

## t5\_waybel33

(TMVYjdziUhQzvKw5vCiCiymxPh4rM7ihppd)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v7\_waybel\_0 : \iota \Rightarrow o$  be given. Let  $l1\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Let  $r1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_yellow\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v6\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m1\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $g1\_waybel\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge (l1\_orders\_2 X1)) \Rightarrow \\ & (\forall X2. ((\neg v2\_struct\_0 X2) \wedge (m1\_yellow\_0 X2 X1)) \Rightarrow (((v1\_waybel\_0 \\ & X0 X2) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 X2)))) \Rightarrow ((v1\_waybel\_0 \\ & X0 X1) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 X1)))))) \wedge ((( \\ & v2\_waybel\_0 X0 X2) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X2)))) \Rightarrow ((v2\_waybel\_0 X0 X1) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (l1\_struct\_0 X1)) \Rightarrow ((u1\_struct\_0 X0 = u1\_struct\_0 \\ & X1) \Rightarrow (\forall X2. (l1\_waybel\_0 X2 X0) \Rightarrow (\exists X3. ((v6\_waybel\_0 \\ & X3 X1) \wedge (l1\_waybel\_0 X3 X1)) \wedge ((g1\_orders\_2 (u1\_struct\_0 X2) (u1\_orders\_2 \\ & X2) = g1\_orders\_2 (u1\_struct\_0 X3) (u1\_orders\_2 X3)) \wedge (r1\_funct\_2 \\ & (u1\_struct\_0 X2) (u1\_struct\_0 X0) (u1\_struct\_0 X3) (u1\_struct\_0 \\ & X1) (u1\_waybel\_0 X0 X2) (u1\_waybel\_0 X1 X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v4\_orders\_2 X1) \wedge ((v7\_waybel\_0 X1) \wedge (l1\_waybel\_0 \\
& X1 X0)))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v4\_orders\_2 X2) \wedge \\
& ((v7\_waybel\_0 X2) \wedge (l1\_waybel\_0 X2 X0)))) \Rightarrow (\forall X3.((\neg v2\_struct\_0 \\
& X3) \wedge ((v4\_orders\_2 X3) \wedge ((v7\_waybel\_0 X3) \wedge (l1\_waybel\_0 X3 X0)))) \Rightarrow \\
& (((m2\_yellow\_6 X1 X0 X2) \wedge (m2\_yellow\_6 X2 X0 X3)) \Rightarrow (m2\_yellow\_6 \\
& X1 X0 X3))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(l1\_orders\_2 X1) \Rightarrow (( \\
& (g1\_orders\_2 (u1\_struct\_0 X0) (u1\_orders\_2 X0) = g1\_orders\_2 ( \\
& u1\_struct\_0 X1) (u1\_orders\_2 X1)) \wedge (v4\_orders\_2 X0)) \Rightarrow (v4\_orders\_2 \\
& X1)))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v4\_orders\_2 X1) \wedge ((v7\_waybel\_0 X1) \wedge (l1\_waybel\_0 \\
& X1 X0)))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v4\_orders\_2 X2) \wedge \\
& ((v7\_waybel\_0 X2) \wedge (l1\_waybel\_0 X2 X0)))) \Rightarrow ((g1\_waybel\_0 X0 (u1\_struct\_0 \\
& X1) (u1\_orders\_2 X1) (u1\_waybel\_0 X0 X1) = g1\_waybel\_0 X0 (u1\_struct\_0 \\
& X2) (u1\_orders\_2 X2) (u1\_waybel\_0 X0 X2)) \Rightarrow (m2\_yellow\_6 X2 X0 X1)))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\
& (((\neg v1\_xboole\_0 X1) \wedge ((\neg v1\_xboole\_0 X3) \wedge (((v1\_funct\_1 X4) \wedge (( \\
& v1\_funct\_2 X4 X0 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& X0 X1)))))) \wedge ((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 X2 X3) \wedge (m1\_subset\_1 \\
& X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X2 X3))))))))) \Rightarrow ((r1\_funct\_2 X0 X1 \\
& X2 X3 X4 X5) \Leftrightarrow (X4 = X5))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge (l1\_struct\_0 X1)) \Rightarrow ((u1\_struct\_0 X0 = u1\_struct\_0 \\
& X1) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v4\_orders\_2 X2) \wedge ((v6\_waybel\_0 \\
& X2 X0) \wedge ((v7\_waybel\_0 X2) \wedge (l1\_waybel\_0 X2 X0)))) \Rightarrow ((\neg v2\_struct\_0 \\
& X2) \wedge ((v4\_orders\_2 X2) \wedge ((v6\_waybel\_0 X2 X1) \wedge ((v7\_waybel\_0 X2) \wedge \\
& (l1\_waybel\_0 X2 X1))))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((l1\_struct\_0 X0)\wedge \\ & ((m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1)))\wedge((v1\_funct\_1 \\ & X3)\wedge((v1\_funct\_2 X3 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X1 (u1\_struct\_0 X0))))))))\Rightarrow(\forall X4.\forall X5. \\ & \forall X6.\forall X7.(g1\_waybel\_0 X0 X1 X2 X3 = g1\_waybel\_0 X4 X5 \\ & X6 X7)\Rightarrow((X0 = X4)\wedge((X1 = X5)\wedge((X2 = X6)\wedge(X3 = X7)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0))\Rightarrow(\forall X2.\forall X3.(g1\_orders\_2 X0 X1 = g1\_orders\_2 \\ & X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\Rightarrow(\neg v1\_xboole\_0 \\ & (k2\_struct\_0 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 \\ & (u1\_struct\_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 \\ & X0))\wedge(((\neg v2\_struct\_0 X1)\wedge((v4\_orders\_2 X1)\wedge((v7\_waybel\_0 X1)\wedge \\ & (l1\_orders\_2 X1))))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X1) (u1\_struct\_0 X0))))))))\Rightarrow((\neg v2\_struct\_0 (g1\_waybel\_0 \\ & X0 (u1\_struct\_0 X1) (u1\_orders\_2 X1) X2))\wedge((v4\_orders\_2 (g1\_waybel\_0 \\ & X0 (u1\_struct\_0 X1) (u1\_orders\_2 X1) X2))\wedge((v6\_waybel\_0 (g1\_waybel\_0 \\ & X0 (u1\_struct\_0 X1) (u1\_orders\_2 X1) X2) X0)\wedge(v7\_waybel\_0 (g1\_waybel\_0 \\ & X0 (u1\_struct\_0 X1) (u1\_orders\_2 X1) X2)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(v1\_xboole\_0 \\ & (u1\_struct\_0 X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1\_struct\_0 X0)\wedge(l1\_waybel\_0 X1 X0))\Rightarrow \\ & ((v1\_funct\_1 (u1\_waybel\_0 X0 X1))\wedge((v1\_funct\_2 (u1\_waybel\_0 \\ & X0 X1) (u1\_struct\_0 X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 (u1\_waybel\_0 \\ & X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (m1\_subset\_1 (u1\_orders\_2 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \wedge \\ & ((\neg v2\_struct\_0 X1) \wedge (v4\_orders\_2 X1) \wedge ((v7\_waybel\_0 X1) \wedge (l1\_waybel\_0 \\ & X1 X0)))) \Rightarrow (\forall X2.(m2\_yellow\_6 X2 X0 X1) \Rightarrow ((\neg v2\_struct\_0 \\ & X2) \wedge ((v4\_orders\_2 X2) \wedge ((v7\_waybel\_0 X2) \wedge (l1\_waybel\_0 X2 X0)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.(l1\_waybel\_0 X1 X0) \Rightarrow (l1\_orders\_2 X1)) \quad (17)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (l1\_struct\_0 X0) \quad (18)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (m1\_subset\_1 (k2\_struct\_0 X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((l1\_struct\_0 X0) \wedge \\ & ((m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1))) \wedge ((v1\_funct\_1 \\ & X3) \wedge ((v1\_funct\_2 X3 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X1 (u1\_struct\_0 X0)))))))) \Rightarrow ((v6\_waybel\_0 (g1\_waybel\_0 \\ & X0 X1 X2 X3) X0) \wedge (l1\_waybel\_0 (g1\_waybel\_0 X0 X1 X2 X3) X0)) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow ((v7\_waybel\_0 X0) \Leftrightarrow (v1\_waybel\_0 (k2\_struct\_0 X0) X0)) \quad (21)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (k2\_struct\_0 X0 = u1\_struct\_0 X0) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(l1\_orders\_2 X1) \Rightarrow (( \\ & m1\_yellow\_0 X1 X0) \Leftrightarrow ((r1\_tarski (u1\_struct\_0 X1) (u1\_struct\_0 \\ & X0)) \wedge (r1\_tarski (u1\_orders\_2 X1) (u1\_orders\_2 X0)))))) \end{aligned} \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.(X0 = X1)\Leftrightarrow((r1\_tarski\ X0\ X1)\wedge(r1\_tarski\ X1\ X0)) \quad (24)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l1\_waybel\_0\ X1\ X0))\Rightarrow \\ &((v6\_waybel\_0\ X1\ X0)\Rightarrow(X1 = g1\_waybel\_0\ X0\ (u1\_struct\_0\ X1)\ (u1\_orders\_2 \\ &\quad X1)\ (u1\_waybel\_0\ X0\ X1))) \end{aligned} \quad (25)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\forall X1. \\ &((\neg v2\_struct\_0\ X1)\wedge(l1\_struct\_0\ X1))\Rightarrow((u1\_struct\_0\ X0 = u1\_struct\_0 \\ &\quad X1)\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge((v4\_orders\_2\ X2)\wedge((v7\_waybel\_0 \\ &\quad X2)\wedge(l1\_waybel\_0\ X2\ X0))))\Rightarrow(\forall X3.((\neg v2\_struct\_0\ X3)\wedge \\ &\quad (v4\_orders\_2\ X3)\wedge((v7\_waybel\_0\ X3)\wedge(l1\_waybel\_0\ X3\ X1))))\Rightarrow( \\ &\quad ((g1\_orders\_2\ (u1\_struct\_0\ X2)\ (u1\_orders\_2\ X2) = g1\_orders\_2 \\ &\quad (u1\_struct\_0\ X3)\ (u1\_orders\_2\ X3))\wedge(r1\_funct\_2\ (u1\_struct\_0 \\ &\quad X2)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X3)\ (u1\_struct\_0\ X1)\ (u1\_waybel\_0 \\ &\quad X0\ X2)\ (u1\_waybel\_0\ X1\ X3)))\Rightarrow(\forall X4.(m2\_yellow\_6\ X4\ X0\ X2)\Rightarrow \\ &(\exists X5.((v6\_waybel\_0\ X5\ X1)\wedge(m2\_yellow\_6\ X5\ X1\ X3))\wedge((g1\_orders\_2 \\ &\quad (u1\_struct\_0\ X4)\ (u1\_orders\_2\ X4) = g1\_orders\_2\ (u1\_struct\_0\ X5) \\ &\quad (u1\_orders\_2\ X5))\wedge(r1\_funct\_2\ (u1\_struct\_0\ X4)\ (u1\_struct\_0 \\ &\quad X0)\ (u1\_struct\_0\ X5)\ (u1\_struct\_0\ X1)\ (u1\_waybel\_0\ X0\ X4)\ (u1\_waybel\_0 \\ &\quad X1\ X5)))))))))) \end{aligned}$$