

t32_waybel20 (TMG- bLEdEe3ewDkahHX7jrpZ99hEDHjceUHR)

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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 $v1_yellow_1 : \iota \Rightarrow o$ be given. Let $v4_waybel_3 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Let $k3_waybel_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_yellow_0 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $k4_waybel_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_yellow_0 : \iota \Rightarrow \iota$ be given. Let $k5_yellow_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_orders_2 X0) \wedge ((v2_yellow_0 \\ X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (r1_orders_2 X0 X1 (k4_yellow_0 X0))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_orders_2 X0) \wedge ((v2_yellow_0 \\ X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow ((r1_orders_2 X0 (k4_yellow_0 X0) X1) \Rightarrow (X1 = k4_yellow_0 X0))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge (\\ (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow ((\forall X2.(m1_subset_1 X2 X0) \Rightarrow \\ (v5_orders_2 (k3_waybel_3 X0 X1 X2))) \Rightarrow (v5_orders_2 (k5_yellow_1 \\ X0 X1)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge \\ (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow ((\forall X2.(m1_subset_1 X2 X0) \Rightarrow \\ ((v5_orders_2 (k3_waybel_3 X0 X1 X2)) \wedge ((v2_yellow_0 (k3_waybel_3 \\ X0 X1 X2)) \wedge (l1_orders_2 (k3_waybel_3 X0 X1 X2)))))) \Rightarrow (v2_yellow_0 \\ (k5_yellow_1 X0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge \\ (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ (k5_yellow_1 X0 X1))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ (k5_yellow_1 X0 X1))) \Rightarrow ((r1_orders_2 (k5_yellow_1 X0 X1) X2 X3) \Leftrightarrow \\ (\forall X4.(m1_subset_1 X4 X0) \Rightarrow (r1_orders_2 (k3_waybel_3 X0 \\ X1 X4) (k4_waybel_3 X0 X1 X2 X4) (k4_waybel_3 X0 X1 X3 X4)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge \\ (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge (v1_funct_1 \\ X2)) \Rightarrow ((m1_subset_1 X2 (u1_struct_0 (k5_yellow_1 X0 X1))) \Leftrightarrow ((k9_xtuple_0 \\ X2 = X0) \wedge (\forall X3.(m1_subset_1 X3 X0) \Rightarrow (m1_subset_1 (k1_funct_1 \\ X2 X3) (u1_struct_0 (k3_waybel_3 X0 X1 X3))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0 : \iota \Rightarrow \iota. \forall X1. \exists X2. ((v1_relat_1 X2) \wedge \\ (v4_relat_1 X2 X1) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X1))) \wedge \\ \forall X3.(m1_subset_1 X3 X1) \Rightarrow (k1_funct_1 X2 X3 = X0 X3) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ (((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 \\ X1 X0) \wedge ((v1_yellow_1 X1) \wedge (v4_waybel_3 X1)))))) \wedge ((m1_subset_1 \\ X2 (u1_struct_0 (k5_yellow_1 X0 X1))) \wedge (m1_subset_1 X3 X0))) \Rightarrow \\ (k4_waybel_3 X0 X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (((v1_relat_1 \\ X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge \\ (v1_yellow_1 X1)))))) \wedge (m1_subset_1 X2 X0)) \Rightarrow (k3_waybel_3 X0 X1 \\ X2 = k1_funct_1 X1 X2) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v1_yellow_1 X1)\wedge(v4_waybel_3 X1))))))\wedge(m1_subset_1 X2 X0))\Rightarrow(\neg v2_struct_0 (k1_funct_1 X1 X2)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v1_yellow_1 X1)\wedge(v4_waybel_3 X1))))))\Rightarrow((\neg v2_struct_0 (k5_yellow_1 X0 X1))\wedge(v1_orders_2 (k5_yellow_1 X0 X1))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge(v1_yellow_1 X1))))))\Rightarrow((v1_orders_2 (k5_yellow_1 X0 X1))\wedge(l1_orders_2 (k5_yellow_1 X0 X1))) \quad (13)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(m1_subset_1 (k4_yellow_0 X0) (u1_struct_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge(((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v1_yellow_1 X1)\wedge(v4_waybel_3 X1))))))\wedge((m1_subset_1 X2 (u1_struct_0 (k5_yellow_1 X0 X1)))\wedge(m1_subset_1 X3 X0))))\Rightarrow(m1_subset_1 (k4_waybel_3 X0 X1 X2 X3) (u1_struct_0 (k3_waybel_3 X0 X1 X3))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow((v1_partfun1 X1 X0)\Leftrightarrow(k1_relset_1 X0 X1 = X0)) \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge \\ & (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ & X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow ((\forall X2. (m1_subset_1 X2 X0) \Rightarrow \\ & ((v5_orders_2 (k3_waybel_3 X0 X1 X2)) \wedge ((v2_yellow_0 (k3_waybel_3 \\ & X0 X1 X2)) \wedge (l1_orders_2 (k3_waybel_3 X0 X1 X2)))))) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 X0) \Rightarrow (k4_waybel_3 X0 X1 (k4_yellow_0 (k5_yellow_1 \\ & X0 X1)) X2 = k4_yellow_0 (k3_waybel_3 X0 X1 X2)))) \end{aligned}$$