t14_midsp_2 (TMSYkp-bqn7maZhDj1ALcU8GcHGLWKHXiz2x)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v2\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v3\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v4\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $l2\_algstr\_0 : \iota \Rightarrow o$ 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 $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r1\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_midsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_algstr\_0 : \iota \Rightarrow o$ be given. Let $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l2\_struct\_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2\_rlvect\_1\ X0) \wedge (l1\_algstr\_0\ X0)) \wedge ((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)))) \Rightarrow (k3\_rlvect\_1\ X0\ X1\ X2 = k1\_algstr\_0\ X0\ X1\ X2) \tag{1}$$

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.

$$\forall X0.(l2\_algstr\_0\ X0) \Rightarrow ((l2\_struct\_0\ X0) \wedge (l1\_algstr\_0\ X0)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X0\ X1)\ X2)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)\ X2)))))\wedge((m1\_subset\_1\ X4\ X0)\wedge(m1\_subset\_1\ X5\ X1)))))\Rightarrow(m1\_subset\_1\ (k2\_binop\_1\ X0\ X1\ X2\ X3\ X4\ X5)\ X2) \tag{4}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l2\_algstr\_0\ X1))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow((r1\_midsp\_2\ X0\ X1\ X2)\Leftrightarrow(\forall X3.(m1\_subset\_1\ X3\ X0)\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\Rightarrow(\exists X5.(m1\_subset\_1\ X5\ X0)\wedge(k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X5 = X4))))\wedge((\forall X3.(m1\_subset\_1\ X3\ X0)\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ X0)\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ X0)\Rightarrow((k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X4 = k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X5)\Rightarrow(X4 = X5)))))\wedge(\forall X3.(m1\_subset\_1\ X3\ X0)\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ X0)\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ X0)\Rightarrow(k1\_algstr\_0\ X1\ (k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X4)\ (k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X4\ X5) = k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X5))))))))) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l2\_algstr\_0\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(k1\_midsp\_2\ X0\ X1 = k1\_algstr\_0\ X0\ X1\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2\_rlvect\_1\ X0)\wedge(l1\_algstr\_0\ X0))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(k3\_rlvect\_1\ X0\ X1\ X2 = k3\_rlvect\_1\ X0\ X2\ X1) \tag{7}$$

Theorem 1

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l2\_algstr\_0\ X1))))))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (k2\_zfmisc\_1\ X0\ X0)\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ (u1\_struct\_0\ X1))))))\Rightarrow((r1\_midsp\_2\ X0\ X1\ X2)\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ X0)\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ X0)\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ X0)\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ X0)\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ X0)\Rightarrow(((k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X4 = k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X4\ X6)\wedge(k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X3\ X5 = k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X5\ X7))\Rightarrow(k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X6\ X7 = k1\_midsp\_2\ X1\ (k2\_binop\_1\ X0\ X0\ (u1\_struct\_0\ X1)\ X2\ X4\ X5)))))))))))$$