

t37\_bilinear  
(TMVG7Aw8WSUqv6tD3Q5fCu9if5DQ8toqRPU)

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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  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$

be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge ( \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0))))))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge \\
& ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 \\
& X0) \wedge (l1\_vectsp\_1 X1 X0))))))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 \\
& X2) \wedge ((v13\_algstr\_0 X2) \wedge ((v2\_rlvect\_1 X2) \wedge ((v3\_rlvect\_1 X2) \wedge \\
& ((v4\_rlvect\_1 X2) \wedge ((v8\_vectsp\_1 X2 X0) \wedge ((v9\_vectsp\_1 X2 X0) \wedge \\
& ((v10\_vectsp\_1 X2 X0) \wedge ((v11\_vectsp\_1 X2 X0) \wedge (l1\_vectsp\_1 X2 X0))))))))) \Rightarrow \\
& (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X1)) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& X4 (u1\_struct\_0 X2)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 \\
& X2)) \Rightarrow (\forall X6.((v1\_funct\_1 X6) \wedge ((v1\_funct\_2 X6 (k2\_zfmisc\_1 \\
& (u1\_struct\_0 X1) (u1\_struct\_0 X2)) (u1\_struct\_0 X0)) \wedge ((v1\_bilinear \\
& X6 X0 X1 X2) \wedge ((v3\_bilinear X6 X0 X1 X2) \wedge (m1\_subset\_1 X6 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X2)) \\
& (u1\_struct\_0 X0))))))))) \Rightarrow (k2\_binop\_1 (u1\_struct\_0 X1) (u1\_struct\_0 \\
& X2) (u1\_struct\_0 X0) X6 X3 (k5\_algstr\_0 X2 X4 X5) = k5\_algstr\_0 X0 \\
& (k2\_binop\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X2) (u1\_struct\_0 X0) \\
& X6 X3 X4) (k2\_binop\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X2) (u1\_struct\_0 \\
& X0) X6 X3 X5)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v8\_vectsp\_1 X1 X0) \wedge \\
& ((v9\_vectsp\_1 X1 X0) \wedge ((v10\_vectsp\_1 X1 X0) \wedge ((v11\_vectsp\_1 X1 \\
& X0) \wedge (l1\_vectsp\_1 X1 X0)))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0 \\
& X2) \wedge ((v13\_algstr\_0 X2) \wedge ((v2\_rlvect\_1 X2) \wedge ((v3\_rlvect\_1 X2) \wedge \\
& ((v4\_rlvect\_1 X2) \wedge ((v8\_vectsp\_1 X2 X0) \wedge ((v9\_vectsp\_1 X2 X0) \wedge \\
& ((v10\_vectsp\_1 X2 X0) \wedge ((v11\_vectsp\_1 X2 X0) \wedge (l1\_vectsp\_1 X2 X0)))))) \Rightarrow \\
& (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X1)) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& X4 (u1\_struct\_0 X1)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 \\
& X2)) \Rightarrow (\forall X6.((v1\_funct\_1 X6) \wedge ((v1\_funct\_2 X6 (k2\_zfmisc\_1 \\
& (u1\_struct\_0 X1) (u1\_struct\_0 X2)) (u1\_struct\_0 X0)) \wedge ((v2\_bilinear \\
& X6 X0 X1 X2) \wedge ((v4\_bilinear X6 X0 X1 X2) \wedge (m1\_subset\_1 X6 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X2)) \\
& (u1\_struct\_0 X0)))))) \Rightarrow (k2\_binop\_1 (u1\_struct\_0 X1) (u1\_struct\_0 \\
& X2) (u1\_struct\_0 X0) X6 (k5\_algstr\_0 X1 X3 X4) X5 = k5\_algstr\_0 X0 \\
& (k2\_binop\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X2) (u1\_struct\_0 X0) \\
& X6 X3 X5) (k2\_binop\_1 (u1\_struct\_0 X1) (u1\_struct\_0 X2) (u1\_struct\_0 \\
& X0) X6 X4 X5))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \tag{3}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \tag{4}$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow (\forall X1.(l1\_vectsp\_1 X1 X0) \Rightarrow (l2\_algstr\_0 X1)) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_algstr\_0 X0) \Rightarrow (l1\_struct\_0 X0) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((l2\_algstr\_0 X0) \wedge ((m1\_subset\_1 \\
& X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 \\
& (k5\_algstr\_0 X0 X1 X2) (u1\_struct\_0 X0))
\end{aligned} \tag{7}$$

**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.(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))))))))))
\end{aligned}$$