

t21_waybel_5 (TMYyv-
PLCEn5pMjx7BZEKGCC56YP7x7k4Ren)

October 27, 2020

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 $v1_lattice3 : \iota \Rightarrow o$ be given. Let $v2_lattice3 : \iota \Rightarrow o$ be given. Let $v3_lattice3 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $v3_waybel_3 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_waybel_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_waybel_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_yellow_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_waybel_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_yellow_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_waybel_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_waybel_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v2_waybel_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. k7_funcop_1 X0 X1 = k2_funcop_1 X0 X1 \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow (\exists X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ X0))) \wedge ((\neg v1_xboole_0 X1) \wedge ((v1_finset_1 X1) \wedge ((v1_waybel_0 X1 \\ X0) \wedge (v2_waybel_0 X1 X0)))))) \quad (2) \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\
& X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge ((v3_lattice3 X0) \wedge \\
& (l1_orders_2 X0)))))) \Rightarrow ((\forall X1.(\neg v1_xboole_0 X1) \Rightarrow (\forall X2. \\
& (\neg v1_xboole_0 X2) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 (k2_zfmisc_1 X1 X2) (u1_struct_0 X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) (u1_struct_0 X0)))))) \Rightarrow ((\forall X4. \\
& (m1_subset_1 X4 X1) \Rightarrow (v1_waybel_0 (k2_relset_1 (u1_struct_0 X0) \\
& (k1_waybel_5 X1 (u1_struct_0 X0) (k7_funcop_1 X1 X2) (k6_waybel_5 \\
& X1 X2 (u1_struct_0 X0) X3) X4)) X0)) \Rightarrow (k5_yellow_2 X0 (k4_waybel_5 \\
& X0 (k6_waybel_5 X1 X2 (u1_struct_0 X0) X3)) = k4_yellow_2 X0 (k5_waybel_5 \\
& X0 (k2_waybel_5 X1 (u1_struct_0 X0) (k7_funcop_1 X1 X2) (k6_waybel_5 \\
& X1 X2 (u1_struct_0 X0) X3)))))) \Rightarrow (v3_waybel_3 X0))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\
& X0) \wedge ((v1_lattice3 X0) \wedge ((v2_lattice3 X0) \wedge ((v3_lattice3 X0) \wedge \\
& (l1_orders_2 X0)))))) \Rightarrow ((v3_waybel_3 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 \\
& X1) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v2_relat_1 X2) \wedge ((v4_relat_1 \\
& X2 X1) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X1)))))) \Rightarrow (\forall X3. \\
& (m2_pboole X3 X1 X2 (k7_funcop_1 X1 (u1_struct_0 X0))) \Rightarrow ((\forall X4. \\
& (m1_subset_1 X4 X1) \Rightarrow (v1_waybel_0 (k2_relset_1 (u1_struct_0 X0) \\
& (k1_waybel_5 X1 (u1_struct_0 X0) X2 X3 X4)) X0)) \Rightarrow (k5_yellow_2 X0 \\
& (k4_waybel_5 X0 X3) = k4_yellow_2 X0 (k5_waybel_5 X0 (k2_waybel_5 \\
& X1 (u1_struct_0 X0) X2 X3))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (v1_relat_1 (k2_funcop_1 X0 X1)) \wedge ((v4_relat_1 \\
& (k2_funcop_1 X0 X1) X0) \wedge ((v1_funct_1 (k2_funcop_1 X0 X1)) \wedge (v1_partfun1 \\
& (k2_funcop_1 X0 X1) X0))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (v1_relat_1 (k2_funcop_1 X0 X1)) \wedge (v1_funct_1 \\
& (k2_funcop_1 X0 X1))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. v4_relat_1 (k2_funcop_1 X0 X1) X0
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (\neg v1_xboole_0 X1) \Rightarrow (v2_relat_1 (k2_funcop_1 \\
& X0 X1))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((\neg v1_xboole_0 X1)\wedge((\neg v1_xboole_0 X2)\wedge((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 (k2_zfmisc_1 X0 X1) X2)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1) X2))))))\Rightarrow(m2_pboole (k6_waybel_5 X0 X1 X2 \\ & X3) X0 (k7_funcop_1 X0 X1) (k7_funcop_1 X0 X2)) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(v1_xboole_0 X1)) \quad (10)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow((v1_lattice3 X0)\Rightarrow(\neg v2_struct_0 X0)) \quad (11)$$

Theorem 1

$$\begin{aligned} & \forall X0.((v3_orders_2 X0)\wedge((v4_orders_2 X0)\wedge((v5_orders_2 \\ & X0)\wedge((v1_lattice3 X0)\wedge((v2_lattice3 X0)\wedge((v3_lattice3 X0)\wedge \\ & (l1_orders_2 X0))))))\Rightarrow((v3_waybel_3 X0)\Leftrightarrow(\forall X1.(\neg v1_xboole_0 \\ & X1)\Rightarrow(\forall X2.(\neg v1_xboole_0 X2)\Rightarrow(\forall X3.((v1_funct_1 \\ & X3)\wedge((v1_funct_2 X3 (k2_zfmisc_1 X1 X2) (u1_struct_0 X0))\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X2) (u1_struct_0 \\ & X0))))))\Rightarrow((\forall X4.(m1_subset_1 X4 X1)\Rightarrow(v1_waybel_0 (k2_relset_1 \\ & (u1_struct_0 X0) (k1_waybel_5 X1 (u1_struct_0 X0) (k7_funcop_1 \\ & X1 X2) (k6_waybel_5 X1 X2 (u1_struct_0 X0) X3) X4)) X0)\Rightarrow(k5_yellow_2 \\ & X0 (k4_waybel_5 X0 (k6_waybel_5 X1 X2 (u1_struct_0 X0) X3)) = k4_yellow_2 \\ & X0 (k5_waybel_5 X0 (k2_waybel_5 X1 (u1_struct_0 X0) (k7_funcop_1 \\ & X1 X2) (k6_waybel_5 X1 X2 (u1_struct_0 X0) X3))))))))) \end{aligned}$$