

t53_yellow_5 (TMQsGzXZowHBSD- hvoP2wqfi6NzhrF9ywCZX)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_waybel_1 : \iota \Rightarrow o$ 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 $k1_yellow_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1_lattice3 : \iota \Rightarrow o$ be given. Let $v2_lattice3 : \iota \Rightarrow o$ be given. Let $v3_yellow_0 : \iota \Rightarrow o$ be given. Let $v2_waybel_1 : \iota \Rightarrow o$ be given. Let $v10_waybel_1 : \iota \Rightarrow o$ be given. Let $v9_waybel_1 : \iota \Rightarrow o$ be given. Let $k7_waybel_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\ & X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge ((v3_yellow_0 X0) \wedge \\ & (l1_orders_2 X0)))))) \Rightarrow (((v2_waybel_1 X0) \wedge (v10_waybel_1 X0)) \Rightarrow \\ & ((v9_waybel_1 X0) \wedge (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow \\ & (k7_waybel_1 X0 (k7_waybel_1 X0 X1) = X1)))) \wedge (((v9_waybel_1 X0) \wedge \\ & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k7_waybel_1 X0 \\ & (k7_waybel_1 X0 X1) = X1))) \Rightarrow ((v2_waybel_1 X0) \wedge (v10_waybel_1 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v11_waybel_1 X0) \wedge (l1_orders_2 \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k7_waybel_1 X0 (k13_lattice3 \\ & X0 X1 X2) = k12_lattice3 X0 (k7_waybel_1 X0 X1) (k7_waybel_1 X0 X2)) \wedge \\ & (k7_waybel_1 X0 (k12_lattice3 X0 X1 X2) = k13_lattice3 X0 (k7_waybel_1 \\ & X0 X1) (k7_waybel_1 X0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v5_orders_2 X0) \wedge ((v1_lattice3 \\ & X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow (k13_lattice3 X0 X1 X2 = k10_lattice3 \\ & X0 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5_orders_2\ X0)\wedge((v2_lattice3 \\ & X0)\wedge(l1_orders_2\ X0)))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge(\\ & m1_subset_1\ X2\ (u1_struct_0\ X0))))\Rightarrow(k12_lattice3\ X0\ X1\ X2 = k11_lattice3 \\ & X0\ X1\ X2) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0\ X0)\wedge(l1_orders_2\ X0))\wedge \\ & (m1_subset_1\ X1\ (u1_struct_0\ X0)))\Rightarrow(m1_subset_1\ (k7_waybel_1 \\ & X0\ X1)\ (u1_struct_0\ X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0)\wedge(l1_orders_2 \\ & X0))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge(m1_subset_1\ X2\ (u1_struct_0 \\ & X0))))\Rightarrow(m1_subset_1\ (k1_yellow_5\ X0\ X1\ X2)\ (u1_struct_0\ X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5_orders_2\ X0)\wedge((v2_lattice3 \\ & X0)\wedge(l1_orders_2\ X0)))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge(\\ & m1_subset_1\ X2\ (u1_struct_0\ X0))))\Rightarrow(m1_subset_1\ (k12_lattice3 \\ & X0\ X1\ X2)\ (u1_struct_0\ X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0)\wedge(l1_orders_2\ X0))\Rightarrow((v2_waybel_1 \\ & X0)\Leftrightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2. \\ & (m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3.(m1_subset_1\ X3 \\ & (u1_struct_0\ X0))\Rightarrow(k11_lattice3\ X0\ X1\ (k10_lattice3\ X0\ X2\ X3) = \\ & k10_lattice3\ X0\ (k11_lattice3\ X0\ X1\ X2)\ (k11_lattice3\ X0\ X1\ X3)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0)\wedge(l1_orders_2\ X0))\Rightarrow(\forall X1. \\ & (m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2 \\ & (u1_struct_0\ X0))\Rightarrow(k1_yellow_5\ X0\ X1\ X2 = k11_lattice3\ X0\ X1\ (k7_waybel_1 \\ & X0\ X2)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v5_orders_2\ X0)\wedge((v1_lattice3 \\ & X0)\wedge(l1_orders_2\ X0)))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge(\\ & m1_subset_1\ X2\ (u1_struct_0\ X0))))\Rightarrow(k13_lattice3\ X0\ X1\ X2 = k13_lattice3 \\ & X0\ X2\ X1) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_orders_2 X0) \Rightarrow & (((\neg v2_struct_0 X0) \wedge (v11_waybel_1 \\ & X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge \\ & ((v5_orders_2 X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge ((v3_yellow_0 \\ & X0) \wedge ((v2_waybel_1 X0) \wedge (v10_waybel_1 X0)))))))))) \end{aligned} \quad (11)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v11_waybel_1 X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow & (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (k1_yellow_5 X0 X1 (k1_yellow_5 X0 X2 X3) = k13_lattice3 \\ & X0 (k1_yellow_5 X0 X1 X2) (k12_lattice3 X0 X1 X3)))))) \end{aligned}$$