ((v20_quantal1 X0) \wedge ((v21_quantal1 X0) \wedge (l3_quantal1 \\ & X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow \\ & (k5_quantal1 X0 (k5_quantal1 X0 X1) = X1)) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(l3_quantal1 X0) \Rightarrow (l2_quantal1 X0) \tag{2}$$

Assume the following.

$$\forall X0.(l2_quantal1 X0) \Rightarrow ((l1_quantal1 X0) \wedge (l4_algstr_0 X0)) \tag{3}$$

Assume the following.

$$\forall X0.(l1_quantal1 X0) \Rightarrow ((l3_lattices X0) \wedge (l3_algstr_0 X0)) \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l3_algstr_0 X0) \wedge ((m1_subset_1 \\ & X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 \\ & (k6_algstr_0 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l3_quantal1 X0))\wedge(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(m1_subset_1 (k5_quantal1 X0 X1) (u1_struct_0 X0))) \quad (6)$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0)\Rightarrow((v3_group_1 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(k6_algstr_0 X0 (k6_algstr_0 X0 X1 X2) X3 = k6_algstr_0 X0 X1 (k6_algstr_0 X0 X2 X3)))))) \quad (7)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v1_group_1 X0)\wedge((v3_group_1 X0)\wedge((v10_lattices X0)\wedge((v4_lattice3 X0)\wedge((v7_quantal1 X0)\wedge((v8_quantal1 X0)\wedge((v20_quantal1 X0)\wedge((v21_quantal1 X0)\wedge(l3_quantal1 X0))))))))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(k9_quantal1 X0 X1 X2 = k5_quantal1 X0 (k6_algstr_0 X0 (k5_quantal1 X0 X1) (k5_quantal1 X0 X2)))))) \quad (8)$$

Theorem 1

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v1_group_1 X0)\wedge((v3_group_1 X0)\wedge((v10_lattices X0)\wedge((v4_lattice3 X0)\wedge((v7_quantal1 X0)\wedge((v8_quantal1 X0)\wedge((v20_quantal1 X0)\wedge((v21_quantal1 X0)\wedge(l3_quantal1 X0))))))))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(k9_quantal1 X0 (k9_quantal1 X0 X1 X2) X3 = k9_quantal1 X0 X1 (k9_quantal1 X0 X2 X3))))))$$