t3_msualg_5 (TMb-dDt6A6MReBTnQaeN4D6Rd42rR9cC43gS)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r8\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_msualg\_5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_relat\_2 : \iota \Rightarrow o$ be given. Let $v8\_relat\_2 : \iota \Rightarrow o$ 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 $k1\_msualg\_5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_msualg\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_partfun1\ X1\ X0) \wedge ((v3\_relat\_2\ X1) \wedge ((v8\_relat\_2\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))))) \Rightarrow (r2\_relset\_1\ X0\ X0\ (k1\_msualg\_5\ X0\ X1)\ X1) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))) \Rightarrow ((r2\_relset\_1\ X0\ X1\ X2\ X3) \Rightarrow (r2\_relset\_1\ X0\ X1\ X3\ X2)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X0) \wedge (((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ X0) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ X0)))) \wedge ((v1\_relat\_1\ X2) \wedge ((v4\_relat\_1\ X2\ X0) \wedge ((v1\_funct\_1\ X2) \wedge (v1\_partfun1\ X2\ X0)))))) \Rightarrow ((r8\_pboole\ X0\ X1\ X2) \Leftrightarrow (X1 = X2)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge(((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\wedge((m1\_msualg\_4\ X3\ X0\ X1\ X2)\wedge(m1\_subset\_1\ X4\ X0)))))\Rightarrow(k1\_msualg\_4\ X0\ X1\ X2\ X3\ X4 = k1\_funct\_1\ X3\ X4) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0)))))\Rightarrow(\forall X3.(m1\_msualg\_4\ X3\ X0\ X1\ X2)\Rightarrow((v1\_relat\_1\ X3)\wedge((v4\_relat\_1\ X3\ X0)\wedge((v1\_funct\_1\ X3)\wedge(v1\_partfun1\ X3\ X0))))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))\Rightarrow((v1\_partfun1\ (k1\_msualg\_5\ X0\ X1)\ X0)\wedge((v3\_relat\_2\ (k1\_msualg\_5\ X0\ X1))\wedge((v8\_relat\_2\ (k1\_msualg\_5\ X0\ X1))\wedge(m1\_subset\_1\ (k1\_msualg\_5\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0))))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\wedge(((v1\_relat\_1\ X2)\wedge((v4\_relat\_1\ X2\ X0)\wedge((v1\_funct\_1\ X2)\wedge(v1\_partfun1\ X2\ X0))))\wedge((m1\_msualg\_4\ X3\ X0\ X1\ X2)\wedge(m1\_subset\_1\ X4\ X0)))))\Rightarrow(m1\_subset\_1\ (k1\_msualg\_4\ X0\ X1\ X2\ X3\ X4)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_funct\_1\ X1\ X4)\ (k1\_funct\_1\ X2\ X4)))) \tag{8}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.(m1\_msualg\_4\ X2\ X0\ X1\ X1)\Rightarrow(\forall X3.((v1\_msualg\_4\ X3\ X0\ X1)\wedge(m1\_msualg\_4\ X3\ X0\ X1\ X1))\Rightarrow((X3 = k3\_msualg\_5\ X0\ X1\ X2)\Leftrightarrow(\forall X4.(m1\_subset\_1\ X4\ X0)\Rightarrow(r2\_relset\_1\ (k1\_funct\_1\ X1\ X4)\ (k1\_funct\_1\ X1\ X4)\ (k1\_msualg\_4\ X0\ X1\ X1\ X3\ X4)\ (k1\_msualg\_5\ (k1\_funct\_1\ X1\ X4)\ (k1\_msualg\_4\ X0\ X1\ X1\ X2\ X4)))))))) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.(m1\_msualg\_4\ X2\ X0\ X1\ X1)\Rightarrow((v1\_msualg\_4\ X2\ X0\ X1)\Leftrightarrow(\forall X3.\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_funct\_1\ X1\ X3)\ (k1\_funct\_1\ X1\ X3))))\Rightarrow(((X3\in X0)\wedge(k1\_funct\_1\ X2\ X3=X4))\Rightarrow((v3\_relat\_2\ X4)\wedge((v8\_relat\_2\ X4)\wedge((v1\_partfun1\ X4\ (k1\_funct\_1\ X1\ X3))\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_funct\_1\ X1\ X3)\ (k1\_funct\_1\ X1\ X3))))))))))) \tag{10}$$

Theorem 1

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow(\forall X2.((v1\_msualg\_4\ X2\ X0\ X1)\wedge(m1\_msualg\_4\ X2\ X0\ X1\ X1))\Rightarrow(r8\_pboole\ X0\ (k3\_msualg\_5\ X0\ X1\ X2)\ X2)))$$