

t52_waybel21 (TMK-
wbh2GSbPB1KRkddsGr4um7nN5NBhqLjS)

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Let $v2_pre_topc : \iota \Rightarrow o$ 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 $v3_waybel_3 : \iota \Rightarrow o$ be given. Let $v1_lattice3 : \iota \Rightarrow o$ be given. Let $v2_lattice3 : \iota \Rightarrow o$ be given. Let $v3_lattice3 : \iota \Rightarrow o$ be given. Let $v2_waybel19 : \iota \Rightarrow o$ be given. Let $l1_waybel_9 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v4_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_yellow_0 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v7_waybel_0 : \iota \Rightarrow o$ be given. Let $l1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_waybel11 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $v1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v2_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v25_waybel_0 : \iota \Rightarrow o$ be given. Let $k3_yellow_9 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_yellow_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_yellow_9 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_relat_1 : \iota \Rightarrow \iota$ be given. Let $v2_yellow_0 : \iota \Rightarrow o$ be given. Let $v3_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v6_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $r2_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_yellow_0 : \iota \Rightarrow o$ be given. Let $v1_yellow_0 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v24_waybel_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \neg(v1_xboole_0 X0) \wedge ((X0 \neq X1) \wedge (v1_xboole_0 X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v2_struct_0 X1)\wedge(l1_orders_2 X1))\Rightarrow \\ & (\forall X2.((\neg v2_struct_0 X2)\wedge(m1_yellow_0 X2 X1))\Rightarrow(((v1_waybel_0 \\ & X0 X2)\wedge(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 X2))))\Rightarrow((v1_waybel_0 \\ & X0 X1)\wedge(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 X1))))\wedge(((\\ & v2_waybel_0 X0 X2)\wedge(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 \\ & X2))))\Rightarrow((v2_waybel_0 X0 X1)\wedge(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 \\ & X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1))\Leftrightarrow(r1_tarski X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge((v4_orders_2 \\ & X0)\wedge((v5_orders_2 X0)\wedge((v25_waybel_0 X0)\wedge(l1_orders_2 X0))))))\Rightarrow \\ & (\forall X1.((\neg v1_xboole_0 X1)\wedge((v2_waybel_0 X1 X0)\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (u1_struct_0 X0))))))\Rightarrow(k1_waybel11 X0 (k3_yellow_9 \\ & X0 X1) = k2_yellow_0 X0 X1) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ & ((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))))\Rightarrow((u1_waybel_0 X0 (k2_yellow_9 X0 X1) = k4_relat_1 X1)\wedge(\\ & u1_waybel_0 X0 (k3_yellow_9 X0 X1) = k4_relat_1 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v3_orders_2 X0)\wedge((v4_orders_2 X0)\wedge((v5_orders_2 \\ & X0)\wedge((v2_yellow_0 X0)\wedge((v2_lattice3 X0)\wedge(l1_orders_2 X0))))))\Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1)\wedge((v4_yellow_0 X1 X0)\wedge((v5_yellow_0 \\ & X1 X0)\wedge(m1_yellow_0 X1 X0))))\Rightarrow(((k4_yellow_0 X0 \in u1_struct_0 \\ & X1)\wedge(v3_waybel_0 X1 X0))\Rightarrow(v7_yellow_0 X1 X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(\\ k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (7)$$

Assume the following.

$$\forall X0.k10_xtuple_0 (k4_relat_1 X0) = X0 \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge \\ (l1_orders_2 X0)))\wedge((\neg v1_xboole_0 X1)\wedge((v2_waybel_0 X1 X0)\wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))))\Rightarrow((\neg v2_struct_0 \\ (k3_yellow_9 X0 X1))\wedge((v6_waybel_0 (k3_yellow_9 X0 X1) X0)\wedge(v7_waybel_0 \\ (k3_yellow_9 X0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v4_orders_2 X0)\wedge \\ (l1_orders_2 X0)))\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0)))))\Rightarrow((\neg v2_struct_0 (k3_yellow_9 X0 X1))\wedge((\\ v4_orders_2 (k3_yellow_9 X0 X1))\wedge(v6_waybel_0 (k3_yellow_9 X0 \\ X1) X0))) \end{aligned} \quad (10)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((l1_struct_0 X0)\wedge(l1_waybel_0 X1 X0))\Rightarrow \\ ((v1_funct_1 (u1_waybel_0 X0 X1))\wedge((v1_funct_2 (u1_waybel_0 \\ X0 X1) (u1_struct_0 X1) (u1_struct_0 X0))\wedge(m1_subset_1 (u1_waybel_0 \\ X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\ X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(l1_waybel_9 X0)\Rightarrow((l1_pre_topc X0)\wedge(l1_orders_2 X0)) \quad (13)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(l1_struct_0 X0) \quad (14)$$

Assume the following.

$$\forall X0.v1_relat_1 (k4_relat_1 X0) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\wedge \\ ((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ X0)))))\Rightarrow((\neg v2_struct_0 (k3_yellow_9 X0 X1))\wedge((v6_waybel_0 (\\ k3_yellow_9 X0 X1) X0)\wedge(l1_waybel_0 (k3_yellow_9 X0 X1) X0))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ (m1_yellow_0 X1 X0)\Rightarrow((v3_waybel_0 X1 X0)\Leftrightarrow(\forall X2.((v2_waybel_0 \\ X2 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X1))))\Rightarrow((r2_yellow_0 \\ X0 X2)\Rightarrow((X2 = k1_xboole_0)\vee(k2_yellow_0 X0 X2 \in u1_struct_0 X1)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v3_yellow_0 X0) \Rightarrow ((v1_yellow_0 X0) \wedge (v2_yellow_0 X0))) \quad (18)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v3_lattice3 X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge (v3_yellow_0 X0))) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow ((v4_relat_1 X2 X0) \wedge (v5_relat_1 X2 X1)) \quad (20)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v1_lattice3 X0) \Rightarrow (\neg v2_struct_0 X0)) \quad (21)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (v3_lattice3 X0))) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v24_waybel_0 X0) \wedge (v25_waybel_0 X0))))) \quad (22)$$

Theorem 1

$$\begin{aligned} & \forall X0.(((v2_pre_topc X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v3_waybel_3 X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge ((v3_lattice3 X0) \wedge ((v2_waybel19 X0) \wedge (l1_waybel_9 X0)))))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v4_yellow_0 X1 X0) \wedge ((v5_yellow_0 X1 X0) \wedge (m1_yellow_0 X1 X0)))) \Rightarrow (((k4_yellow_0 X0 \in u1_struct_0 X1) \wedge (\forall X2.((\neg v2_struct_0 X2) \wedge ((v4_orders_2 X2) \wedge ((v7_waybel_0 X2) \wedge (l1_waybel_0 X2 X0)))) \Rightarrow ((r1_tarski (k2_relset_1 (u1_struct_0 X0) (u1_waybel_0 X0 X2)) (u1_struct_0 X1)) \Rightarrow (k1_waybel11 X0 X2 \in u1_struct_0 X1)))) \Rightarrow (v7_yellow_0 X1 X0))) \end{aligned}$$