t51_yellow16 (TM-dACD3nzUiMhStihFU7sVBC2BkYqQ1sqaY)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_pre\_topc : \iota \Rightarrow o$ be given. Let $l1\_pre\_topc : \iota \Rightarrow o$ be given. Let $r1\_t\_0topsp : \iota \Rightarrow \iota \Rightarrow o$ 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 $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v2\_funct\_1 : \iota \Rightarrow o$ be given. Let $k2\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_partfun1 : \iota \Rightarrow \iota$ be given. Let $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k2\_funct\_1 : \iota \Rightarrow \iota$ be given. Let $v2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ 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 $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\neg(v1\_xboole\_0\ X0)\wedge((X0 \neq X1)\wedge(v1\_xboole\_0\ X1)) \tag{1}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(\forall X1.(l1\_struct\_0\ X1)\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow(((k2\_relset\_1\ (u1\_struct\_0\ X1)\ X2 = k2\_struct\_0\ X1)\wedge(v2\_funct\_1\ X2))\Rightarrow((k1\_partfun1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ X2\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2) = k6\_partfun1\ (k1\_relset\_1\ (u1\_struct\_0\ X0)\ X2))\wedge(k1\_partfun1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2)\ X2 = k6\_partfun1\ (k2\_relset\_1\ (u1\_struct\_0\ X1)\ X2)))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X1\ X0)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0)))))\Rightarrow(((k2\_relset\_1\ X1\ X2 = X1)\wedge((r2\_relset\_1\ X0\ X0\ (k1\_partfun1\ X0\ X1\ X1\ X0\ X2\ X3)\ (k6\_partfun1\ X0))\wedge(v2\_funct\_1\ X2)))\Rightarrow((X0 = k1\_xboole\_0)\vee((X1 = k1\_xboole\_0)\vee(X3 = k2\_funct\_1\ X2)))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X1\ X0)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0)))))\Rightarrow((r2\_relset\_1\ X0\ X0\ (k1\_partfun1\ X0\ X1\ X1\ X0\ X2\ X3)\ (k6\_partfun1\ X0))\Rightarrow((v2\_funct\_1\ X2)\wedge(v2\_funct\_2\ X3\ X0)))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow(r2\_funct\_2\ X0\ X1\ X2\ X2) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\Rightarrow((r2\_relset\_1\ X0\ X1\ X2\ X3)\Leftrightarrow(X2 = X3)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow((r2\_funct\_2\ X0\ X1\ X2\ X3)\Leftrightarrow(X2 = X3)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge(v5\_relat\_1\ X1\ X0))\Rightarrow(k2\_relset\_1\ X0\ X1 = k10\_xtuple\_0\ X1) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge(v4\_relat\_1\ X1\ X0))\Rightarrow(k1\_relset\_1\ X0\ X1 = k9\_xtuple\_0\ X1) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.\ (((v1\_funct\_1\ X4)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\wedge((v1\_funct\_1\ X5)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3)))))\Rightarrow(k1\_partfun1\ X0\ X1\ X2\ X3\ X4\ X5 = k3\_relat\_1\ X4\ X5) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.\exists X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge((v1\_xboole\_0\ X2)\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge(v5\_relat\_1\ X2\ X1)))) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge((v1\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ X1\ X2)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X2)))))))\Rightarrow((v1\_funct\_1\ (k3\_relat\_1\ X3\ X4))\wedge(v1\_funct\_2\ (k3\_relat\_1\ X3\ X4)\ X0\ X2)) \tag{12}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{13}$$

Assume the following.

$$v1\_xboole\_0\ k1\_xboole\_0 \tag{14}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(v1\_xboole\_0\ (k10\_xtuple\_0\ X0)) \tag{15}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{16}$$

Assume the following.

$$\forall X0.(v1\_partfun1\ (k6\_partfun1\ X0)\ X0)\wedge(m1\_subset\_1\ (k6\_partfun1\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0))) \tag{17}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow((v1\_funct\_1\ (k3\_struct\_0\ X0))\wedge((v1\_funct\_2\ (k3\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (k3\_struct\_0\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)))))) \tag{18}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\Rightarrow((v1\_funct\_1\ (k2\_tops\_2\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k2\_tops\_2\ X0\ X1\ X2)\ X1\ X0)\wedge(m1\_subset\_1\ (k2\_tops\_2\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0)))))) \tag{19}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.(((v1\_funct\_1\ X4)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\wedge((v1\_funct\_1\ X5)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X2\ X3)))))\Rightarrow((v1\_funct\_1\ (k1\_partfun1\ X0\ X1\ X2\ X3\ X4\ X5))\wedge(m1\_subset\_1\ (k1\_partfun1\ X0\ X1\ X2\ X3\ X4\ X5)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X3)))) \tag{20}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(l1\_pre\_topc\ X1)\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow((v3\_tops\_2\ X2\ X0\ X1)\Leftrightarrow((k1\_relset\_1\ (u1\_struct\_0\ X0)\ X2 = k2\_struct\_0\ X0)\wedge((k2\_relset\_1\ (u1\_struct\_0\ X1)\ X2 = k2\_struct\_0\ X1)\wedge((v2\_funct\_1\ X2)\wedge((v5\_pre\_topc\ X2\ X0\ X1)\wedge(v5\_pre\_topc\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2)\ X1\ X0)))))))) \tag{21}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(k3\_struct\_0\ X0 = k6\_partfun1\ (u1\_struct\_0\ X0)) \tag{22}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(k2\_struct\_0\ X0 = u1\_struct\_0\ X0) \tag{23}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge(v5\_relat\_1\ X1\ X0))\Rightarrow((v2\_funct\_2\ X1\ X0)\Leftrightarrow(k2\_relset\_1\ X0\ X1 = X0)) \tag{24}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(l1\_pre\_topc\ X1)\Rightarrow((r1\_t\_0topsp\ X0\ X1)\Leftrightarrow(\exists X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\wedge(v3\_tops\_2\ X2\ X0\ X1)))) \tag{25}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(((X1\neq k1\_xboole\_0)\Rightarrow((v1\_funct\_2\ X2\ X0\ X1)\Leftrightarrow(X0 = k1\_relset\_1\ X0\ X2)))\wedge((X1 = k1\_xboole\_0)\Rightarrow((v1\_funct\_2\ X2\ X0\ X1)\Leftrightarrow(X2 = k1\_xboole\_0)))) \tag{26}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow((v4\_relat\_1\ X2\ X0)\wedge(v5\_relat\_1\ X2\ X1)) \tag{27}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(v1\_relat\_1\ X2) \tag{28}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_pre\_topc\ X0)\wedge(l1\_pre\_topc\ X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_pre\_topc\ X1)\wedge(l1\_pre\_topc\ X1)))\Rightarrow((r1\_t\_0topsp\ X0\ X1)\Leftrightarrow(\exists X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge((v5\_pre\_topc\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)))))))\wedge(\exists X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0))\wedge((v5\_pre\_topc\ X3\ X1\ X0)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)))))))\wedge((r2\_funct\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (k1\_partfun1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X3\ X2)\ (k3\_struct\_0\ X1))\wedge(r2\_funct\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X0)\ (k1\_partfun1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ X2\ X3)\ (k3\_struct\_0\ X0)))))))$$