

t17_waybel13 (TMdRFRkbauGUaLj- Lyd3n9VRjDuQWjKgtCtw)

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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 $v1_lattice3 : \iota \Rightarrow o$ be given. Let $v1_yellow_0 : \iota \Rightarrow o$ be given. Let $v2_waybel_8 : \iota \Rightarrow o$ 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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_waybel_8 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_waybel_8 : \iota \Rightarrow \iota$ be given. Let $v12_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v14_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_waybel_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $m1_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_lattice3 : \iota \Rightarrow o$ be given. Let $k1_yellow_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Let $v24_waybel_0 : \iota \Rightarrow o$ be given. Let $v1_waybel_8 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (m1_yellow_0 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\
& X2 (k1_zfmisc_1 (u1_struct_0 X1))) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\
& X1)) \Rightarrow ((X4 = X3) \Rightarrow (((r1_lattice3 X1 X2 X4) \Rightarrow (r1_lattice3 X0 X2 X3)) \wedge \\
& ((r2_lattice3 X1 X2 X4) \Rightarrow (r2_lattice3 X0 X2 X3)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge ((v4_yellow_0 X1 X0) \wedge (m1_yellow_0 X1 X0))) \Rightarrow \\
& (\forall X2.\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. \\
& (m1_subset_1 X4 (u1_struct_0 X1)) \Rightarrow ((X4 = X3) \Rightarrow (((r1_lattice3 X0 \\
& X2 X3) \Rightarrow (r1_lattice3 X1 X2 X4)) \wedge ((r2_lattice3 X0 X2 X3) \Rightarrow (r2_lattice3 \\
& X1 X2 X4)))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 \\ & X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 \\ & X1)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (((X4 = X2) \wedge \\ & ((X5 = X3) \wedge (r1_orders_2 X1 X4 X5)) \Rightarrow (r1_orders_2 X0 X2 X3))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (m1_yellow_0 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X1)) \Rightarrow (m1_subset_1 X2 (u1_struct_0 X0)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((X2 \in k2_waybel_8 X0 X1) \Leftrightarrow ((\\ & r1_orders_2 X0 X2 X1) \wedge (v1_waybel_3 X2 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v4_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow \\ & (((r1_orders_2 X0 X1 X2) \wedge (r1_orders_2 X0 X2 X3)) \Rightarrow (r1_orders_2 \\ & X0 X1 X3)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_orders_2 X0) \wedge ((v3_lattice3 \\ & X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(X1 = k1_yellow_0 X0 X2) \Leftrightarrow ((r2_lattice3 X0 X2 X1) \wedge \\ & (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r2_lattice3 \\ & X0 X2 X3) \Rightarrow (r1_orders_2 X0 X1 X3)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (m1_subset_1 \\ & (k2_waybel_8 X0 X1) (k1_zfmisc_1 (u1_struct_0 (k1_waybel_8 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v5_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (((r1_orders_2 X0 X1 X2) \wedge (r1_orders_2 X0 X2 \\ & X1)) \Rightarrow (X1 = X2)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.((v4_yellow_0 X1 X0) \wedge \\ & (m1_yellow_0 X1 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (u1_struct_0 X1))) \Rightarrow (((v1_waybel_0 X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (u1_struct_0 X0)))) \Rightarrow (v1_waybel_0 X2 X1)) \wedge (((v2_waybel_0 X2 X0) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (v2_waybel_0 \\ & X2 X1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ & X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow (r3_orders_2 X0 X1 X1) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ & X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow ((r3_orders_2 X0 X1 X2) \Leftrightarrow (r1_orders_2 \\ & X0 X1 X2)) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v5_orders_2 \\ & X0) \wedge ((v1_yellow_0 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow ((\neg v2_struct_0 \\ & (k1_waybel_8 X0)) \wedge ((v1_orders_2 (k1_waybel_8 X0)) \wedge (v4_yellow_0 \\ & (k1_waybel_8 X0) X0))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0. (l1_orders_2 X0) \Rightarrow (\forall X1. (m1_yellow_0 X1 X0) \Rightarrow (l1_orders_2 X1)) \quad (18)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge \\ & (l1_orders_2 X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (m1_subset_1 \\ & (k2_waybel_8 X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow ((v1_orders_2 (k1_waybel_8 X0)) \wedge ((v4_yellow_0 (k1_waybel_8 \\ & X0) X0) \wedge (m1_yellow_0 (k1_waybel_8 X0) X0))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow ((v2_waybel_8 X0) \Leftrightarrow ((\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow ((\neg v1_xboole_0 (k2_waybel_8 X0 X1)) \wedge (v1_waybel_0 (k2_waybel_8 \\ & X0 X1) X0))) \wedge ((v24_waybel_0 X0) \wedge (v1_waybel_8 X0)))) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow ((v1_waybel_8 X0) \Leftrightarrow ((\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (X1 = k1_yellow_0 X0 (k2_waybel_8 X0 X1)))) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ & X0) \wedge (l1_orders_2 X0)))) \Rightarrow ((\forall X1.((\neg v1_xboole_0 X1) \wedge ((v1_waybel_0 \\ & X1 X0) \wedge ((v12_waybel_0 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \Rightarrow ((v14_waybel_0 X1 X0) \Leftrightarrow (\exists X2.(m1_subset_1 X2 (\\ & u1_struct_0 X0)) \wedge ((X2 \in X1) \wedge (r2_lattice3 X0 X1 X2)))))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow ((\forall X1.((v1_orders_2 X1) \wedge ((v4_yellow_0 X1 X0) \wedge (m1_yellow_0 \\ & X1 X0))) \Rightarrow ((X1 = k1_waybel_8 X0) \Leftrightarrow ((\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & X0)) \Rightarrow ((X2 \in u1_struct_0 X1) \Leftrightarrow (v1_waybel_3 X2 X0)))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow ((\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow ((v12_waybel_0 X1 X0) \Leftrightarrow ((\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow ((\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow (((X2 \in X1) \wedge (r1_orders_2 X0 X3 X2)) \Rightarrow (X3 \in X1))))))) \end{aligned} \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v4_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_yellow_0 X1 X0) \Rightarrow ((v4_yellow_0 X1 X0) \Rightarrow ((v4_orders_2 X1) \wedge (v4_yellow_0 X1 X0)))) \end{aligned} \quad (27)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v3_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_yellow_0 X1 X0) \Rightarrow ((v4_yellow_0 X1 X0) \Rightarrow ((v3_orders_2 X1) \wedge (v4_yellow_0 X1 X0)))) \end{aligned} \quad (28)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ & X0) \wedge (v2_waybel_8 X0))) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge \\ & ((v24_waybel_0 X0) \wedge (v1_waybel_8 X0)))))) \end{aligned} \quad (29)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v1_lattice3 X0) \Rightarrow (\neg v2_struct_0 X0)) \quad (30)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ & X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_lattice3 X0) \wedge \\ & ((v1_yellow_0 X0) \wedge (v24_waybel_0 X0)))))))) \Rightarrow ((\neg v2_struct_0 X0) \wedge \\ & ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge (v5_orders_2 X0) \wedge (v3_lattice3 \\ & X0)))))) \end{aligned} \quad (31)$$

Theorem 1

$$\begin{aligned} & \forall X0.((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\ & X0) \wedge ((v1_lattice3 X0) \wedge ((v1_yellow_0 X0) \wedge ((v2_waybel_8 X0) \wedge \\ & (l1_orders_2 X0))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0) \Rightarrow (((\neg v1_xboole_0 (k2_waybel_8 X0 X1)) \wedge ((v1_waybel_0 (k2_waybel_8 \\ & X0 X1) (k1_waybel_8 X0)) \wedge ((v12_waybel_0 (k2_waybel_8 X0 X1) (k1_waybel_8 \\ & X0)) \wedge ((v14_waybel_0 (k2_waybel_8 X0 X1) (k1_waybel_8 X0)) \wedge (m1_subset_1 \\ & (k2_waybel_8 X0 X1) (k1_zfmisc_1 (u1_struct_0 (k1_waybel_8 X0))))))) \Leftrightarrow \\ & (v1_waybel_3 X1 X0))) \end{aligned}$$