

t41_waybel_1 (TMPW- Bcjp57wBxzAqMdvzdz5f9LoEPQqqArM)

October 27, 2020

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 $v1_funct_1 : \iota \Rightarrow o$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_orders_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_waybel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_waybel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v8_waybel_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v11_quantal1 : \iota \Rightarrow o$ be given. Let $r1_yellow_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v6_waybel_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\
& \quad X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1. ((\neg \\
& \quad v2_struct_0 X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 \\
& \quad X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 \\
& \quad X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X3. \\
& \quad ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X1) (u1_struct_0 \\
& \quad X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& \quad X1) (u1_struct_0 X0)))))) \Rightarrow ((v3_waybel_1 (k1_waybel_1 X0 X1 X2 \\
& \quad X3) X0 X1) \Leftrightarrow ((v5_orders_3 X2 X0 X1) \wedge ((v5_orders_3 X3 X1 X0) \wedge (\forall X4. \\
& \quad (m1_subset_1 X4 (u1_struct_0 X1)) \Rightarrow (\forall X5. (m1_subset_1 X5 \\
& \quad (u1_struct_0 X0)) \Rightarrow ((r3_orders_2 X1 X4 (k3_funct_2 (u1_struct_0 \\
& \quad X0) (u1_struct_0 X1) X2 X5) \Leftrightarrow (r3_orders_2 X0 (k3_funct_2 (u1_struct_0 \\
& \quad X1) (u1_struct_0 X0) X3 X4 X5))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_orders_2 X1)) \Rightarrow (\forall X2.((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\
& (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X1) \\
& (u1_struct_0 X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X0)))))) \Rightarrow ((r2_funct_2 (u1_struct_0 \\
& X0) (u1_struct_0 X1) X2 (k1_partfun1 (u1_struct_0 X0) (u1_struct_0 \\
& X1) (u1_struct_0 X1) (u1_struct_0 X1) X2 (k1_partfun1 (u1_struct_0 \\
& X1) (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 X1) X3 X2))) \Rightarrow \\
& (v11_quantal1 (k1_partfun1 (u1_struct_0 X1) (u1_struct_0 X0) \\
& (u1_struct_0 X0) (u1_struct_0 X1) X3 X2))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\
& X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.((\neg \\
& v2_struct_0 X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 \\
& X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 \\
& X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X3. \\
& ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X1) (u1_struct_0 \\
& X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& X1) (u1_struct_0 X0)))))) \Rightarrow (((v5_orders_3 X2 X0 X1) \wedge ((v5_orders_3 \\
& X3 X1 X0) \wedge ((r1_yellow_2 (u1_struct_0 X0) X0 (k1_partfun1 (u1_struct_0 \\
& X0) (u1_struct_0 X1) (u1_struct_0 X1) (u1_struct_0 X0) X2 X3) (k3_struct_0 \\
& X0)) \wedge (r1_yellow_2 (u1_struct_0 X1) X1 (k3_struct_0 X1) (k1_partfun1 \\
& (u1_struct_0 X1) (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 \\
& X1) X3 X2)))))) \Rightarrow ((r2_funct_2 (u1_struct_0 X1) (u1_struct_0 X0) \\
& X3 (k1_partfun1 (u1_struct_0 X1) (u1_struct_0 X0) (u1_struct_0 \\
& X0) (u1_struct_0 X0) X3 (k1_partfun1 (u1_struct_0 X0) (u1_struct_0 \\
& X1) (u1_struct_0 X1) (u1_struct_0 X0) X2 X3))) \wedge (r2_funct_2 (u1_struct_0 \\
& X0) (u1_struct_0 X1) X2 (k1_partfun1 (u1_struct_0 X0) (u1_struct_0 \\
& X1) (u1_struct_0 X1) (u1_struct_0 X1) X2 (k1_partfun1 (u1_struct_0 \\
& X1) (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 X1) X3 X2))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\
& \quad X0) \wedge ((v5_orders_2 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.((\neg \\
& \quad v2_struct_0 X1) \wedge ((v3_orders_2 X1) \wedge ((v4_orders_2 X1) \wedge ((v5_orders_2 \\
& \quad X1) \wedge (l1_orders_2 X1)))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 \\
& \quad X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (\forall X3. \\
& \quad ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (u1_struct_0 X1) (u1_struct_0 \\
& \quad X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\
& \quad X1) (u1_struct_0 X0)))))) \Rightarrow ((v3_waybel_1 (k1_waybel_1 X0 X1 X2 \\
& \quad X3) X0 X1) \Rightarrow ((r1_yellow_2 (u1_struct_0 X0) X0 (k1_partfun1 (u1_struct_0 \\
& \quad X0) (u1_struct_0 X1) (u1_struct_0 X1) (u1_struct_0 X0) X2 X3) (k3_struct_0 \\
& \quad X0)) \wedge (r1_yellow_2 (u1_struct_0 X1) X1 (k3_struct_0 X1) (k1_partfun1 \\
& \quad (u1_struct_0 X1) (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 \\
& \quad X1) X3 X2))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\
& \quad ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad X0 X1)))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\
& \quad X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\
& \quad X3) \Leftrightarrow (X2 = X3))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& \quad (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad X2 X3)))))) \Rightarrow (k1_partfun1 X0 X1 X2 X3 X4 X5 = k3_relat_1 X4 X5)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1_xboole_0 \\
& \quad X1) \wedge (((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 X3 \\
& \quad (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \wedge ((v1_funct_1 X4) \wedge ((v1_funct_2 \\
& \quad X4 X1 X2) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X1 X2)))))) \Rightarrow \\
& \quad ((v1_funct_1 (k3_relat_1 X3 X4)) \wedge (v1_funct_2 (k3_relat_1 X3 X4) \\
& \quad X0 X2))
\end{aligned} \tag{7}$$

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0. (l1_orders_2 X0) \Rightarrow (l1_struct_0 X0)
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1_funct_1 X4)\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1))))\wedge((v1_funct_1 X5)\wedge(m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3))))\Rightarrow((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5))\wedge(m1_subset_1 \\ & (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ & ((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\ & X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X0))))\Rightarrow((v8_waybel_1 X1 X0)\Leftrightarrow((v6_waybel_1 \\ & X1 X0)\wedge(r1_yellow_2 (u1_struct_0 X0) X0 X1 (k3_struct_0 X0)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ & ((v1_funct_1 X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 \\ & X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) (u1_struct_0 X0))))\Rightarrow((v6_waybel_1 X1 X0)\Leftrightarrow((v11_quantal1 \\ & X1)\wedge(v5_orders_3 X1 X0 X0)))) \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge((v4_orders_2 \\ & X0)\wedge((v5_orders_2 X0)\wedge(l1_orders_2 X0))))\Rightarrow(\forall X1.((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 (u1_struct_0 X0) (u1_struct_0 X0))\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0))))\Rightarrow \\ & ((v5_orders_3 X1 X0 X0)\Rightarrow((\forall X2.((\neg v2_struct_0 X2)\wedge((v3_orders_2 \\ & X2)\wedge((v4_orders_2 X2)\wedge((v5_orders_2 X2)\wedge(l1_orders_2 X2))))\Rightarrow \\ & (\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 X3 (u1_struct_0 X0) \\ & (u1_struct_0 X2))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X2))))\Rightarrow(\forall X4.((v1_funct_1 \\ & X4)\wedge((v1_funct_2 X4 (u1_struct_0 X2) (u1_struct_0 X0))\wedge(m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X2) (u1_struct_0 X0))))\Rightarrow \\ & (\neg(v3_waybel_1 (k1_waybel_1 X0 X2 X3 X4) X0 X2)\wedge(r2_funct_2 (u1_struct_0 \\ & X0) (u1_struct_0 X0) X1 (k1_partfun1 (u1_struct_0 X0) (u1_struct_0 \\ & X2) (u1_struct_0 X2) (u1_struct_0 X0) X3 X4))))\vee(v8_waybel_1 \\ & X1 X0)))) \end{aligned}$$