

t48_waybel_0 (TM-
dENPW9VHoh7soh7TfqFtQkV8A7vxCa8Vm)

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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 $l1_orders_2 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v12_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v14_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow ((X2 \in k5_waybel_0 X0 X1) \Leftrightarrow (r1_orders_2 X0 X2 \\ & X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (r3_orders_2 X0 X1 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ & X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r3_orders_2 X0 X1 X2) \Leftrightarrow (r1_orders_2 \\ & X0 X1 X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge \\ (l1_orders_2 X0)))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow((\neg v1_xboole_0 \\ (k5_waybel_0 X0 X1))\wedge(v1_waybel_0 (k5_waybel_0 X0 X1) X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v4_orders_2 X0)\wedge \\ (l1_orders_2 X0)))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(v12_waybel_0 \\ (k5_waybel_0 X0 X1) X0) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\wedge \\ (m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k5_waybel_0 \\ X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_orders_2 X0)\Rightarrow(\forall X1.\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 X0))\Rightarrow((r2_lattice3 X0 X1 X2)\Leftrightarrow(\forall X3.(m1_subset_1 \\ X3 (u1_struct_0 X0))\Rightarrow((X3 \in X1)\Rightarrow(r1_orders_2 X0 X3 X2)))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski X0 X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow \\ (X2 \in X1)) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge((v4_orders_2 \\ X0)\wedge(l1_orders_2 X0))))\Rightarrow(\forall X1.((\neg v1_xboole_0 X1)\wedge((v1_waybel_0 \\ X1 X0)\wedge((v12_waybel_0 X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ X0))))))\Rightarrow((v14_waybel_0 X1 X0)\Leftrightarrow(\exists X2.(m1_subset_1 X2 (\\ u1_struct_0 X0))\wedge((X2 \in X1)\wedge(r2_lattice3 X0 X1 X2)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_orders_2 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0)))\Rightarrow((v12_waybel_0 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ X0))\Rightarrow(((X2 \in X1)\wedge(r1_orders_2 X0 X3 X2))\Rightarrow(X3 \in X1)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1)\Leftrightarrow((r1_tarski X0 X1)\wedge(r1_tarski X1 X0)) \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ & X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge ((v1_waybel_0 \\ & X1 X0) \wedge ((v12_waybel_0 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \Rightarrow ((v14_waybel_0 X1 X0) \Leftrightarrow (\exists X2.(m1_subset_1 X2 (\\ & u1_struct_0 X0)) \wedge (X1 = k5_waybel_0 X0 X2)))) \end{aligned}$$