

t6_waybel21 (TMY-
wHXscbA3LDakk9pZ7w4nsL5aPsvVjMLK)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $g1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_orders_2 : \iota \Rightarrow \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v17_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v22_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_waybel_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xbool_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\
& X2) \wedge (l1_orders_2 X2)) \Rightarrow (\forall X3.((\neg v2_struct_0 X3) \wedge (l1_orders_2 \\
& X3)) \Rightarrow (((g1_orders_2 (u1_struct_0 X0) (u1_orders_2 X0) = g1_orders_2 \\
& (u1_struct_0 X2) (u1_orders_2 X2)) \wedge (g1_orders_2 (u1_struct_0 \\
& X1) (u1_orders_2 X1) = g1_orders_2 (u1_struct_0 X3) (u1_orders_2 \\
& X3))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 \\
& X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X5.((v1_funct_1 \\
& X5) \wedge ((v1_funct_2 X5 (u1_struct_0 X2) (u1_struct_0 X3)) \wedge (m1_subset_1 \\
& X5 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X2) (u1_struct_0 X3)))))) \Rightarrow \\
& ((r1_funct_2 (u1_struct_0 X0) (u1_struct_0 X1) (u1_struct_0 X2) \\
& (u1_struct_0 X3) X4 X5) \Rightarrow (\forall X6.(m1_subset_1 X6 (k1_zfmisc_1 \\
& (u1_struct_0 X0))) \Rightarrow (\forall X7.(m1_subset_1 X7 (k1_zfmisc_1 \\
& (u1_struct_0 X2))) \Rightarrow ((X6 = X7) \Rightarrow (((r4_waybel_0 X0 X1 X4 X6) \Rightarrow (r4_waybel_0 \\
& X2 X3 X5 X7)) \wedge ((r3_waybel_0 X0 X1 X4 X6) \Rightarrow (r3_waybel_0 X2 X3 X5 X7))))))))))
\end{aligned}$$

(1)

Assume the following.

$$\begin{aligned} \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.(l1_orders_2 X1) \Rightarrow ((\\ g1_orders_2 (u1_struct_0 X0) (u1_orders_2 X0) = g1_orders_2 (u1_struct_0 \\ X1) (u1_orders_2 X1)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 \\ (u1_struct_0 X1))) \Rightarrow (((X2 = X3) \wedge (v1_waybel_0 X2 X0)) \Rightarrow (v1_waybel_0 \\ X3 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 X0))) \Rightarrow (\forall X2.\forall X3.(g1_orders_2 X0 X1 = g1_orders_2 \\ X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_orders_2 X0) \Rightarrow (m1_subset_1 (u1_orders_2 X0) (k1_zfmisc_1 \\ (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1)) \Rightarrow (\forall X2.((v1_funct_1 \\ X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 \\ X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\ ((v22_waybel_0 X2 X0 X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow ((v1_waybel_0 X3 X0) \Rightarrow ((v1_xboole_0 X3) \vee (\\ r4_waybel_0 X0 X1 X2 X3)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1)) \Rightarrow (\forall X2.((v1_funct_1 \\ X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 \\ X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\ ((v17_waybel_0 X2 X0 X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (r3_waybel_0 X0 X1 X2 X3)))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_orders_2 X2)) \Rightarrow (\forall X3.((\neg v2_struct_0 X3) \wedge (l1_orders_2 \\ & X3)) \Rightarrow (((g1_orders_2 (u1_struct_0 X0) (u1_orders_2 X0) = g1_orders_2 \\ & (u1_struct_0 X2) (u1_orders_2 X2)) \wedge (g1_orders_2 (u1_struct_0 \\ & X1) (u1_orders_2 X1) = g1_orders_2 (u1_struct_0 X3) (u1_orders_2 \\ & X3))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 \\ & X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X5.((v1_funct_1 \\ & X5) \wedge ((v1_funct_2 X5 (u1_struct_0 X2) (u1_struct_0 X3)) \wedge (m1_subset_1 \\ & X5 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X2) (u1_struct_0 X3)))))) \Rightarrow \\ & ((r1_funct_2 (u1_struct_0 X0) (u1_struct_0 X1) (u1_struct_0 X2) \\ & (u1_struct_0 X3) X4 X5) \Rightarrow (((v17_waybel_0 X4 X0 X1) \Rightarrow (v17_waybel_0 \\ & X5 X2 X3)) \wedge ((v22_waybel_0 X4 X0 X1) \Rightarrow (v22_waybel_0 X5 X2 X3))))))))) \end{aligned}$$