t11_mod_4 (TMJXxUT-Phk3gHcyvq14vZAbfYjKYqmhaT3E)

October 27, 2020

Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l6\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2\_mod\_4 : \iota \Rightarrow \iota$ be given. Let $k3\_mod\_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_mod\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_mod\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v36\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l2\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l5\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l1\_algstr\_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0\ X1) \Rightarrow (\forall X2.(\neg v1\_xboole\_0\ X2) \Rightarrow (\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X1\ X2)\ X0) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X2)\ X0))))) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ X1) \Rightarrow (\forall X5.(m1\_subset\_1\ X5\ X2) \Rightarrow (k2\_binop\_1\ X1\ X2\ X0\ X3\ X4\ X5 = k2\_binop\_1\ X2\ X1\ X0\ (k1\_mod\_4\ X1\ X2\ X0\ X3)\ X5\ X4)))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. ((\neg v1\_xboole\_0\ X0) \wedge ((\neg v1\_xboole\_0\ X1) \wedge (((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X0\ X1)\ X2) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)\ X2))))) \wedge ((m1\_subset\_1\ X4\ X0) \wedge (m1\_subset\_1\ X5\ X1))))) \Rightarrow (k2\_binop\_1\ X0\ X1\ X2\ X3\ X4\ X5 = k1\_binop\_1\ X3\ X4\ X5) \tag{2}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\exists X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)) \wedge (\neg v1\_xboole\_0\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow((\neg v2\_struct\_0\ (k2\_mod\_4\ X0))\wedge(v36\_algstr\_0\ (k2\_mod\_4\ X0))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge(\neg v1\_xboole\_0\ X1))\Rightarrow(\neg v1\_xboole\_0\ (k2\_zfmisc\_1\ X0\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.(l6\_algstr\_0\ X0)\Rightarrow((l2\_algstr\_0\ X0)\wedge(l5\_algstr\_0\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.(l2\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{8}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0)\Rightarrow((l2\_struct\_0\ X0)\wedge(l1\_algstr\_0\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(\forall X1.(l1\_vectsp\_1\ X1\ X0)\Rightarrow(l2\_algstr\_0\ X1)) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\wedge(((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1)))))))\Rightarrow((v1\_funct\_1\ (k4\_mod\_4\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k4\_mod\_4\ X0\ X1\ X2)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1))\ (u1\_struct\_0\ (k2\_mod\_4\ X0)))\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1)))\wedge(m1\_subset\_1\ (k4\_mod\_4\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1))\ (u1\_struct\_0\ (k2\_mod\_4\ X0)))\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1))))))) \tag{11}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow((v36\_algstr\_0\ (k2\_mod\_4\ X0))\wedge(l6\_algstr\_0\ (k2\_mod\_4\ X0))) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0)\wedge ((\neg v1\_xboole\_0\ X1)\wedge((\neg v1\_xboole\_0\ X2)\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X0\ X1)\ X2)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)\ X2))))))))\Rightarrow((v1\_funct\_1\ (k1\_mod\_4\ X0\ X1\ X2\ X3))\wedge((v1\_funct\_2\ (k1\_mod\_4\ X0\ X1\ X2\ X3)\ (k2\_zfmisc\_1\ X1\ X0)\ X2)\wedge(m1\_subset\_1\ (k1\_mod\_4\ X0\ X1\ X2\ X3)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0)\ X2)))))) \tag{13}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))))))\Rightarrow(k4\_mod\_4\ X0\ X1\ X2 = k1\_mod\_4\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ X2))) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge(\neg v1\_xboole\_0\ X1))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow(((v1\_funct\_1\ X2)\wedge(v1\_funct\_2\ X2\ X0\ X1))\Rightarrow((v1\_funct\_1\ X2)\wedge((\neg v1\_xboole\_0\ X2)\wedge(v1\_funct\_2\ X2\ X0\ X1))))) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.(v1\_xboole\_0\ X0)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X1\ X0)))\Rightarrow(v1\_xboole\_0\ X2)) \tag{16}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(v1\_funct\_1\ X0) \tag{17}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l6\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))))))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ (k2\_mod\_4\ X0)))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X1))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1)))\Rightarrow(((X3 = X4)\wedge(X5 = X6))\Rightarrow(k2\_binop\_1\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1))\ (u1\_struct\_0\ (k2\_mod\_4\ X0))\ (u1\_struct\_0\ (k3\_mod\_4\ X0\ X1))\ (k4\_mod\_4\ X0\ X1\ X2)\ X6\ X4 = k2\_binop\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ X2\ X3\ X5)))))))$$