

t29_waybel.3 (TMM-
cZdvs8eZWjoXf1uEK1EQSSpVGzRUakZw)

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 $v1_yellow_1 : \iota \Rightarrow o$ be given. Let $v4_waybel_3 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $k3_waybel_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_yellow_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k4_waybel_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge \\ & (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ & X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 \\ & (k5_yellow_1 X0 X1))) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ & (k5_yellow_1 X0 X1))) \Rightarrow ((r1_orders_2 (k5_yellow_1 X0 X1) X2 X3) \Leftrightarrow \\ & (\forall X4. (m1_subset_1 X4 X0) \Rightarrow (r1_orders_2 (k3_waybel_3 X0 \\ & X1 X4) (k4_waybel_3 X0 X1 X2 X4) (k4_waybel_3 X0 X1 X3 X4)))))) \\ & \hspace{15em} (1) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge (v1_yellow_1 X1)))) \Rightarrow (\\ & (v1_orders_2 (k5_yellow_1 X0 X1)) \wedge (l1_orders_2 (k5_yellow_1 \\ & X0 X1))) \\ & \hspace{15em} (2) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ & (((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 \\ & X1 X0) \wedge ((v1_yellow_1 X1) \wedge (v4_waybel_3 X1)))))) \wedge ((m1_subset_1 \\ & X2 (u1_struct_0 (k5_yellow_1 X0 X1))) \wedge (m1_subset_1 X3 X0))) \Rightarrow \\ & (m1_subset_1 (k4_waybel_3 X0 X1 X2 X3) (u1_struct_0 (k3_waybel_3 \\ & X0 X1 X3))) \\ & \hspace{15em} (3) \end{aligned}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. (l1_orders_2 X0) \Rightarrow ((v4_orders_2 X0) \Leftrightarrow (\forall X1. (\\ & m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow \\ & ((r1_orders_2 X0 X1 X2) \wedge (r1_orders_2 X0 X2 X3)) \Rightarrow (r1_orders_2 \\ & X0 X1 X3)))))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge (\\ & (v4_relat_1 X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v1_yellow_1 \\ & X1) \wedge (v4_waybel_3 X1)))))) \Rightarrow ((\forall X2. (m1_subset_1 X2 X0) \Rightarrow \\ & (v4_orders_2 (k3_waybel_3 X0 X1 X2))) \Rightarrow (v4_orders_2 (k5_yellow_1 \\ & X0 X1)))) \end{aligned}$$