

t39_bilinear
(TMY1gmJA9kJEYjGbkG5sjpL2NEANmSq8mDS)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. As-

sume 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 ((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.(m1_subset_1 X3 (u1_struct_0 X1)) \Rightarrow (\forall X4.(m1_subset_1 \\
& X4 (u1_struct_0 X1)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 \\
& X2)) \Rightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 X2)) \Rightarrow (\forall X7. \\
& ((v1_funct_1 X7) \wedge ((v1_funct_2 X7 (k2_zfmisc_1 (u1_struct_0 X1) \\
& (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge ((v1_bilinear X7 X0 X1 X2) \wedge \\
& ((v2_bilinear X7 X0 X1 X2) \wedge ((v3_bilinear X7 X0 X1 X2) \wedge ((v4_bilinear \\
& X7 X0 X1 X2) \wedge (m1_subset_1 X7 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)))))) \Rightarrow \\
& (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 X0) \\
& X7 (k5_algstr_0 X1 X3 X4) (k5_algstr_0 X2 X5 X6) = k5_algstr_0 X0 (\\
& k5_algstr_0 X0 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 X2) (\\
& u1_struct_0 X0) X7 X3 X5) (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2) (u1_struct_0 X0) X7 X3 X6)) (k5_algstr_0 X0 (k2_binop_1 (u1_struct_0 \\
& X1) (u1_struct_0 X2) (u1_struct_0 X0) X7 X4 X5) (k2_binop_1 (u1_struct_0 \\
& X1) (u1_struct_0 X2) (u1_struct_0 X0) X7 X4 X6))))))))) \Rightarrow \\
& (1)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\
& X2) \wedge (l1_vectsp_1 X2 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X2)) \Rightarrow (\forall X5. \\
& (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.((v1_funct_1 X6) \wedge \\
& ((v1_funct_2 X6 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) \\
& (u1_struct_0 X0)) \wedge (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0)))))) \Rightarrow ((v3_bilinear X6 X0 X1 X2) \Rightarrow (k2_binop_1 (u1_struct_0 \\
& X1) (u1_struct_0 X2) (u1_struct_0 X0) X6 X3 (k4_vectsp_1 X0 X2 X5 \\
& X4) = k6_algstr_0 X0 X5 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2) (u1_struct_0 X0) X6 X3 X4))))))))) \Rightarrow \\
& (2)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\
& X2) \wedge (l1_vectsp_1 X2 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X2)) \Rightarrow (\forall X5. \\
& (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.((v1_funct_1 X6) \wedge \\
& ((v1_funct_2 X6 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) \\
& (u1_struct_0 X0)) \wedge (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0)))))) \Rightarrow ((v4_bilinear X6 X0 X1 X2) \Rightarrow (k2_binop_1 (u1_struct_0 \\
& X1) (u1_struct_0 X2) (u1_struct_0 X0) X6 (k4_vectsp_1 X0 X1 X5 X3) \\
& X4 = k6_algstr_0 X0 X5 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2) (u1_struct_0 X0) X6 X3 X4)))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \tag{4}$$

Assume the following.

$$\forall X0.(l5_algstr_0 X0) \Rightarrow ((l4_algstr_0 X0) \wedge (l4_struct_0 X0)) \tag{5}$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow ((l3_struct_0 X0) \wedge (l3_algstr_0 X0)) \tag{6}$$

Assume the following.

$$\forall X0.(l3_struct_0 X0) \Rightarrow (l1_struct_0 X0) \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0) \wedge (l1_struct_0 X0)) \wedge (((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \wedge \\
& ((m1_subset_1 X2 (u1_struct_0 X0)) \wedge (m1_subset_1 X3 (u1_struct_0 \\
& X1)))))) \Rightarrow (m1_subset_1 (k4_vectsp_1 X0 X1 X2 X3) (u1_struct_0 X1))
\end{aligned} \tag{8}$$

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.(m1_subset_1 X3 (u1_struct_0 X1)) \Rightarrow (\forall X4.(m1_subset_1 \\
& X4 (u1_struct_0 X1)) \Rightarrow (\forall X5.(m1_subset_1 X5 (u1_struct_0 \\
& X2)) \Rightarrow (\forall X6.(m1_subset_1 X6 (u1_struct_0 X2)) \Rightarrow (\forall X7. \\
& (m1_subset_1 X7 (u1_struct_0 X0)) \Rightarrow (\forall X8.(m1_subset_1 X8 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X9.((v1_funct_1 X9) \wedge ((v1_funct_2 \\
& X9 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0)) \wedge ((v1_bilinear X9 X0 X1 X2) \wedge ((v2_bilinear X9 X0 X1 X2) \wedge ((v3_bilinear \\
& X9 X0 X1 X2) \wedge ((v4_bilinear X9 X0 X1 X2) \wedge (m1_subset_1 X9 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) \\
& (u1_struct_0 X0)))))))))) \Rightarrow (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2) (u1_struct_0 X0) X9 (k5_algstr_0 X1 X3 (k4_vectsp_1 X0 X1 X7 X4)) \\
& (k5_algstr_0 X2 X5 (k4_vectsp_1 X0 X2 X8 X6)) = k5_algstr_0 X0 (k5_algstr_0 \\
& X0 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 \\
& X0) X9 X3 X5) (k6_algstr_0 X0 X8 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2) (u1_struct_0 X0) X9 X3 X6))) (k5_algstr_0 X0 (k6_algstr_0 X0 \\
& X7 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 \\
& X0) X9 X4 X5)) (k6_algstr_0 X0 X7 (k6_algstr_0 X0 X8 (k2_binop_1 (\\
& u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 X0) X9 X4 X6))))))))))
\end{aligned}$$