l20_vectsp_4 (TMLK167hwH1kz2ub6bYpW7cv48AVXgCNSAt)

October 27, 2020

Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v3\_group\_1 : \iota \Rightarrow o$ be given. Let $v4\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $v5\_vectsp\_1 : \iota \Rightarrow o$ 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 $l6\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v8\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v11\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_vectsp\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $v1\_vectsp\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k4\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_algstr\_0 : \iota \Rightarrow o$ be given. Let $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $u1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l2\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l5\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l4\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l4\_struct\_0 : \iota \Rightarrow o$ be given. Let $l3\_struct\_0 : \iota \Rightarrow o$ be given. Let $l3\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l2\_struct\_0 : \iota \Rightarrow o$ be given. Let $k2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X2))) \Rightarrow (m1\_subset\_1\ X0\ X2) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1\ X0\ X1) \Rightarrow ((v1\_xboole\_0\ X1) \vee (X0 \in X1)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1\_subset\_1\ X0\ X1) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(\forall X4.(m1\_vectsp\_4\ X4\ X0\ X1)\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X4))\Rightarrow((X5 = X3)\Rightarrow(k4\_vectsp\_1\ X0\ X4\ X2\ X5 = k4\_vectsp\_1\ X0\ X1\ X2\ X3)))))))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X1))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(\forall X4.(m1\_vectsp\_4\ X4\ X0\ X1)\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X4))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (u1\_struct\_0\ X4))\Rightarrow(((X5 = X2)\wedge(X6 = X3))\Rightarrow(k3\_rlvect\_1\ X4\ X5\ X6 = k3\_rlvect\_1\ X1\ X2\ X3)))))))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v2\_rlvect\_1\ X0)\wedge(l1\_algstr\_0\ X0))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(k3\_rlvect\_1\ X0\ X1\ X2 = k1\_algstr\_0\ X0\ X1\ X2) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_struct\_0\ X0)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow((v1\_funct\_1\ (u1\_vectsp\_1\ X0\ X1))\wedge((v1\_funct\_2\ (u1\_vectsp\_1\ X0\ X1)\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))\wedge(m1\_subset\_1\ (u1\_vectsp\_1\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1))\ (u1\_struct\_0\ X1))))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))))\wedge((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow(\forall X2.(m1\_vectsp\_4\ X2\ X0\ X1)\Rightarrow((\neg v2\_struct\_0\ X2)\wedge((v13\_algstr\_0\ X2)\wedge((v8\_vectsp\_1\ X2\ X0)\wedge((v9\_vectsp\_1\ X2\ X0)\wedge((v10\_vectsp\_1\ X2\ X0)\wedge((v11\_vectsp\_1\ X2\ X0)\wedge((v2\_rlvect\_1\ X2)\wedge((v3\_rlvect\_1\ X2)\wedge((v4\_rlvect\_1\ X2)\wedge(l1\_vectsp\_1\ X2\ X0))))))))))) \tag{9}$$

Assume the following.

$$\forall X0.(l6\_algstr\_0\ X0)\Rightarrow((l2\_algstr\_0\ X0)\wedge(l5\_algstr\_0\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l5\_algstr\_0\ X0)\Rightarrow((l4\_algstr\_0\ X0)\wedge(l4\_struct\_0\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(l4\_algstr\_0\ X0)\Rightarrow((l3\_struct\_0\ X0)\wedge(l3\_algstr\_0\ X0)) \tag{12}$$

Assume the following.

$$\forall X0.(l3\_algstr\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{13}$$

Assume the following.

$$\forall X0.(l2\_struct\_0\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{14}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0)\Rightarrow((l2\_struct\_0\ X0)\wedge(l1\_algstr\_0\ X0)) \tag{15}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(\forall X1.(l1\_vectsp\_1\ X1\ X0)\Rightarrow(l2\_algstr\_0\ X1)) \tag{16}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ X0\ X1)\ X2)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)\ X2)))))\wedge((m1\_subset\_1\ X4\ X0)\wedge(m1\_subset\_1\ X5\ X1)))))\Rightarrow(m1\_subset\_1\ (k2\_binop\_1\ X0\ X1\ X2\ X3\ X4\ X5)\ X2) \tag{17}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l1\_algstr\_0\ X0)\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow(m1\_subset\_1\ (k1\_algstr\_0\ X0\ X1\ X2)\ (u1\_struct\_0\ X0)) \tag{18}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X1)))\Rightarrow((v1\_vectsp\_4\ X2\ X0\ X1)\Leftrightarrow((\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\Rightarrow(((X3\in X2)\wedge(X4\in X2))\Rightarrow(k1\_algstr\_0\ X1\ X3\ X4\in X2))))\wedge(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\Rightarrow((X4\in X2)\Rightarrow(k4\_vectsp\_1\ X0\ X1\ X3\ X4\in X2)))))))) \tag{19}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(k4\_vectsp\_1\ X0\ X1\ X2\ X3 = k2\_binop\_1\ (u1\_struct\_0\ X0)\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X1)\ (u1\_vectsp\_1\ X0\ X1)\ X2\ X3)))) \tag{20}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v13\_algstr\_0\ X1)\wedge((v8\_vectsp\_1\ X1\ X0)\wedge((v9\_vectsp\_1\ X1\ X0)\wedge((v10\_vectsp\_1\ X1\ X0)\wedge((v11\_vectsp\_1\ X1\ X0)\wedge((v2\_rlvect\_1\ X1)\wedge((v3\_rlvect\_1\ X1)\wedge((v4\_rlvect\_1\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))))))))))\Rightarrow(\forall X2.(m1\_vectsp\_4\ X2\ X0\ X1)\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X1)))\Rightarrow((u1\_struct\_0\ X2 = X3)\Rightarrow(v1\_vectsp\_4\ X3\ X0\ X1)))))$$