

t11_waybel29 (TM-
MUgHT1Wwf1oXzTb6AXbcRJPSX4MACDZWw)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_waybel_3 : \iota \Rightarrow o$ be given. Let $v1_yellow16 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v24_waybel_0 : \iota \Rightarrow o$ be given. Let $k2_yellow16 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_yellow_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_yellow_1 : \iota \Rightarrow o$ be given. Let $v5_waybel_3 : \iota \Rightarrow o$ be given. Let $k5_waybel_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_waybel_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_card_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v5_orders_2 \\ &X0) \wedge (l1_orders_2 X0)))) \Rightarrow ((v24_waybel_0 X0) \Leftrightarrow (\forall X1. ((\neg \\ v1_xboole_0 X1) \wedge ((v1_waybel_0 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ &(u1_struct_0 X0)))))) \Rightarrow (r1_yellow_0 X0 X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. (&\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge (\\ &(v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ &X1) \wedge ((v4_waybel_3 X1) \wedge (v5_waybel_3 X1))))))) \Rightarrow (\forall X2. (\\ &(v1_waybel_0 X2 (k5_yellow_1 X0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ &(u1_struct_0 (k5_yellow_1 X0 X1)))))) \Rightarrow (\forall X3. (m1_subset_1 \\ &X3 X0) \Rightarrow (v1_waybel_0 (k5_waybel_3 X0 X1 X3 X2) (k3_waybel_3 X0 X1 \\ &X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge \\ (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v4_waybel_3 \\ X1) \wedge (v1_yellow16 X1)))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 (k5_yellow_1 X0 X1)))) \Rightarrow ((r1_yellow_0 (k5_yellow_1 \\ X0 X1) X2) \Leftrightarrow (\forall X3.(m1_subset_1 X3 X0) \Rightarrow (r1_yellow_0 (k2_yellow16 \\ X0 X1 X3) (k5_waybel_3 X0 X1 X3 X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ (((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 \\ X1 X0) \wedge ((v1_yellow_1 X1) \wedge (v4_waybel_3 X1)))))) \wedge ((m1_subset_1 \\ X2 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 (k5_yellow_1 \\ X0 X1)))))) \Rightarrow (k5_waybel_3 X0 X1 X2 X3 = k5_card_3 X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 \\ X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge \\ (v1_yellow_1 X1)))))) \wedge (m1_subset_1 X2 X0)) \Rightarrow (k3_waybel_3 X0 X1 \\ X2 = k1_funct_1 X1 X2) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 \\ X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge \\ ((v4_waybel_3 X1) \wedge (v1_yellow16 X1)))))) \wedge (m1_subset_1 X2 X0)) \Rightarrow \\ (k2_yellow16 X0 X1 X2 = k1_funct_1 X1 X2) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ (v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 X1) \wedge (v4_waybel_3 \\ X1)))))) \Rightarrow ((\neg v2_struct_0 (k5_yellow_1 X0 X1)) \wedge (v1_orders_2 (\\ k5_yellow_1 X0 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0) \wedge \\ (((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 \\ X1 X0) \wedge ((v1_yellow_1 X1) \wedge (v4_waybel_3 X1)))))) \wedge ((\neg v1_xboole_0 \\ X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 (k5_yellow_1 X0 \\ X1)))))) \Rightarrow (\neg v1_xboole_0 (k5_card_3 X3 X2)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_relat_1 X1)\wedge \\ & (v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v4_waybel_3 \\ & X1)\wedge(v1_yellow16 X1))))))\Rightarrow((v1_orders_2 (k5_yellow_1 X0 X1))\wedge \\ & ((v4_orders_2 (k5_yellow_1 X0 X1))\wedge(v5_orders_2 (k5_yellow_1 \\ & X0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_relat_1 X1)\wedge \\ & (v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v1_yellow_1 \\ & X1)\wedge((v4_waybel_3 X1)\wedge(v5_waybel_3 X1))))))\Rightarrow((v1_orders_2 \\ & (k5_yellow_1 X0 X1))\wedge(v3_orders_2 (k5_yellow_1 X0 X1))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge(v1_yellow_1 X1))))\Rightarrow(\\ & (v1_orders_2 (k5_yellow_1 X0 X1))\wedge(l1_orders_2 (k5_yellow_1 \\ & X0 X1))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 \\ & X1 X0)\wedge((v1_yellow_1 X1)\wedge(v4_waybel_3 X1))))))\wedge((m1_subset_1 \\ & X2 X0)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 (k5_yellow_1 \\ & X0 X1))))))\Rightarrow(m1_subset_1 (k5_waybel_3 X0 X1 X2 X3) (k1_zfmisc_1 \\ & (u1_struct_0 (k3_waybel_3 X0 X1 X2)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_relat_1 \\ & X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge \\ & ((v4_waybel_3 X1)\wedge(v1_yellow16 X1))))))\wedge(m1_subset_1 X2 X0))\Rightarrow \\ & ((\neg v2_struct_0 (k2_yellow16 X0 X1 X2))\wedge((v3_orders_2 (k2_yellow16 \\ & X0 X1 X2))\wedge((v4_orders_2 (k2_yellow16 X0 X1 X2))\wedge((v5_orders_2 \\ & (k2_yellow16 X0 X1 X2))\wedge(l1_orders_2 (k2_yellow16 X0 X1 X2)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0)\wedge(v1_yellow16 X0))\Rightarrow((v1_relat_1 \\ & X0)\wedge((v1_yellow_1 X0)\wedge(v5_waybel_3 X0))) \end{aligned} \quad (14)$$

Theorem 1

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge \\ (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v4_waybel_3 \\ X1) \wedge (v1_yellow16 X1)))))) \Rightarrow ((\forall X2.(m1_subset_1 X2 X0) \Rightarrow \\ (v24_waybel_0 (k2_yellow16 X0 X1 X2))) \Rightarrow (v24_waybel_0 (k5_yellow_1 \\ X0 X1)))) \end{aligned}$$