# t56_tops_2 (TMZJL-hxhq4LEB5zN3KtwDVQVwPAfX9uSsp8)

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Let $l1\_pre\_topc : \iota \Rightarrow o$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ 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 $u1\_struct\_0 : \iota \Rightarrow \iota$ 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 $v3\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(l1\_struct\_0\ X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l1\_struct\_0\ X1)) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)))))) \Rightarrow (((k2\_relset\_1\ (u1\_struct\_0\ X1)\ X2 = k2\_struct\_0\ X1) \wedge (v2\_funct\_1\ X2)) \Rightarrow (r2\_funct\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (k2\_tops\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2))\ X2)))) \tag{1}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge (l1\_struct\_0\ X1))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow(((k2\_relset\_1\ (u1\_struct\_0\ X1)\ X2 = k2\_struct\_0\ X1)\wedge(v2\_funct\_1\ X2))\Rightarrow((k1\_relset\_1\ (u1\_struct\_0\ X1)\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2) = k2\_struct\_0\ X1)\wedge(k2\_relset\_1\ (u1\_struct\_0\ X0)\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2) = k2\_struct\_0\ X0)))))) \tag{3}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\Rightarrow((v1\_funct\_1\ (k2\_tops\_2\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k2\_tops\_2\ X0\ X1\ X2)\ X1\ X0)\wedge(m1\_subset\_1\ (k2\_tops\_2\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0))))) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(l1\_pre\_topc\ X1)\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow((v3\_tops\_2\ X2\ X0\ X1)\Leftrightarrow((k1\_relset\_1\ (u1\_struct\_0\ X0)\ X2 = k2\_struct\_0\ X0)\wedge((k2\_relset\_1\ (u1\_struct\_0\ X1)\ X2 = k2\_struct\_0\ X1)\wedge((v2\_funct\_1\ X2)\wedge((v5\_pre\_topc\ X2\ X0\ X1)\wedge(v5\_pre\_topc\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2)\ X1\ X0)))))))) \tag{7}$$

**Theorem 1**

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge (l1\_pre\_topc\ X1))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow((v3\_tops\_2\ X2\ X0\ X1)\Rightarrow(v3\_tops\_2\ (k2\_tops\_2\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ X2)\ X1\ X0))))$$