

# t59\_eqrel\_1 (TML- CkSx1bNdGRrUyFZoU6mZBerFGrtGoVce)

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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  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_partfun1 : \iota \Rightarrow \iota$  be given. Let  $k8\_mcart\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k15\_funct\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (k7\_relat\_1 (k4\_relat\_1 X0) X1 = X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 X3)) \Rightarrow (k7\_relat\_1 (k15\_funct\_3 X2 X3) (k2\_zfmisc\_1 X0 X1) = k2\_zfmisc\_1 (k7\_relat\_1 X2 X0) (k7\_relat\_1 X3 X1))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 X1))) \Rightarrow (k8\_mcart\_1 X0 X1 X2 X3 = k2\_zfmisc\_1 X2 X3) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(k7\_relset\_1 X0 X1 X2 X3 = k7\_relat\_1 X2 X3) \quad (5)$$

Assume the following.

$$\forall X0.k6\_partfun1 X0 = k4\_relat\_1 X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.(((v1\_funct\_1 X4)\wedge((v1\_funct\_2 X4 X0 X2)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X2))))))\wedge((v1\_funct\_1 X5)\wedge((v1\_funct\_2 X5 X1 X3)\wedge(m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X3))))))\Rightarrow(k16\_funct\_3 X0 X1 X2 X3 X4 X5 = k15\_funct\_3 X4 X5) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 (k4\_relat\_1 X0)\wedge((v4\_relat\_1 (k4\_relat\_1 X0) X0)\wedge((v1\_funct\_1 (k4\_relat\_1 X0)\wedge(v1\_partfun1 (k4\_relat\_1 X0) X0)))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 X1)))\Rightarrow(m1\_subset\_1 (k8\_mcart\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(m1\_subset\_1 (k7\_relset\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 X1)) \quad (10)$$

Assume the following.

$$\forall X0.(v1\_partfun1 (k6\_partfun1 X0) X0)\wedge(m1\_subset\_1 (k6\_partfun1 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.(((v1\_funct\_1 X4)\wedge((v1\_funct\_2 X4 X0 X2)\wedge(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X2))))))\wedge((v1\_funct\_1 X5)\wedge((v1\_funct\_2 X5 X1 X3)\wedge(m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X3))))))\Rightarrow((v1\_funct\_1 (k16\_funct\_3 X0 X1 X2 X3 X4 X5))\wedge((v1\_funct\_2 (k16\_funct\_3 X0 X1 X2 X3 X4 X5) (k2\_zfmisc\_1 X0 X1) (k2\_zfmisc\_1 X2 X3))\wedge(m1\_subset\_1 (k16\_funct\_3 X0 X1 X2 X3 X4 X5) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1) (k2\_zfmisc\_1 X2 X3)))))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v1\_partfun1 X2 X0)\Rightarrow(v1\_funct\_2 X2 X0 X1)) \quad (14)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(\neg v1\_xboole\_0 X1)\Rightarrow \\ &\quad (\forall X2.(\neg v1\_xboole\_0 X2)\Rightarrow(\forall X3.((v1\_funct\_1 X3)\wedge \\ &\quad ((v1\_funct\_2 X3 X0 X1)\wedge(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ &\quad X0 X1))))))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (k1\_zfmisc\_1 X0))\Rightarrow(\forall X5. \\ &\quad (m1\_subset\_1 X5 (k1\_zfmisc\_1 X2))\Rightarrow(r2\_relset\_1 X1 X2 (k7\_relset\_1 \\ &\quad (k2\_zfmisc\_1 X0 X2) (k2\_zfmisc\_1 X1 X2) (k16\_funct\_3 X0 X2 X1 X2 X3 \\ &\quad (k6\_partfun1 X2)) (k8\_mcart\_1 X0 X2 X4 X5)) (k8\_mcart\_1 X1 X2 (k7\_relset\_1 \\ &\quad X0 X1 X3 X4) X5)))))) \end{aligned}$$