

t38_orders_2

(TMZK5S4Ystszix73LBic7bCZd1xWaB6B17)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_orders_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_orders_1 : \iota \Rightarrow \iota$ be given. Let $m2_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_wellord1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_orders_2 : \iota \Rightarrow \iota$ be given. Let $r2_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v6_orders_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\neg(X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.k4_xboole_0 X0 (k4_xboole_0 X0 X1) = k3_xboole_0 X0 X1 \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.(m1_orders_1 \\ X1 (k1_orders_1 (u1_struct_0 X0))) \Rightarrow (\forall X2.(m2_orders_2 \\ X2 X0 X1) \Rightarrow (k1_funct_1 X1 (u1_struct_0 X0) \in X2))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\neg(r1_tarski X1 X2) \wedge ((r2_wellord1 \\ (u1_orders_2 X0) X2) \wedge (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (((X4 \in X1) \wedge \\ (r2_orders_2 X0 X3 X4)) \Rightarrow (X3 \in X1)))))) \wedge ((X1 \neq X2) \wedge (\neg m1_orders_2 X1 \\ X0 X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.r1_tarski k1_xboole_0 X0 \quad (7)$$

Assume the following.

$$\forall X0.k3_xboole_0 X0 k1_xboole_0 = k1_xboole_0 \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \Rightarrow ((r2_orders_2 X0 X1 X2) \Leftrightarrow (X1 \in k2_orders_2 X0 (k6_domain_1 \\ (u1_struct_0 X0) X2)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \Rightarrow ((r2_orders_2 X0 X1 X2) \Leftrightarrow (X2 \in k1_orders_2 X0 (k6_domain_1 \\ (u1_struct_0 X0) X1)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (k1_orders_2 X0 \\ (k1_struct_0 X0) = u1_struct_0 X0) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((v3_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((\exists X3.((v6_orders_2 \\ X3 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))) \wedge ((X1 \in \\ X3) \wedge (X2 \in X3))) \Leftrightarrow ((r2_orders_2 X0 X1 X2) \Leftrightarrow (\neg r1_orders_2 X0 X2 X1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r3_orders_2 X0 X1 X2) \Leftrightarrow (r1_orders_2 \\ X0 X1 X2)) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow (k9_subset_1 X0 X1 X2 = k3_xboole_0 X1 X2) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow (k6_domain_1 X0 X1 = k1_tarski X1) \quad (15)$$

Assume the following.

$$\forall X0.\exists X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (v1_xboole_0 X1) \quad (16)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (k2_struct_0 X0))) \quad (17)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge \\ ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \wedge (\\ m1_orders_1 X1 (k1_orders_1 (u1_struct_0 X0)))) \Rightarrow (\forall X2. \\ (m2_orders_2 X2 X0 X1) \Rightarrow ((v6_orders_2 X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(X2 = k3_xboole_0 X0 X1) \Leftrightarrow (\forall X3. \\ (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (k2_struct_0 X0 = u1_struct_0 X0) \quad (22)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (k1_struct_0 X0 = k1_xboole_0) \quad (23)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_orders_1 \\ X1 (k1_orders_1 (u1_struct_0 X0))) \Rightarrow (\forall X2.((v6_orders_2 \\ X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((m2_orders_2 \\ X2 X0 X1) \Leftrightarrow ((X2 \neq k1_xboole_0) \wedge ((r2_wellord1 (u1_orders_2 X0) X2) \wedge \\ (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((X3 \in X2) \Rightarrow (k1_funct_1 \\ X1 (k1_orders_2 X0 (k3_orders_2 X0 X2 X3)) = X3)))))))))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((X1 \neq k1_xboole_0) \Rightarrow ((m1_orders_2 \\ X2 X0 X1) \Leftrightarrow (\exists X3.(m1_subset_1 X3 (u1_struct_0 X0)) \wedge ((X3 \in \\ X1) \wedge (X2 = k3_orders_2 X0 X1 X3)))))) \wedge ((X1 = k1_xboole_0) \Rightarrow ((m1_orders_2 \\ X2 X0 X1) \Leftrightarrow (X2 = k1_xboole_0)))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 X0)) \Rightarrow (k3_orders_2 X0 X1 X2 = k9_subset_1 (u1_struct_0 \\ X0) (k2_orders_2 X0 (k6_domain_1 (u1_struct_0 X0) X2)) X1))) \end{aligned} \quad (26)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (27)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \Rightarrow (\forall X3.(m1_orders_1 X3 (k1_orders_1 (u1_struct_0 X0))) \Rightarrow \\ (\forall X4.(m2_orders_2 X4 X0 X3) \Rightarrow (((X1 \in X4) \wedge (X2 = k1_funct_1 \\ X3 (u1_struct_0 X0))) \Rightarrow (r3_orders_2 X0 X2 X1)))))) \end{aligned}$$