

## t3\_lattice2

(TMdFoBuh7Kwx95ySnsvsJakDPBDDDDzDcTk)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg(v1\_xboole\_0 X0) \wedge ((X0 \neq X1) \wedge (v1\_xboole\_0 X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((k1\_relset\_1 X0 X2 = X0) \Rightarrow \\ & ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (v1\_relat\_1 X1) \Rightarrow (k9\_xtuple\_0 (k5\_relat\_1 X1 X0) = k3\_xboole\_0 (k9\_xtuple\_0 X1) X0) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. k2\_xboole\_0 X0 (k3\_xboole\_0 X0 X1) = X0 \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X2) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \wedge ((v1\_funct\_1 \\ & X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))) \Rightarrow (k7\_funct\_4 \\ & X0 X1 X2 X3 = k1\_funct\_4 X2 X3) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X2)\wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(k2\_partfun1 X0 X1 X2 X3 = k5\_relat\_1 X2 X3) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow(k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow(k5\_relat\_1 X1 X0 = X1) \quad (8)$$

Assume the following.

$$\exists X0.v1\_xboole\_0 X0 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\exists X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\wedge((v1\_xboole\_0 X2)\wedge((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\wedge((v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)))\Rightarrow(k1\_funct\_4 X0 X0 = X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow((v1\_relat\_1 (k5\_relat\_1 X0 X1))\wedge(v1\_funct\_1 (k5\_relat\_1 X0 X1))) \quad (12)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (13)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(v1\_xboole\_0 (k9\_xtuple\_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1 X2)\wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\wedge((v1\_funct\_1 X3)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))\Rightarrow((v1\_funct\_1 (k7\_funct\_4 X0 X1 X2 X3))\wedge(m1\_subset\_1 (k7\_funct\_4 X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_relat\_1 X0)\Rightarrow(v1\_relat\_1 (k5\_relat\_1 X0 X1)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X2)\wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))\Rightarrow((v1\_funct\_1 \\ & (k2\_partfun1 X0 X1 X2 X3))\wedge(m1\_subset\_1 (k2\_partfun1 X0 X1 X2 X3) \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\wedge(( \\ & v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)))\Rightarrow((v1\_relat\_1 (k1\_funct\_4 X0 \\ & X1))\wedge(v1\_funct\_1 (k1\_funct\_4 X0 X1))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.(( \\ & v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))\Rightarrow(\forall X2.((v1\_relat\_1 X2)\wedge \\ & (v1\_funct\_1 X2))\Rightarrow((X2 = k1\_funct\_4 X0 X1)\Leftrightarrow((k9\_xtuple\_0 X2 = k2\_xboole\_0 \\ & (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1))\wedge(\forall X3.(X3 \in k2\_xboole\_0 \\ & (k9\_xtuple\_0 X0) (k9\_xtuple\_0 X1))\Rightarrow(((X3 \in k9\_xtuple\_0 X1)\Rightarrow(k1\_funct\_1 \\ & X2 X3 = k1\_funct\_1 X1 X3))\wedge((\neg X3 \in k9\_xtuple\_0 X1)\Rightarrow(k1\_funct\_1 X2 \\ & X3 = k1\_funct\_1 X0 X3)))))))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))\Rightarrow(((X1 \neq k1\_xboole\_0)\Rightarrow((v1\_funct\_2 X2 X0 \\ & X1)\Leftrightarrow(X0 = k1\_relset\_1 X0 X2)))\wedge((X1 = k1\_xboole\_0)\Rightarrow((v1\_funct\_2 \\ & X2 X0 X1)\Leftrightarrow(X2 = k1\_xboole\_0)))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \end{aligned} \quad (23)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_relat\_1 X0) \quad (24)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v1\_funct\_1 X0) \quad (25)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow (\forall X2.((v1\_funct\_1 \\ & X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow (\forall X4. \\ & (v1\_funct\_1 (k7\_funct\_4 X0 X1 X2 (k2\_partfun1 X0 X1 X3 X4))) \wedge ((v1\_funct\_2 \\ & (k7\_funct\_4 X0 X1 X2 (k2\_partfun1 X0 X1 X3 X4)) X0 X1) \wedge (m1\_subset\_1 \\ & (k7\_funct\_4 X0 X1 X2 (k2\_partfun1 X0 X1 X3 X4)) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \end{aligned}$$