

t15\_waybel\_5  
(TMJLiF4syYVCH85jwHCgrju2fWJzMEFirB2)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funcop\_1 : \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_card\_3 : \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_6 : \iota \Rightarrow \iota$  be given. Let  $k2\_pralg\_2 : \iota \Rightarrow \iota$  be given. Let  $r3\_orders\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_yellow\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k1\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_waybel\_5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v5\_orders\_2 X0) \wedge ((v3\_lattice3 \\ & X0) \wedge (l1\_orders\_2 X0)))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2. (X1 = k1\_yellow\_0 X0 X2) \Leftrightarrow ((r2\_lattice3 X0 X2 X1) \wedge \\ & (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r2\_lattice3 \\ & X0 X2 X3) \Rightarrow (r1\_orders\_2 X0 X1 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v2\_struct\_0 X1)\wedge(l1\_orders\_2 X1))\Rightarrow \\
& (\forall X2.((v1\_relat\_1 X2)\wedge((v1\_funct\_1 X2)\wedge(v1\_funcop\_1 \\
& X2))))\Rightarrow((\neg(X0 \in k2\_relset\_1 (u1\_struct\_0 X1) (k4\_waybel\_5 X1 X2))\wedge \\
& (\forall X3.\neg(X3 \in k9\_xtuple\_0 X2)\wedge(X0 = k4\_yellow\_2 X1 (k1\_funct\_1 \\
& X2 X3))))\wedge((\exists X3.(X3 \in k9\_xtuple\_0 X2)\wedge(X0 = k4\_yellow\_2 \\
& X1 (k1\_funct\_1 X2 X3)))\Rightarrow(X0 \in k2\_relset\_1 (u1\_struct\_0 X1) (k4\_waybel\_5 \\
& X1 X2)))\wedge((\neg(X0 \in k2\_relset\_1 (u1\_struct\_0 X1) (k5\_waybel\_5 X1 \\
& X2))\wedge(\forall X3.\neg(X3 \in k9\_xtuple\_0 X2)\wedge(X0 = k5\_yellow\_2 X1 (k1\_funct\_1 \\
& X2 X3))))\wedge((\exists X3.(X3 \in k9\_xtuple\_0 X2)\wedge(X0 = k5\_yellow\_2 \\
& X1 (k1\_funct\_1 X2 X3)))\Rightarrow(X0 \in k2\_relset\_1 (u1\_struct\_0 X1) (k5\_waybel\_5 \\
& X1 X2)))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge((v3\_orders\_2 \\
& X0)\wedge(l1\_orders\_2 X0)))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge( \\
& m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow((r3\_orders\_2 X0 X1 X2)\Leftrightarrow(r1\_orders\_2 \\
& X0 X1 X2))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v5\_relat\_1 X1 X0))\Rightarrow( \\
& k2\_relset\_1 X0 X1 = k10\_xtuple\_0 X1)
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow( \\
& k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(v4\_funct\_1 (k4\_card\_3 \\
& X0))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(l1\_orders\_2 X0))\wedge \\
& ((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_funcop\_1 X1))))\Rightarrow((v1\_funct\_1 \\
& (k5\_waybel\_5 X0 X1))\wedge((v1\_funct\_2 (k5\_waybel\_5 X0 X1) (k9\_xtuple\_0 \\
& X1) (u1\_struct\_0 X0))\wedge(m1\_subset\_1 (k5\_waybel\_5 X0 X1) (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k9\_xtuple\_0 X1) (u1\_struct\_0 X0))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_funcop\_1 X0)))\Rightarrow \\
& ((v1\_relat\_1 (k2\_pralg\_2 X0))\wedge((v4\_relat\_1 (k2\_pralg\_2 X0) ( \\
& k4\_card\_3 (k2\_funct\_6 X0)))\wedge((v1\_funct\_1 (k2\_pralg\_2 X0)\wedge( \\
& (v1\_partfun1 (k2\_pralg\_2 X0) (k4\_card\_3 (k2\_funct\_6 X0)))\wedge(v1\_funcop\_1 \\
& (k2\_pralg\_2 X0))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow ((v1\_relat\_1 (k2\_funct\_6 X0)) \wedge (v1\_funct\_1 (k2\_funct\_6 X0))) \quad (10)$$

Assume the following.

$$\forall X0. \forall X1. (l1\_orders\_2 X0) \Rightarrow (m1\_subset\_1 (k1\_yellow\_0 X0 X1) (u1\_struct\_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow (m1\_subset\_1 (k1\_relset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \quad (12)$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow (\forall X1. \forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r2\_lattice3 X0 X1 X2) \Leftrightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((X3 \in X1) \Rightarrow (r1\_orders\_2 X0 X3 X2)))))) \quad (13)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. (v1\_relat\_1 X1) \Rightarrow (k4\_yellow\_2 X0 X1 = k1\_yellow\_0 X0 (k10\_xtuple\_0 X1))) \quad (14)$$

Assume the following.

$$\forall X0. (v4\_funct\_1 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v4\_funct\_1 X1)) \quad (15)$$

Assume the following.

$$\forall X0. (v4\_funct\_1 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 X0) \Rightarrow ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1))) \quad (16)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1)) \quad (17)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \quad (18)$$

Assume the following.

$$\forall X0. (l1\_orders\_2 X0) \Rightarrow ((v1\_lattice3 X0) \Rightarrow (\neg v2\_struct\_0 X0)) \quad (19)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 \\ & X0) \wedge ((v1\_lattice3 X0) \wedge ((v2\_lattice3 X0) \wedge ((v3\_lattice3 X0) \wedge \\ & (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_funcop\_1 \\ & X2))) \Rightarrow ((\forall X3.((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow ((X3 \in \\ & k1\_relset\_1 (k4\_card\_3 (k2\_funct\_6 X2)) (k2\_pralg\_2 X2)) \Rightarrow (r3\_orders\_2 \\ & X0 (k5\_yellow\_2 X0 (k1\_funct\_1 (k2\_pralg\_2 X2) X3)) X1))) \Rightarrow (r3\_orders\_2 \\ & X0 (k4\_yellow\_2 X0 (k5\_waybel\_5 X0 (k2\_pralg\_2 X2))) X1)))) \end{aligned}$$