

## t40\_waybel\_1

(TMG6wLgNxq8HJ7PNvXPwM4ZVWX9MfyQY929)

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  $v8\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_yellow\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $m1\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ & X0) \wedge ((v5\_orders\_2 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1. ((v1\_funct\_1 \\ & X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))) \Rightarrow \\ & ((v8\_waybel\_1 X1 X0) \Rightarrow (v3\_waybel\_1 (k1\_waybel\_1 X0 (k1\_yellow\_2 \\ & X0 X0 X1) (k2\_waybel\_1 X0 X0 X1) (k3\_waybel\_1 X0 X0 X1)) X0 (k1\_yellow\_2 \\ & X0 X0 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0)))))) \Rightarrow (r2\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) (k1\_partfun1 (u1\_struct\_0 X0) (u1\_struct\_0 (k1\_yellow\_2 X0 \\ & X0 X1)) (u1\_struct\_0 (k1\_yellow\_2 X0 X0 X1)) (u1\_struct\_0 X0) (k2\_waybel\_1 \\ & X0 X0 X1) (k3\_waybel\_1 X0 X0 X1)) X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2)\wedge \\ & ((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1))))\wedge((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\Rightarrow((r2\_funct\_2 X0 X1 X2 \\ & X3)\Rightarrow(r2\_funct\_2 X0 X1 X3 X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & (((v1\_funct\_1 X4)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1))))\wedge((v1\_funct\_1 X5)\wedge(m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X2 X3))))\Rightarrow(k1\_partfun1 X0 X1 X2 X3 X4 X5 = k3\_relat\_1 X4 X5) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((-v1\_xboole\_0 \\ & X1)\wedge(((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 X3 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\wedge((v1\_funct\_1 X4)\wedge((v1\_funct\_2 \\ & X4 X1 X2)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X2))))))\Rightarrow \\ & ((v1\_funct\_1 (k3\_relat\_1 X3 X4)\wedge(v1\_funct\_2 (k3\_relat\_1 X3 X4) \\ & X0 X2)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 \\ & X0))\wedge(((\neg v2\_struct\_0 X1)\wedge(l1\_orders\_2 X1))\wedge((v1\_funct\_1 X2)\wedge \\ & ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1))\wedge(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1))))))\Rightarrow \\ & ((\neg v2\_struct\_0 (k1\_yellow\_2 X0 X1 X2))\wedge((v1\_orders\_2 (k1\_yellow\_2 \\ & X0 X1 X2))\wedge(v4\_yellow\_0 (k1\_yellow\_2 X0 X1 X2) X1))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0)\Rightarrow(\forall X1.(m1\_yellow\_0 X1 X0)\Rightarrow (l1\_orders\_2 X1)) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0)\Rightarrow(l1\_struct\_0 X0) \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 \\
& X0)) \wedge (((\neg v2\_struct\_0 X1) \wedge (l1\_orders\_2 X1)) \wedge ((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow \\
& ((v1\_funct\_1 (k3\_waybel\_1 X0 X1 X2)) \wedge ((v1\_funct\_2 (k3\_waybel\_1 \\
& X0 X1 X2) (u1\_struct\_0 (k1\_yellow\_2 X0 X1 X2)) (u1\_struct\_0 X1)) \wedge \\
& (m1\_subset\_1 (k3\_waybel\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& (u1\_struct\_0 (k1\_yellow\_2 X0 X1 X2)) (u1\_struct\_0 X1))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 \\
& X0)) \wedge (((\neg v2\_struct\_0 X1) \wedge (l1\_orders\_2 X1)) \wedge ((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow \\
& ((v1\_funct\_1 (k2\_waybel\_1 X0 X1 X2)) \wedge ((v1\_funct\_2 (k2\_waybel\_1 \\
& X0 X1 X2) (u1\_struct\_0 X0) (u1\_struct\_0 (k1\_yellow\_2 X0 X1 X2))) \wedge \\
& (m1\_subset\_1 (k2\_waybel\_1 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& (u1\_struct\_0 X0) (u1\_struct\_0 (k1\_yellow\_2 X0 X1 X2))))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 \\
& X0)) \wedge (((\neg v2\_struct\_0 X1) \wedge (l1\_orders\_2 X1)) \wedge ((v1\_funct\_1 X2) \wedge \\
& ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow \\
& ((v1\_orders\_2 (k1\_yellow\_2 X0 X1 X2)) \wedge ((v4\_yellow\_0 (k1\_yellow\_2 \\
& X0 X1 X2) X1) \wedge (m1\_yellow\_0 (k1\_yellow\_2 X0 X1 X2) X1)))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& (((v1\_funct\_1 X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X1)))) \wedge ((v1\_funct\_1 X5) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X2 X3)))) \Rightarrow ((v1\_funct\_1 (k1\_partfun1 X0 X1 X2 X3 X4 X5)) \wedge (m1\_subset\_1 \\
& (k1\_partfun1 X0 X1 X2 X3 X4 X5) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X3))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((v5\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& (m1\_yellow\_0 X1 X0) \Rightarrow ((v4\_yellow\_0 X1 X0) \Rightarrow ((v5\_orders\_2 X1) \wedge ( \\
& v4\_yellow\_0 X1 X0))))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((v4\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& (m1\_yellow\_0 X1 X0) \Rightarrow ((v4\_yellow\_0 X1 X0) \Rightarrow ((v4\_orders\_2 X1) \wedge ( \\
& v4\_yellow\_0 X1 X0))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v3\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\ & (m1\_yellow\_0 X1 X0) \Rightarrow ((v4\_yellow\_0 X1 X0) \Rightarrow ((v3\_orders\_2 X1) \wedge ( \\ & v4\_yellow\_0 X1 X0)))) \end{aligned} \quad (16)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ & X0) \wedge ((v5\_orders\_2 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.((v1\_funct\_1 \\ & X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))) \Rightarrow \\ & (\neg (v8\_waybel\_1 X1 X0) \wedge (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v3\_orders\_2 \\ & X2) \wedge ((v4\_orders\_2 X2) \wedge ((v5\_orders\_2 X2) \wedge (l1\_orders\_2 X2)))))) \Rightarrow \\ & (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X2)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X2)))))) \Rightarrow (\forall X4.((v1\_funct\_1 \\ & X4) \wedge ((v1\_funct\_2 X4 (u1\_struct\_0 X2) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X2) (u1\_struct\_0 X0)))))) \Rightarrow \\ & (\neg (v3\_waybel\_1 (k1\_waybel\_1 X0 X2 X3 X4) X0 X2) \wedge (r2\_funct\_2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X0) X1 (k1\_partfun1 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X2) (u1\_struct\_0 X2) (u1\_struct\_0 X0) X3 X4)))))) \end{aligned}$$