

t17\_oposet\_1  
(TMQbAKrw5SuQGi7MshUTP3xf1xBNWaq54d1)

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Let  $v12\_oposet\_1 : \iota \Rightarrow o$  be given. Let  $k1\_oposet\_1 : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_funct\_5 : \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k4\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v9\_oposet\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_robbins1 : \iota \Rightarrow \iota$  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  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_funct\_5 : \iota$  be given. Let  $k7\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g2\_qmax\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_qmax\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partit\_2 : \iota \Rightarrow o$  be given. Let  $v13\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_qmax\_1 : \iota \Rightarrow o$  be given. Let  $l1\_robbins1 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k2\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_yellow\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r4\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_waybel\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_oposet\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v3\_lattice3 : \iota \Rightarrow o$  be given. Let  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Assume the following.

$$np\_1 = k1\_tarski\ k1\_xboole\_0 \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0\ X0) \wedge ((v3\_orders\_2\ X0) \wedge ((v5\_orders\_2 \\ & X0) \wedge (l1\_orders\_2\ X0)))) \Rightarrow (\forall X1. (m1\_subset\_1\ X1\ (u1\_struct\_0 \\ & X0)) \Rightarrow ((r1\_yellow\_0\ X0\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X1)) \wedge (r2\_yellow\_0 \\ & X0\ (k6\_domain\_1\ (u1\_struct\_0\ X0)\ X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1)\Rightarrow((v1\_xboole\_0 X1)\vee (X0 \in X1)) \quad (3)$$

Assume the following.

$$\forall X0.k2\_tarski X0 X0 = k1\_tarski X0 \quad (4)$$

Assume the following.

$$k8\_funct\_5 = k1\_tarski (k4\_tarski k1\_xboole\_0 k1\_xboole\_0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow((X1 = k4\_relat\_1 X0)\Leftrightarrow((k9\_xtuple\_0 X1 = X0)\wedge(\forall X2.(X2 \in X0)\Rightarrow(k1\_funct\_1 X1 X2 = X2)))) \quad (6)$$

Assume the following.

$$v9\_oposet\_1 (u1\_robins1 k1\_oposet\_1) k1\_oposet\_1 \quad (7)$$

Assume the following.

$$\neg v1\_xboole\_0 np\_1 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2)\wedge ((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\wedge((v1\_funct\_1 X3)\wedge((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\Rightarrow((r2\_funct\_2 X0 X1 X2 X3)\Leftrightarrow(X2 = X3)) \quad (9)$$

Assume the following.

$$k8\_funct\_5 = k6\_funct\_5 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((m1\_subset\_1 X1 X0)\wedge(m1\_subset\_1 X2 X0)))\Rightarrow(k7\_domain\_1 X0 X1 X2 = k2\_tarski X1 X2) \quad (11)$$

Assume the following.

$$\forall X0.k6\_partfun1 X0 = k4\_relat\_1 X0 \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge(m1\_subset\_1 X1 X0))\Rightarrow (k6\_domain\_1 X0 X1 = k1\_tarski X1) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & (((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (14)$$

Assume the following.

$$k6\_partfun1 (k1\_tarski k1\_xboole\_0) = k1\_tarski (k4\_tarski k1\_xboole\_0 k1\_xboole\_0) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X0)))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X0)\wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))\Rightarrow(\forall X3. \\ & \forall X4.\forall X5.(g2\_qmax\_1 X0 X1 X2 = g2\_qmax\_1 X3 X4 X5)\Rightarrow( \\ & (X0 = X3)\wedge((X1 = X4)\wedge(X2 = X5)))) \end{aligned} \quad (16)$$

Assume the following.

$$(v3\_orders\_2 k1\_oposet\_1)\wedge(v3\_qmax\_1 k1\_oposet\_1) \quad (17)$$

Assume the following.

$$(v1\_relat\_1 k6\_funct\_5)\wedge((v1\_funct\_1 k6\_funct\_5)\wedge(v1\_partit\_2 k6\_funct\_5)) \quad (18)$$

Assume the following.

$$(v13\_struct\_0 k1\_oposet\_1 np\_1)\wedge(v3\_qmax\_1 k1\_oposet\_1) \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_relat\_1 (k4\_relat\_1 X0))\wedge((v4\_relat\_1 (k4\_relat\_1 \\ & X0) X0)\wedge((v1\_funct\_1 (k4\_relat\_1 X0))\wedge(v1\_partfun1 (k4\_relat\_1 \\ & X0) X0))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \quad (21)$$

Assume the following.

$$\forall X0.(l2\_qmax\_1 X0)\Rightarrow((l1\_orders\_2 X0)\wedge(l1\_robbins1 X0)) \quad (22)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0)\Rightarrow(l1\_struct\_0 X0) \quad (23)$$

Assume the following.

$$(v1\_funct\_1\ k8\_funct\_5) \wedge ((v1\_funct\_2\ k8\_funct\_5\ np\_1\ np\_1) \wedge (m1\_subset\_1\ k8\_funct\_5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ np\_1\ np\_1)))) \quad (24)$$

Assume the following.

$$\forall X0.(v1\_partfun1\ (k6\_partfun1\ X0)\ X0) \wedge (m1\_subset\_1\ (k6\_partfun1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0))) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.(l1\_orders\_2\ X0) \Rightarrow (m1\_subset\_1\ (k2\_yellow\_0\ X0\ X1)\ (u1\_struct\_0\ X0)) \quad (26)$$

Assume the following.

$$\forall X0.\forall X1.(l1\_orders\_2\ X0) \Rightarrow (m1\_subset\_1\ (k1\_yellow\_0\ X0\ X1)\ (u1\_struct\_0\ X0)) \quad (27)$$

Assume the following.

$$(v3\_qmax\_1\ k1\_oposet\_1) \wedge (l2\_qmax\_1\ k1\_oposet\_1) \quad (28)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_orders\_2\ X0)) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(r4\_waybel\_1\ X0\ X1\ X2) \Leftrightarrow ((r1\_yellow\_0\ X0\ X2) \wedge ((X1 = k1\_yellow\_0\ X0\ X2) \wedge (k1\_yellow\_0\ X0\ X2 \in X2))))) \quad (29)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_orders\_2\ X0)) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(r3\_waybel\_1\ X0\ X1\ X2) \Leftrightarrow ((r2\_yellow\_0\ X0\ X2) \wedge ((X1 = k2\_yellow\_0\ X0\ X2) \wedge (k2\_yellow\_0\ X0\ X2 \in X2))))) \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k2\_tarski\ X0\ X1) \Leftrightarrow (\forall X3.(X3 \in X2) \Leftrightarrow ((X3 = X0) \vee (X3 = X1))) \quad (31)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l2\_qmax\_1\ X0)) \Rightarrow ((v12\_oposet\_1\ X0) \Leftrightarrow (\exists X1.((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))))) \wedge ((r2\_funct\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ X1\ (u1\_robbins1\ X0)) \wedge (r2\_oposet\_1\ X0\ X1)))) \quad (32)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (\forall X1. \\
& ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 \\
& X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
& X0) (u1\_struct\_0 X0)))))) \Rightarrow ((r2\_oposet\_1 X0 X1) \Leftrightarrow ((v9\_oposet\_1 \\
& X1 X0) \wedge (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_yellow\_0 \\
& X0 (k7\_domain\_1 (u1\_struct\_0 X0) X2 (k3\_funct\_2 (u1\_struct\_0 X0) \\
& (u1\_struct\_0 X0) X1 X2))) \wedge ((r2\_yellow\_0 X0 (k7\_domain\_1 (u1\_struct\_0 \\
& X0) X2 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1 X2))) \wedge ( \\
& (r4\_waybel\_1 X0 (k1\_yellow\_0 X0 (k7\_domain\_1 (u1\_struct\_0 X0) \\
& X2 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1 X2))) (u1\_struct\_0 \\
& X0)) \wedge (r3\_waybel\_1 X0 (k2\_yellow\_0 X0 (k7\_domain\_1 (u1\_struct\_0 \\
& X0) X2 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X1 X2))) (u1\_struct\_0 \\
& X0)))))))))
\end{aligned} \tag{33}$$

Assume the following.

$$\forall X0. \forall X1. (X1 = k1\_tarski X0) \Leftrightarrow (\forall X2. (X2 \in X1) \Leftrightarrow (X2 = X0)) \tag{34}$$

Assume the following.

$$k1\_oposet\_1 = g2\_qmax\_1 np\_1 (k6\_partfun1 np\_1) k8\_funct\_5 \tag{35}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_orders\_2 X0) \Rightarrow (((v13\_struct\_0 X0 np\_1) \wedge (v3\_orders\_2 \\
& X0)) \Rightarrow ((v13\_struct\_0 X0 np\_1) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
& X0) \wedge ((v5\_orders\_2 X0) \wedge (v3\_lattice3 X0))))))
\end{aligned} \tag{36}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v1\_partfun1 X2 X0) \Rightarrow (v1\_funct\_2 X2 X0 X1))
\end{aligned} \tag{37}$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow ((v13\_struct\_0 X0 np\_1) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge (v7\_struct\_0 X0))) \tag{38}$$

Assume the following.

$$\forall X0.(l2\_qmax\_1 X0) \Rightarrow ((v3\_qmax\_1 X0) \Rightarrow (X0 = g2\_qmax\_1 (u1\_struct\_0 X0) (u1\_orders\_2 X0) (u1\_robbins1 X0))) \tag{39}$$

**Theorem 1**  $v12\_oposet\_1 k1\_oposet\_1$ .