

t47_bilinear

(TMPaJAemDRvzSz6LT4n7QFawDfseX5UNxa1)

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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 $v3_group_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ 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 $v1_funct_1 : \iota \Rightarrow o$ 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 $v1_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k13_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_vectsp10 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_vectsp_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
 & (\forall X1. ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0))) \Rightarrow (\forall X2. \\
 & ((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge ((v10_vectsp_1 X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge (l1_vectsp_1 X2 X0)))))))))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge ((v1_bilinear X3 X0 X1 X2) \wedge ((v3_bilinear X3 X0 X1 X2) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)))))))))) \Rightarrow (k10_bilinear X0 X1 X2 X3 = k10_bilinear X0 X1 (k6_vectsp10 X0 X2 (k14_bilinear X0 X1 X2 X3)) (k16_bilinear X0 X1 X2 X3))))))
 \end{aligned}$$

(1)

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\
& ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 \\
& X0) \wedge (l6_algstr_0 X0)))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 \\
& X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
& ((v8_vectsp_1 X1 X0) \wedge ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge \\
& ((v11_vectsp_1 X1 X0) \wedge (l1_vectsp_1 X1 X0)))))))) \wedge (((\neg v2_struct_0 \\
& X2) \wedge ((v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge \\
& ((v4_rlvect_1 X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge \\
& ((v10_vectsp_1 X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge (l1_vectsp_1 X2 X0)))))))) \wedge \\
& ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 (u1_struct_0 X1) \\
& (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge ((v1_bilinear X3 X0 X1 X2) \wedge \\
& ((v2_bilinear X3 X0 X1 X2) \wedge ((v3_bilinear X3 X0 X1 X2) \wedge ((v4_bilinear \\
& X3 X0 X1 X2) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)))))))))) \Rightarrow \\
& ((v1_funct_1 (k16_bilinear X0 X1 X2 X3) \wedge ((v1_funct_2 (k16_bilinear \\
& X0 X1 X2 X3) (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 (k6_vectsp10 \\
& X0 X2 (k14_bilinear X0 X1 X2 X3)))) (u1_struct_0 X0)) \wedge ((v1_bilinear \\
& (k16_bilinear X0 X1 X2 X3) X0 X1 (k6_vectsp10 X0 X2 (k14_bilinear \\
& X0 X1 X2 X3)) \wedge ((v2_bilinear (k16_bilinear X0 X1 X2 X3) X0 X1 (k6_vectsp10 \\
& X0 X2 (k14_bilinear X0 X1 X2 X3)) \wedge ((v3_bilinear (k16_bilinear \\
& X0 X1 X2 X3) X0 X1 (k6_vectsp10 X0 X2 (k14_bilinear X0 X1 X2 X3)) \wedge (\\
& v4_bilinear (k16_bilinear X0 X1 X2 X3) X0 X1 (k6_vectsp10 X0 X2 (k14_bilinear \\
& X0 X1 X2 X3))))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\
& ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 \\
& X0)))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v8_vectsp_1 X1 X0) \wedge \\
& ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 X1 \\
& X0) \wedge (l1_vectsp_1 X1 X0)))))))) \wedge (m1_vectsp_4 X2 X0 X1))) \Rightarrow ((\\
& \neg v2_struct_0 (k6_vectsp10 X0 X1 X2)) \wedge ((v13_algstr_0 (k6_vectsp10 \\
& X0 X1 X2)) \wedge ((v2_rlvect_1 (k6_vectsp10 X0 X1 X2)) \wedge ((v3_rlvect_1 \\
& (k6_vectsp10 X0 X1 X2)) \wedge ((v4_rlvect_1 (k6_vectsp10 X0 X1 X2)) \wedge \\
& ((v7_vectsp_1 (k6_vectsp10 X0 X1 X2) X0) \wedge ((v8_vectsp_1 (k6_vectsp10 \\
& X0 X1 X2) X0) \wedge ((v9_vectsp_1 (k6_vectsp10 X0 X1 X2) X0) \wedge ((v10_vectsp_1 \\
& (k6_vectsp10 X0 X1 X2) X0) \wedge ((v11_vectsp_1 (k6_vectsp10 X0 X1 X2) \\
& X0) \wedge (l1_vectsp_1 (k6_vectsp10 X0 X1 X2) X0))))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge((v13_algstr_0 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge \\
& ((v4_rlvect_1 X0)\wedge((v3_group_1 X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 \\
& X0)\wedge(l6_algstr_0 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 \\
& X1 X0))\wedge(((\neg v2_struct_0 X2)\wedge((v13_algstr_0 X2)\wedge((v2_rlvect_1 \\
& X2)\wedge((v3_rlvect_1 X2)\wedge((v4_rlvect_1 X2)\wedge((v8_vectsp_1 X2 X0)\wedge \\
& ((v9_vectsp_1 X2 X0)\wedge((v10_vectsp_1 X2 X0)\wedge((v11_vectsp_1 X2 \\
& X0)\wedge(l1_vectsp_1 X2 X0))))))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 \\
& X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0))\wedge((v1_bilinear X3 X0 X1 X2)\wedge((v3_bilinear X3 X0 X1 X2)\wedge(m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2)) (u1_struct_0 X0))))))))\Rightarrow((v1_funct_1 (k16_bilinear \\
& X0 X1 X2 X3))\wedge((v1_funct_2 (k16_bilinear X0 X1 X2 X3) (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 (k6_vectsp10 X0 X2 (k14_bilinear \\
& X0 X1 X2 X3)))) (u1_struct_0 X0))\wedge((v1_bilinear (k16_bilinear \\
& X0 X1 X2 X3) X0 X1 (k6_vectsp10 X0 X2 (k14_bilinear X0 X1 X2 X3)))\wedge(\\
& (v3_bilinear (k16_bilinear X0 X1 X2 X3) X0 X1 (k6_vectsp10 X0 X2 (\\
& k14_bilinear X0 X1 X2 X3)))\wedge(m1_subset_1 (k16_bilinear X0 X1 X2 \\
& X3) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (\\
& u1_struct_0 (k6_vectsp10 X0 X2 (k14_bilinear X0 X1 X2 X3)))) (u1_struct_0 \\
& X0))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge((v13_algstr_0 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge \\
& ((v4_rlvect_1 X0)\wedge((v3_group_1 X0)\wedge((v4_vectsp_1 X0)\wedge((v5_vectsp_1 \\
& X0)\wedge(l6_algstr_0 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 \\
& X1 X0))\wedge(((\neg v2_struct_0 X2)\wedge((v13_algstr_0 X2)\wedge((v2_rlvect_1 \\
& X2)\wedge((v3_rlvect_1 X2)\wedge((v4_rlvect_1 X2)\wedge((v8_vectsp_1 X2 X0)\wedge \\
& ((v9_vectsp_1 X2 X0)\wedge((v10_vectsp_1 X2 X0)\wedge((v11_vectsp_1 X2 \\
& X0)\wedge(l1_vectsp_1 X2 X0))))))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 \\
& X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0))\wedge((v1_bilinear X3 X0 X1 X2)\wedge((v3_bilinear X3 X0 X1 X2)\wedge(m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2)) (u1_struct_0 X0))))))))\Rightarrow((\neg v2_struct_0 (k14_bilinear \\
& X0 X1 X2 X3))\wedge((v7_vectsp_1 (k14_bilinear X0 X1 X2 X3) X0)\wedge(m1_vectsp_4 \\
& (k14_bilinear X0 X1 X2 X3) X0 X2)))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\
& X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge \\
& ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 \\
& X0) \wedge (l6_algstr_0 X0)))))))) \wedge (((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 \\
& X1) \wedge ((v2_rlvect_1 X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge \\
& ((v8_vectsp_1 X1 X0) \wedge ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge \\
& ((v11_vectsp_1 X1 X0) \wedge (l1_vectsp_1 X1 X0)))))))) \wedge (((\neg v2_struct_0 \\
& X2) \wedge (l1_vectsp_1 X2 X0)) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge ((v2_bilinear \\
& X3 X0 X1 X2) \wedge ((v4_bilinear X3 X0 X1 X2) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) \\
& (u1_struct_0 X0)))))))))) \Rightarrow ((\neg v2_struct_0 (k13_bilinear X0 \\
& X1 X2 X3)) \wedge ((v7_vectsp_1 (k13_bilinear X0 X1 X2 X3) X0) \wedge (m1_vectsp_4 \\
& (k13_bilinear X0 X1 X2 X3) X0 X1)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge (\\
& (v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))) \Rightarrow \\
& (\forall X1. ((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v8_vectsp_1 X1 X0) \wedge \\
& ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 X1 \\
& X0) \wedge (l1_vectsp_1 X1 X0)))))))))) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\
& X2) \wedge (l1_vectsp_1 X2 X0)) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0)) \wedge ((v2_bilinear X3 X0 X1 X2) \wedge ((v4_bilinear X3 X0 X1 X2) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2)) (u1_struct_0 X0)))))))))) \Rightarrow (\forall X4. ((\neg v2_struct_0 X4) \wedge \\
& ((v7_vectsp_1 X4 X0) \wedge (m1_vectsp_4 X4 X0 X1))) \Rightarrow ((X4 = k13_bilinear \\
& X0 X1 X2 X3) \Leftrightarrow (u1_struct_0 X4 = k10_bilinear X0 X1 X2 X3))))
\end{aligned} \tag{7}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge (\\
& (v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v13_algstr_0 X1) \wedge ((v2_rlvect_1 \\
& X1) \wedge ((v3_rlvect_1 X1) \wedge ((v4_rlvect_1 X1) \wedge ((v8_vectsp_1 X1 X0) \wedge \\
& ((v9_vectsp_1 X1 X0) \wedge ((v10_vectsp_1 X1 X0) \wedge ((v11_vectsp_1 X1 \\
& X0) \wedge (l1_vectsp_1 X1 X0)))))))))) \Rightarrow (\forall X2.((\neg v2_struct_0 \\
& X2) \wedge ((v13_algstr_0 X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge \\
& ((v4_rlvect_1 X2) \wedge ((v8_vectsp_1 X2 X0) \wedge ((v9_vectsp_1 X2 X0) \wedge \\
& ((v10_vectsp_1 X2 X0) \wedge ((v11_vectsp_1 X2 X0) \wedge (l1_vectsp_1 X2 X0)))))))))) \Rightarrow \\
& (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 (u1_struct_0 \\
& X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge ((v1_bilinear X3 X0 X1 \\
& X2) \wedge ((v2_bilinear X3 X0 X1 X2) \wedge ((v3_bilinear X3 X0 X1 X2) \wedge ((v4_bilinear \\
& X3 X0 X1 X2) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)))))))))) \Rightarrow \\
& (k13_bilinear X0 X1 X2 X3 = k13_bilinear X0 X1 (k6_vectsp10 X0 X2 (\\
& k14_bilinear X0 X1 X2 X3)) (k16_bilinear X0 X1 X2 X3))))
\end{aligned}$$