t32_bilinear (TMbd3zedy2hJdijenDCxUGKpaJ6npWFXnEQ)

October 27, 2020

Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $l3\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l1\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ 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 $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $v3\_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_hahnban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge (l1\_struct\_0\ X0)) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l1\_vectsp\_1\ X1\ X0)) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge (l1\_vectsp\_1\ X2\ X0)) \Rightarrow (\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0)) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0)))))) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1)) \Rightarrow ((k1\_relset\_1\ (u1\_struct\_0\ X2)\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4) = u1\_struct\_0\ X2) \wedge ((r1\_tarski\ (k2\_relset\_1\ (u1\_struct\_0\ X0)\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4))\ (u1\_struct\_0\ X0)) \wedge (\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X2)) \Rightarrow (k3\_funct\_2\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X0)\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4)\ X5 = k2\_binop\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X0)\ X3\ X4\ X5)))))))) \tag{1}$$

Assume the following.

$$\forall X0.(l3\_algstr\_0\ X0) \Rightarrow (l1\_struct\_0\ X0) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\wedge(((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\wedge(((\neg v2\_struct\_0\ X2)\wedge(l1\_vectsp\_1\ X2\ X0))\wedge(((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0))))))\wedge(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))))))\Rightarrow((v1\_funct\_1\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4))\wedge((v1\_funct\_2\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4)\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X0))))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\wedge(((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\wedge((m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1)))))\Rightarrow(m1\_subset\_1\ (k4\_vectsp\_1\ X0\ X1\ X2\ X3)\ (u1\_struct\_0\ X1)) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0))))))\Rightarrow((v1\_hahnban1\ X2\ X0\ X1)\Leftrightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(k3\_funct\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ X2\ (k4\_vectsp\_1\ X0\ X1\ X4\ X3) = k6\_algstr\_0\ X0\ X4\ (k3\_funct\_2\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X0)\ X2\ X3))))))) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge(l1\_vectsp\_1\ X2\ X0))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0))))))\Rightarrow((v3\_bilinear\ X3\ X0\ X1\ X2)\Leftrightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X1))\Rightarrow(v1\_hahnban1\ (k7\_bilinear\ X0\ X1\ X2\ X3\ X4)\ X0\ X2)))))) \tag{6}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l3\_algstr\_0\ X0))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge(l1\_vectsp\_1\ X1\ X0))\Rightarrow(\forall X2.((\neg v2\_struct\_0\ X2)\wedge(l1\_vectsp\_1\ X2\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X1))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X2))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(\forall X6.((v1\_funct\_1\ X6)\wedge((v1\_funct\_2\ X6\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2))\ (u1\_struct\_0\ X0))))))\Rightarrow((v3\_bilinear\ X6\ X0\ X1\ X2)\Rightarrow(k2\_binop\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X0)\ X6\ X3\ (k4\_vectsp\_1\ X0\ X2\ X5\ X4) = k6\_algstr\_0\ X0\ X5\ (k2\_binop\_1\ (u1\_struct\_0\ X1)\ (u1\_struct\_0\ X2)\ (u1\_struct\_0\ X0)\ X6\ X3\ X4)))))))))$$