

t22\_quantal1 (TMWTagqY-  
WCS76NEH9uFFLyozPNSuzttWqbM)

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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  $k5\_quantal1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_quantal1 : \iota \Rightarrow \iota$  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  $k1\_quantal1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_quantal1 : \iota \Rightarrow \iota$  be given. Let  $v17\_quantal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v18\_quantal1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_quantal1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(l3\_quantal1 X0) \Rightarrow (m1\_subset\_1 (u1\_quantal1 X0) (u1\_struct\_0 X0)) \quad (1)$$

Assume the following.

$$\forall X0.(l3\_quantal1 X0) \Rightarrow (l2\_quantal1 X0) \quad (2)$$

Assume the following.

$$\forall X0.(l2\_quantal1 X0) \Rightarrow ((l1\_quantal1 X0) \wedge (l4\_algstr\_0 X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge (l3\_quantal1 X0)) \wedge (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k5\_quantal1 X0 X1) (u1\_struct\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_quantal1 X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k5\_quantal1 X0 X1 = k1\_quantal1 X0 X1 (k3\_quantal1 X0))) \quad (5)$$

Assume the following.

$$\forall X0.(l3\_quantal1\ X0)\Rightarrow(k3\_quantal1\ X0 = u1\_quantal1\ X0) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_quantal1\ X0))\Rightarrow((v21\_quantal1\ X0)\Leftrightarrow(v17\_quantal1\ (u1\_quantal1\ X0)\ X0)) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_quantal1\ X0))\Rightarrow((v20\_quantal1\ X0)\Leftrightarrow(v18\_quantal1\ (u1\_quantal1\ X0)\ X0)) \quad (8)$$

Assume the following.

$$\begin{aligned} &\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_quantal1\ X0))\Rightarrow(\forall X1. \\ &(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow((v18\_quantal1\ X1\ X0)\Leftrightarrow(\forall X2. \\ &(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(k1\_quantal1\ X0\ X2\ X1 = k2\_quantal1 \\ &\quad X0\ X2\ X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} &\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_quantal1\ X0))\Rightarrow(\forall X1. \\ &(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow((v17\_quantal1\ X1\ X0)\Leftrightarrow(\forall X2. \\ &(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((k2\_quantal1\ X0\ (k1\_quantal1 \\ &\quad X0\ X2\ X1)\ X1 = X2)\wedge(k1\_quantal1\ X0\ (k2\_quantal1\ X0\ X2\ X1)\ X1 = X2)))))) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v1\_group\_1\ X0)\wedge((v3\_group\_1 \\ &\quad X0)\wedge((v10\_lattices\ X0)\wedge((v4\_lattice3\ X0)\wedge((v7\_quantal1\ X0)\wedge \\ &\quad ((v8\_quantal1\ X0)\wedge((v20\_quantal1\ X0)\wedge((v21\_quantal1\ X0)\wedge(l3\_quantal1 \\ &\quad X0))))))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow \\ &\quad (k5\_quantal1\ X0\ (k5\_quantal1\ X0\ X1) = X1)) \end{aligned}$$