

t2_orders_4
(TMceAq2FHGEdVjKiuJD1jJwVxeegxKxrn7S)

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Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $r1_orders_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r2_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (\neg(\neg r1_xboole_0 X0 X1) \wedge (\forall X2. \neg X2 \in k3_xboole_0 X0 X1)) \wedge (\neg(\exists X2. X2 \in k3_xboole_0 X0 X1) \wedge (r1_xboole_0 X0 X1)) \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((l1_orders_2 X0) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (\neg r2_orders_2 X0 X1 X1) \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (X2 = k3_xboole_0 X0 X1) \Leftrightarrow (\forall X3. (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (X2 = k2_xboole_0 X0 X1) \Leftrightarrow (\forall X3. (X3 \in X2) \Leftrightarrow ((X3 \in X0) \vee (X3 \in X1))) \tag{5}$$

Assume the following.

$$\forall X0. (l1_orders_2 X0) \Rightarrow (\forall X1. \forall X2. (r1_orders_4 X0 X1 X2) \Leftrightarrow ((k2_xboole_0 X1 X2 = u1_struct_0 X0) \wedge (\forall X3. (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (((X3 \in X1) \wedge (X4 \in X2)) \Rightarrow (r2_orders_2 X0 X3 X4)))))) \tag{6}$$

Theorem 1

$$\forall X0.(l1_orders_2\ X0) \Rightarrow (\forall X1.\forall X2.(r1_orders_4\ X0\ X1\ X2) \Rightarrow (r1_xboole_0\ X1\ X2))$$