# t15_cfuncdom (TMX53nCRJfZ6cMBc1NorGV2ifsxmzo9t9Eu)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_numbers : \iota$ be given. Let $k9\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_cfuncdom : \iota \Rightarrow \iota$ be given. Let $k1\_cfuncdom : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_complex1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_complex1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xcmplx\_0 : \iota \Rightarrow o$ be given. Let $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m2\_funct\_2\ X1\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers)) \Rightarrow (\forall X2.(m2\_funct\_2\ X2\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers)) \Rightarrow (\forall X3.(m2\_funct\_2\ X3\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers)) \Rightarrow ((r2\_funct\_2\ X0\ k2\_numbers\ X1\ (k1\_funcsdom\ X0\ k2\_numbers\ (k2\_cfuncdom\ X0)\ X2\ X3)) \Leftrightarrow (\forall X4.(m1\_subset\_1\ X4\ X0) \Rightarrow (k3\_funct\_2\ X0\ k2\_numbers\ X1\ X4 = k9\_complex1\ (k3\_funct\_2\ X0\ k2\_numbers\ X2\ X4)\ (k3\_funct\_2\ X0\ k2\_numbers\ X3\ X4)))))))) \tag{1}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m2\_funct\_2\ X1\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers)) \Rightarrow (\forall X2.(m2\_funct\_2\ X2\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers)) \Rightarrow (\forall X3.(m2\_funct\_2\ X3\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers)) \Rightarrow ((r2\_funct\_2\ X0\ k2\_numbers\ X1\ (k1\_funcsdom\ X0\ k2\_numbers\ (k1\_cfuncdom\ X0)\ X2\ X3)) \Leftrightarrow (\forall X4.(m1\_subset\_1\ X4\ X0) \Rightarrow (k3\_funct\_2\ X0\ k2\_numbers\ X1\ X4 = k8\_complex1\ (k3\_funct\_2\ X0\ k2\_numbers\ X2\ X4)\ (k3\_funct\_2\ X0\ k2\_numbers\ X3\ X4)))))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_xcmplx\_0\ X0)\wedge((v1\_xcmplx\_0\ X1)\wedge(v1\_xcmplx\_0\ X2)))\Rightarrow(k3\_xcmplx\_0\ (k2\_xcmplx\_0\ X0\ X1)\ X2 = k2\_xcmplx\_0\ (k3\_xcmplx\_0\ X0\ X2)\ (k3\_xcmplx\_0\ X1\ X2)) \tag{3}$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X1)\wedge(m1\_funct\_2\ X2\ X0\ X1))\Rightarrow(\forall X3.(m2\_funct\_2\ X3\ X0\ X1\ X2)\Leftrightarrow(m1\_subset\_1\ X3\ X2)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ X1)\Rightarrow(k9\_funct\_2\ X0\ X1 = k1\_funct\_2\ X0\ X1) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k2\_numbers)\wedge(m1\_subset\_1\ X1\ k2\_numbers))\Rightarrow(k9\_complex1\ X0\ X1 = k3\_xcmplx\_0\ X0\ X1) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k2\_numbers)\wedge(m1\_subset\_1\ X1\ k2\_numbers))\Rightarrow(k8\_complex1\ X0\ X1 = k2\_xcmplx\_0\ X0\ X1) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ X0)))\Rightarrow(k3\_funct\_2\ X0\ X1\ X2\ X3 = k1\_funct\_1\ X2\ X3) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ X1)\ (k9\_funct\_2\ X0\ X1))\ (k9\_funct\_2\ X0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ X1)\ (k9\_funct\_2\ X0\ X1))\ (k9\_funct\_2\ X0\ X1))))))\wedge((m1\_subset\_1\ X3\ (k9\_funct\_2\ X0\ X1))\wedge(m1\_subset\_1\ X4\ (k9\_funct\_2\ X0\ X1)))))\Rightarrow(k1\_funcsdom\ X0\ X1\ X2\ X3\ X4 = k1\_binop\_1\ X2\ X3\ X4) \tag{10}$$

Assume the following.

$$\neg v1\_xboole\_0\ k2\_numbers \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X1)\wedge(m1\_funct\_2\ X2\ X0\ X1))\Rightarrow(\exists X3.m2\_funct\_2\ X3\ X0\ X1\ X2) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X1)\wedge(m1\_funct\_2\ X2\ X0\ X1))\Rightarrow(\forall X3.(m2\_funct\_2\ X3\ X0\ X1\ X2)\Rightarrow((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1\_xboole\_0\ X1)\Rightarrow(m1\_funct\_2\ (k9\_funct\_2\ X0\ X1)\ X0\ X1) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k2\_numbers)\wedge(m1\_subset\_1\ X1\ k2\_numbers))\Rightarrow(m1\_subset\_1\ (k8\_complex1\ X0\ X1)\ k2\_numbers) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))))\wedge(m1\_subset\_1\ X3\ X0)))\Rightarrow(m1\_subset\_1\ (k3\_funct\_2\ X0\ X1\ X2\ X3)\ X1) \tag{16}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow((v1\_funct\_1\ (k2\_cfuncdom\ X0))\wedge((v1\_funct\_2\ (k2\_cfuncdom\ X0)\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k2\_numbers)\ (k9\_funct\_2\ X0\ k2\_numbers))\ (k9\_funct\_2\ X0\ k2\_numbers))\wedge(m1\_subset\_1\ (k2\_cfuncdom\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k2\_numbers)\ (k9\_funct\_2\ X0\ k2\_numbers))\ (k9\_funct\_2\ X0\ k2\_numbers)))))) \tag{17}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ X1)\ (k9\_funct\_2\ X0\ X1))\ (k9\_funct\_2\ X0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ X1)\ (k9\_funct\_2\ X0\ X1))\ (k9\_funct\_2\ X0\ X1))))))\wedge((m1\_subset\_1\ X3\ (k9\_funct\_2\ X0\ X1))\wedge(m1\_subset\_1\ X4\ (k9\_funct\_2\ X0\ X1)))))\Rightarrow(m2\_funct\_2\ (k1\_funcsdom\ X0\ X1\ X2\ X3\ X4)\ X0\ X1\ (k9\_funct\_2\ X0\ X1)) \tag{18}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow((v1\_funct\_1\ (k1\_cfuncdom\ X0))\wedge ((v1\_funct\_2\ (k1\_cfuncdom\ X0)\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k2\_numbers)\ (k9\_funct\_2\ X0\ k2\_numbers))\ (k9\_funct\_2\ X0\ k2\_numbers))\wedge(m1\_subset\_1\ (k1\_cfuncdom\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (k9\_funct\_2\ X0\ k2\_numbers)\ (k9\_funct\_2\ X0\ k2\_numbers))\ (k9\_funct\_2\ X0\ k2\_numbers))))))) \tag{19}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k2\_numbers)\wedge(m1\_subset\_1\ X1\ k2\_numbers))\Rightarrow(k9\_complex1\ X0\ X1 = k9\_complex1\ X1\ X0) \tag{20}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k2\_numbers)\wedge(m1\_subset\_1\ X1\ k2\_numbers))\Rightarrow(k8\_complex1\ X0\ X1 = k8\_complex1\ X1\ X0) \tag{21}$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k2\_numbers)\Rightarrow(v1\_xcmplx\_0\ X0) \tag{22}$$

**Theorem 1**

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m2\_funct\_2\ X1\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers))\Rightarrow(\forall X2.(m2\_funct\_2\ X2\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers))\Rightarrow(\forall X3.(m2\_funct\_2\ X3\ X0\ k2\_numbers\ (k9\_funct\_2\ X0\ k2\_numbers))\Rightarrow(r2\_funct\_2\ X0\ k2\_numbers\ (k1\_funcsdom\ X0\ k2\_numbers\ (k2\_cfuncdom\ X0)\ X1\ (k1\_funcsdom\ X0\ k2\_numbers\ (k1\_cfuncdom\ X0)\ X2\ X3))\ (k1\_funcsdom\ X0\ k2\_numbers\ (k1\_cfuncdom\ X0)\ (k1\_funcsdom\ X0\ k2\_numbers\ (k2\_cfuncdom\ X0)\ X1\ X2)\ (k1\_funcsdom\ X0\ k2\_numbers\ (k2\_cfuncdom\ X0)\ X1\ X3))))))$$