

t65_waybel34 (TM-
FLjT7KyLbQkYURhpbzB33yjR8xUhdXGnjA)

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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 $v1_yellow_0 : \iota \Rightarrow o$ be given. Let $v1_lattice3 : \iota \Rightarrow o$ be given. Let $v2_lattice3 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v4_waybel34 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v4_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_waybel34 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v20_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_waybel34 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_waybel34 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_yellow_0 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\
& X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow \\
& (\forall X1. ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 \\
& X1) \wedge ((v1_lattice3 X1) \wedge ((v2_lattice3 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow \\
& (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) \\
& (u1_struct_0 X1)) \wedge ((v20_waybel_0 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X3. \\
& ((\neg v2_struct_0 X3) \wedge ((v4_yellow_0 X3 X0) \wedge ((v6_yellow_0 X3 X0) \wedge \\
& (m1_yellow_0 X3 X0)))) \Rightarrow (\forall X4. ((\neg v2_struct_0 X4) \wedge ((v4_yellow_0 \\
& X4 X1) \wedge ((v6_yellow_0 X4 X1) \wedge (m1_yellow_0 X4 X1)))) \Rightarrow (\forall X5. \\
& ((v1_funct_1 X5) \wedge ((v1_funct_2 X5 (u1_struct_0 X3) (u1_struct_0 \\
& X4)) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X3) (u1_struct_0 X4)))))) \Rightarrow ((X5 = k2_partfun1 (u1_struct_0 X0) \\
& (u1_struct_0 X1) X2 (u1_struct_0 X3)) \Rightarrow (v20_waybel_0 X5 X3 X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\
& X0) \wedge ((v1_yellow_0 X0) \wedge ((v1_lattice3 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow \\
& (\forall X1.((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 \\
& X1) \wedge ((v1_yellow_0 X1) \wedge ((v1_lattice3 X1) \wedge (l1_orders_2 X1)))))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) \\
& (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow ((v20_waybel_0 X2 X0 \\
& X1) \wedge (v5_waybel34 X2 X0 X1)) \Rightarrow (v4_waybel34 X2 X0 X1)))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_yellow_0 \\
& X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v4_yellow_0 \\
& X1 X0) \wedge ((v7_waybel34 X1 X0) \wedge (m1_yellow_0 X1 X0)))) \Rightarrow (k3_yellow_0 \\
& X1 = k3_yellow_0 X0))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((v1_relat_1 X2) \wedge (v1_funct_1 \\
& X2)) \Rightarrow ((X0 \in X1) \Rightarrow (k1_funct_1 (k5_relat_1 X2 X1) X0 = k1_funct_1 X2 \\
& X0))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee \\
& (X0 \in X1))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\
& (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 X1)))))) \wedge (m1_subset_1 X3 X0)) \Rightarrow (k3_funct_2 X0 \\
& X1 X2 X3 = k1_funct_1 X2 X3)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((v1_funct_1 X2) \wedge \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_partfun1 \\
& X0 X1 X2 X3 = k5_relat_1 X2 X3)
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 \\
& (u1_struct_0 X0))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (l1_orders_2 X0) \Rightarrow (\forall X1. (m1_yellow_0 X1 X0) \Rightarrow \\
& (l1_orders_2 X1))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \quad (10)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (m1_subset_1 (k3_yellow_0 X0) (u1_struct_0 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (v5_orders_2 X0) \wedge ((v1_yellow_0 X0) \wedge (l1_orders_2 X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge (v5_orders_2 X1) \wedge ((v1_yellow_0 X1) \wedge (l1_orders_2 X1)))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow ((v5_waybel34 X2 X0 X1) \Leftrightarrow (k3_funct_2 (u1_struct_0 X0) (u1_struct_0 X1) X2 (k3_yellow_0 X0) = k3_yellow_0 X1))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.((v5_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow ((v4_yellow_0 X1 X0) \Rightarrow ((v5_orders_2 X1) \wedge (v4_yellow_0 X1 X0)))) \quad (13)$$

Assume the following.

$$\forall X0.((v4_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow ((v4_yellow_0 X1 X0) \Rightarrow ((v4_orders_2 X1) \wedge (v4_yellow_0 X1 X0)))) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \wedge ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))) \Rightarrow (((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (v4_waybel34 X2 X0 X1))) \Rightarrow ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge ((v20_waybel_0 X2 X0 X1) \wedge (v5_waybel34 X2 X0 X1)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.((v3_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow ((v4_yellow_0 X1 X0) \Rightarrow ((v3_orders_2 X1) \wedge (v4_yellow_0 X1 X0)))) \quad (16)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (v5_orders_2 X0) \wedge ((v1_yellow_0 X0) \wedge (l1_orders_2 X0))) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow (((v4_yellow_0 X1 X0) \wedge (v7_waybel34 X1 X0)) \Rightarrow ((\neg v2_struct_0 X1) \wedge ((v1_yellow_0 X1) \wedge (v4_yellow_0 X1 X0)))) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_yellow_0 \\ X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow ((v6_waybel34 \\ X1 X0) \Rightarrow ((v6_yellow_0 X1 X0) \wedge (v7_waybel34 X1 X0)))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v2_lattice3 X0) \Rightarrow (\neg v2_struct_0 X0)) \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1))) \Rightarrow (v1_relat_1 X2) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.((v4_orders_2 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_lattice3 \\ X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_yellow_0 X1 X0) \Rightarrow (((\\ \neg v2_struct_0 X1) \wedge ((v4_yellow_0 X1 X0) \wedge (v6_yellow_0 X1 X0))) \Rightarrow \quad (21) \\ ((\neg v2_struct_0 X1) \wedge ((v1_lattice3 X1) \wedge ((v4_yellow_0 X1 X0) \wedge \\ v6_yellow_0 X1 X0)))))) \end{aligned}$$

Theorem 1

$$\begin{aligned} \forall X0.((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\ X0) \wedge ((v1_yellow_0 X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge \\ (l1_orders_2 X0))))))) \Rightarrow (\forall X1.((v3_orders_2 X1) \wedge ((v4_orders_2 \\ X1) \wedge ((v5_orders_2 X1) \wedge ((v1_yellow_0 X1) \wedge ((v1_lattice3 X1) \wedge \\ ((v2_lattice3 X1) \wedge (l1_orders_2 X1)))))))) \Rightarrow (\forall X2.((v1_funct_1 \\ X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge ((v4_waybel34 \\ X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ X0) (u1_struct_0 X1))))))) \Rightarrow (\forall X3.((\neg v2_struct_0 X3) \wedge (\\ (v4_yellow_0 X3 X0) \wedge ((v6_waybel34 X3 X0) \wedge (m1_yellow_0 X3 X0))) \Rightarrow \\ (\forall X4.((\neg v2_struct_0 X4) \wedge ((v4_yellow_0 X4 X1) \wedge ((v6_waybel34 \\ X4 X1) \wedge (m1_yellow_0 X4 X1)))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge (\\ (v1_funct_2 X5 (u1_struct_0 X3) (u1_struct_0 X4)) \wedge (m1_subset_1 \\ X5 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X3) (u1_struct_0 X4)))))) \Rightarrow \\ ((X5 = k2_partfun1 (u1_struct_0 X0) (u1_struct_0 X1) X2 (u1_struct_0 \\ X3)) \Rightarrow (v4_waybel34 X5 X3 X4)))))) \end{aligned}$$