

t4_waybel29 (TM-
SkAT81g1YXo2VeFyucMTQLN5QDBxGtqm8)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. 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 $l1_orders_2 : \iota \Rightarrow o$ be given. Let $v4_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_yellow_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_waybel27 : \iota \Rightarrow o$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $v2_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v23_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_waybel27 : \iota \Rightarrow o$ be given. Let $v5_orders_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_struct_0 X1)) \Rightarrow (\forall X2. ((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\
& (((v2_funct_1 X2) \wedge (v2_funct_2 X2 (u1_struct_0 X1))) \Rightarrow ((r2_funct_2 \\
& (u1_struct_0 X1) (u1_struct_0 X1) (k1_partfun1 (u1_struct_0 X1) \\
& (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 X1) (k2_tops_2 \\
& (u1_struct_0 X0) (u1_struct_0 X1) X2) X2) (k3_struct_0 X1)) \wedge ((\\
& r2_funct_2 (u1_struct_0 X0) (u1_struct_0 X0) (k1_partfun1 (u1_struct_0 \\
& X0) (u1_struct_0 X1) (u1_struct_0 X1) (u1_struct_0 X0) X2) (k2_tops_2 \\
& (u1_struct_0 X0) (u1_struct_0 X1) X2)) (k3_struct_0 X0)) \wedge ((v2_funct_1 \\
& (k2_tops_2 (u1_struct_0 X0) (u1_struct_0 X1) X2)) \wedge (v2_funct_2 \\
& (k2_tops_2 (u1_struct_0 X0) (u1_struct_0 X1) X2) (u1_struct_0 \\
& X0)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_orders_2 X2)) \Rightarrow (\forall X3. \\
& ((\neg v2_struct_0 X3) \wedge (m1_yellow_0 X3 (k6_yellow_1 (k2_zfmisc_1 \\
& X0 X1) X2))) \Rightarrow (\forall X4.((\neg v2_struct_0 X4) \wedge (m1_yellow_0 X4 (\\
& k6_yellow_1 X0 (k6_yellow_1 X1 X2)))) \Rightarrow (\forall X5.((v1_funct_1 \\
& X5) \wedge ((v1_funct_2 X5 (u1_struct_0 X4) (u1_struct_0 X3)) \wedge (m1_subset_1 \\
& X5 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X4) (u1_struct_0 X3)))))) \Rightarrow \\
& (((v1_waybel27 X5) \wedge ((v2_funct_1 X5) \wedge (v2_funct_2 X5 (u1_struct_0 \\
& X3)))) \Rightarrow (v2_waybel27 (k2_tops_2 (u1_struct_0 X4) (u1_struct_0 \\
& X3) X5)))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((\neg v2_struct_0 X2) \wedge ((v3_orders_2 X2) \wedge ((v4_orders_2 \\
& X2) \wedge ((v5_orders_2 X2) \wedge (l1_orders_2 X2)))))) \Rightarrow (\forall X3.((\neg \\
& v2_struct_0 X3) \wedge ((v4_yellow_0 X3 (k6_yellow_1 X0 (k6_yellow_1 \\
& X1 X2))) \wedge (m1_yellow_0 X3 (k6_yellow_1 X0 (k6_yellow_1 X1 X2)))))) \Rightarrow \\
& (\forall X4.((\neg v2_struct_0 X4) \wedge ((v4_yellow_0 X4 (k6_yellow_1 \\
& (k2_zfmisc_1 X0 X1) X2)) \wedge (m1_yellow_0 X4 (k6_yellow_1 (k2_zfmisc_1 \\
& X0 X1) X2)))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 X5 (u1_struct_0 \\
& X4) (u1_struct_0 X3)) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X4) (u1_struct_0 X3)))))) \Rightarrow ((v2_waybel27 X5) \Rightarrow (v5_orders_3 \\
& X5 X4 X3))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\
& (\forall X2.((\neg v2_struct_0 X2) \wedge ((v3_orders_2 X2) \wedge ((v4_orders_2 \\
& X2) \wedge ((v5_orders_2 X2) \wedge (l1_orders_2 X2)))))) \Rightarrow (\forall X3.((\neg \\
& v2_struct_0 X3) \wedge ((v4_yellow_0 X3 (k6_yellow_1 X0 (k6_yellow_1 \\
& X1 X2))) \wedge (m1_yellow_0 X3 (k6_yellow_1 X0 (k6_yellow_1 X1 X2)))))) \Rightarrow \\
& (\forall X4.((\neg v2_struct_0 X4) \wedge ((v4_yellow_0 X4 (k6_yellow_1 \\
& (k2_zfmisc_1 X0 X1) X2)) \wedge (m1_yellow_0 X4 (k6_yellow_1 (k2_zfmisc_1 \\
& X0 X1) X2)))) \Rightarrow (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 X5 (u1_struct_0 \\
& X3) (u1_struct_0 X4)) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X3) (u1_struct_0 X4)))))) \Rightarrow ((v1_waybel27 X5) \Rightarrow (v5_orders_3 \\
& X5 X3 X4))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\
& X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v3_orders_2 \\
& X1) \wedge ((v4_orders_2 X1) \wedge (l1_orders_2 X1)))) \Rightarrow (\forall X2.((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\
& ((v23_waybel_0 X2 X0 X1) \Leftrightarrow ((v5_orders_3 X2 X0 X1) \wedge (\exists X3.(\\
& (v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X1) (u1_struct_0 \\
& X0)) \wedge ((v5_orders_3 X3 X1 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X0)))))) \wedge ((r2_funct_2 (u1_struct_0 \\
& X1) (u1_struct_0 X1) (k1_partfun1 (u1_struct_0 X1) (u1_struct_0 \\
& X0) (u1_struct_0 X0) (u1_struct_0 X1) X3 X2) (k3_struct_0 X1)) \wedge \\
& (r2_funct_2 (u1_struct_0 X0) (u1_struct_0 X0) (k1_partfun1 (u1_struct_0 \\
& X0) (u1_struct_0 X1) (u1_struct_0 X1) (u1_struct_0 X0) X2 X3) (k3_struct_0 \\
& X0)))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((v4_orders_2 X1) \wedge \\
& (l1_orders_2 X1))) \Rightarrow ((v1_orders_2 (k6_yellow_1 X0 X1)) \wedge (v4_orders_2 \\
& (k6_yellow_1 X0 X1)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((v3_orders_2 X1) \wedge \\
& (l1_orders_2 X1))) \Rightarrow ((v1_orders_2 (k6_yellow_1 X0 X1)) \wedge (v3_orders_2 \\
& (k6_yellow_1 X0 X1)))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1)) \Rightarrow \\
& ((\neg v2_struct_0 (k6_yellow_1 X0 X1)) \wedge (v1_orders_2 (k6_yellow_1 \\
& X0 X1)))
\end{aligned} \tag{8}$$

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.

$$\forall X0. (l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (l1_orders_2 X1) \Rightarrow ((v1_orders_2 (k6_yellow_1 \\
& X0 X1)) \wedge (l1_orders_2 (k6_yellow_1 X0 X1)))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 \\ & X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow \\ & ((v1_funct_1 (k2_tops_2 X0 X1 X2))\wedge((v1_funct_2 (k2_tops_2 X0 \\ & X1 X2) X1 X0)\wedge(m1_subset_1 (k2_tops_2 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v4_orders_2 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ & (m1_yellow_0 X1 X0)\Rightarrow((v4_yellow_0 X1 X0)\Rightarrow((v4_orders_2 X1)\wedge(\\ & v4_yellow_0 X1 X0)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v3_orders_2 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ & (m1_yellow_0 X1 X0)\Rightarrow((v4_yellow_0 X1 X0)\Rightarrow((v3_orders_2 X1)\wedge(\\ & v4_yellow_0 X1 X0)))) \end{aligned} \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(\neg v1_xboole_0 X1)\Rightarrow \\ & (\forall X2.((\neg v2_struct_0 X2)\wedge((v3_orders_2 X2)\wedge((v4_orders_2 \\ & X2)\wedge((v5_orders_2 X2)\wedge(l1_orders_2 X2))))))\Rightarrow(\forall X3.((\neg \\ & v2_struct_0 X3)\wedge((v4_yellow_0 X3 (k6_yellow_1 (k2_zfmisc_1 X0 \\ & X1) X2))\wedge(m1_yellow_0 X3 (k6_yellow_1 (k2_zfmisc_1 X0 X1) X2))))\Rightarrow \\ & (\forall X4.((\neg v2_struct_0 X4)\wedge((v4_yellow_0 X4 (k6_yellow_1 \\ & X0 (k6_yellow_1 X1 X2))\wedge(m1_yellow_0 X4 (k6_yellow_1 X0 (k6_yellow_1 \\ & X1 X2))))))\Rightarrow(\forall X5.((v1_funct_1 X5)\wedge((v1_funct_2 X5 (u1_struct_0 \\ & X4) (u1_struct_0 X3))\wedge(m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X4) (u1_struct_0 X3))))))\Rightarrow(((v1_waybel27 X5)\wedge(\\ & (v2_funct_1 X5)\wedge(v2_funct_2 X5 (u1_struct_0 X3))))\Rightarrow(v23_waybel_0 \\ & X5 X4 X3)))))) \end{aligned}$$