

t15_oposet_1
(TMczkuKPGjqLxizW13Qkhp4jPJpK88kLqVP)

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Let $v11_oposet.1 : \iota \Rightarrow o$ be given. Let $k1_oposet.1 : \iota$ be given. Let $np_1 : \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k1_xboole.0 : \iota$ be given. Let $v2_struct.0 : \iota \Rightarrow o$ be given. Let $v3_orders.2 : \iota \Rightarrow o$ 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 $r1_yellow.0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_domain.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_yellow.0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole.0 : \iota \Rightarrow o$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_funct.5 : \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat.1 : \iota \Rightarrow o$ be given. Let $v1_funct.1 : \iota \Rightarrow o$ be given. Let $k4_relat.1 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple.0 : \iota \Rightarrow \iota$ be given. Let $k1_funct.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v9_oposet.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_robbins1 : \iota \Rightarrow \iota$ be given. Let $v1_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc.1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_domain.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_partfun1 : \iota \Rightarrow \iota$ be given. Let $k3_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g2_qmax.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_qmax.1 : \iota \Rightarrow o$ be given. Let $v13_struct.0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_qmax.1 : \iota \Rightarrow o$ be given. Let $l1_robbins1 : \iota \Rightarrow o$ be given. Let $r1_oposet.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_orders.2 : \iota \Rightarrow o$ be given. Let $v3_lattice3 : \iota \Rightarrow o$ be given. Let $u1_orders.2 : \iota \Rightarrow \iota$ be given. Assume the following.

$$np_1 = k1_tarski\ k1_xboole.0 \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct.0\ X0) \wedge ((v3_orders.2\ X0) \wedge ((v5_orders.2 \\ & X0) \wedge (l1_orders.2\ X0)))) \Rightarrow (\forall X1.(m1_subset.1\ X1\ (u1_struct.0 \\ & X0)) \Rightarrow ((r1_yellow.0\ X0\ (k6_domain.1\ (u1_struct.0\ X0)\ X1)) \wedge (r2_yellow.0 \\ & X0\ (k6_domain.1\ (u1_struct.0\ X0)\ X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset.1\ X0\ X1) \Rightarrow ((v1_xboole.0\ X1) \vee (X0 \in X1)) \tag{3}$$

Assume the following.

$$\forall X0.k2_tarski\ X0\ X0 = k1_tarski\ X0 \tag{4}$$

Assume the following.

$$k8_funct_5 = k1_tarski (k4_tarski k1_xboole_0 k1_xboole_0) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1)\wedge(v1_funct_1 X1))\Rightarrow((X1 = \\ k4_relat_1 X0)\Leftrightarrow((k9_xtuple_0 X1 = X0)\wedge(\forall X2.(X2 \in X0)\Rightarrow(k1_funct_1 \\ X1 X2 = X2)))) \end{aligned} \quad (6)$$

Assume the following.

$$v9_oposet_1 (u1_robins1 k1_oposet_1) k1_oposet_1 \quad (7)$$

Assume the following.

$$\neg v1_xboole_0 np_1 \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\ ((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 X1))))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 \\ X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow(r2_funct_2 X0 X1 X2 X2) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 \\ X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(k7_domain_1 X0 X1 X2 = k2_tarski X1 \\ X2) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.k6_partfun1 X0 = k4_relat_1 X0 \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(m1_subset_1 X1 X0))\Rightarrow \\ (k6_domain_1 X0 X1 = k1_tarski X1) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(k3_funct_2 X0 \\ X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} k6_partfun1 (k1_tarski k1_xboole_0) = k1_tarski (k4_tarski k1_xboole_0 \\ k1_xboole_0) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X0)\wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow(\forall X3. \\ & \forall X4.\forall X5.(g2_qmax_1 X0 X1 X2 = g2_qmax_1 X3 X4 X5)\Rightarrow(\\ & (X0 = X3)\wedge((X1 = X4)\wedge(X2 = X5)))) \end{aligned} \quad (15)$$

Assume the following.

$$(v3_orders_2 k1_oposet_1)\wedge(v3_qmax_1 k1_oposet_1) \quad (16)$$

Assume the following.

$$(v13_struct_0 k1_oposet_1 np_1)\wedge(v3_qmax_1 k1_oposet_1) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))\Rightarrow \\ & ((\neg v2_struct_0 (g2_qmax_1 X0 X1 X2))\wedge(v3_qmax_1 (g2_qmax_1 X0 \\ & X1 X2)))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(l2_qmax_1 X0)\Rightarrow((l1_orders_2 X0)\wedge(l1_robbins1 X0)) \quad (19)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 k8_funct_5)\wedge((v1_funct_2 k8_funct_5 np_1 np_1)\wedge \\ & (m1_subset_1 k8_funct_5 (k1_zfmisc_1 (k2_zfmisc_1 np_1 np_1)))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.v1_relat_1 (k4_relat_1 X0) \quad (21)$$

Assume the following.

$$(v3_qmax_1 k1_oposet_1)\wedge(l2_qmax_1 k1_oposet_1) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l2_qmax_1 X0))\Rightarrow((v11_oposet_1 \\ & X0)\Leftrightarrow(\exists X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 \\ & X0) (u1_struct_0 X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0))))))\wedge((r2_funct_2 (u1_struct_0 \\ & X0) (u1_struct_0 X0) X1 (u1_robbins1 X0))\wedge(r1_oposet_1 X0 X1)))) \end{aligned} \quad (23)$$

Assume the following.

$$k1_oposet_1 = g2_qmax_1 \ np_1 \ (k6_partfun1 \ np_1) \ k8_funct_5 \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 \ X0) \wedge (l1_orders_2 \ X0)) \Rightarrow (\forall X1. \\ & ((v1_funct_1 \ X1) \wedge ((v1_funct_2 \ X1 \ (u1_struct_0 \ X0) \ (u1_struct_0 \\ & \ X0)) \wedge (m1_subset_1 \ X1 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (u1_struct_0 \\ & \ X0) \ (u1_struct_0 \ X0)))))) \Rightarrow ((r1_oposet_1 \ X0 \ X1) \Leftrightarrow ((v9_oposet_1 \\ & \ X1 \ X0) \wedge (\forall X2.(m1_subset_1 \ X2 \ (u1_struct_0 \ X0)) \Rightarrow ((r1_yellow_0 \\ & \ X0 \ (k7_domain_1 \ (u1_struct_0 \ X0) \ X2 \ (k3_funct_2 \ (u1_struct_0 \ X0) \\ & \ (u1_struct_0 \ X0) \ X1 \ X2))) \wedge (r2_yellow_0 \ X0 \ (k7_domain_1 \ (u1_struct_0 \\ & \ X0) \ X2 \ (k3_funct_2 \ (u1_struct_0 \ X0) \ (u1_struct_0 \ X0) \ X1 \ X2))))))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 \ X0) \Rightarrow (((v13_struct_0 \ X0 \ np_1) \wedge (v3_orders_2 \\ & \ X0)) \Rightarrow ((v13_struct_0 \ X0 \ np_1) \wedge ((v3_orders_2 \ X0) \wedge ((v4_orders_2 \\ & \ X0) \wedge ((v5_orders_2 \ X0) \wedge (v3_lattice3 \ X0)))))) \end{aligned} \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2_qmax_1 \ X0) \Rightarrow ((v3_qmax_1 \ X0) \Rightarrow (X0 = g2_qmax_1 \ (u1_struct_0 \\ & \ X0) \ (u1_orders_2 \ X0) \ (u1_robbins1 \ X0))) \end{aligned} \quad (27)$$

Theorem 1 $v11_oposet_1 \ k1_oposet_1$.