

t6\_algstr\_3  
(TMKHfUue1uMjioTARx8Kfbv2LEQttXaSpkU)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_algstr\_3 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_3 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $l4\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(l4\_struct\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l3\_struct\_0 X0)) \quad (1)$$

Assume the following.

$$\forall X0.(l1\_algstr\_3 X0) \Rightarrow (l4\_struct\_0 X0) \quad (2)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (m1\_subset\_1 (k4\_struct\_0 X0) (u1\_struct\_0 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0 \\ & X0) \wedge (l1\_algstr\_3 X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (( \\ & m1\_subset\_1 X2 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0)))))) \Rightarrow (m1\_subset\_1 (k1\_algstr\_3 X0 X1 X2 X3) (u1\_struct\_0 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_algstr\_3 X0)) \Rightarrow ((v2\_algstr\_3 \\
& X0) \Leftrightarrow ((k4\_struct\_0 X0 \neq k5\_struct\_0 X0) \wedge ((\forall X1.(m1\_subset\_1 \\
& X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_3 X0 X1 (k5\_struct\_0 X0) (k4\_struct\_0 \\
& X0) = X1)) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_3 \\
& X0 (k5\_struct\_0 X0) X1 (k4\_struct\_0 X0) = X1)) \wedge ((\forall X1.(m1\_subset\_1 \\
& X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& X0)) \Rightarrow (k1\_algstr\_3 X0 X1 (k4\_struct\_0 X0) X2 = X2))) \wedge ((\forall X1. \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_3 X0 (k4\_struct\_0 X0) X1 X2 = X2))) \wedge \\
& ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.( \\
& m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\exists X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \wedge \\
& (k1\_algstr\_3 X0 X1 X2 X4 = X3)))))) \wedge ((\forall X1.(m1\_subset\_1 X1 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& X4 (u1\_struct\_0 X0)) \Rightarrow ((k1\_algstr\_3 X0 X1 X2 X3 = k1\_algstr\_3 X0 X1 \\
& X2 X4) \Rightarrow (X3 = X4)))))) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((X1 \neq X2) \Rightarrow \\
& (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& X4 (u1\_struct\_0 X0)) \Rightarrow (\exists X5.(m1\_subset\_1 X5 (u1\_struct\_0 \\
& X0)) \wedge (\exists X6.(m1\_subset\_1 X6 (u1\_struct\_0 X0)) \wedge ((k1\_algstr\_3 \\
& X0 X5 X1 X6 = X3) \wedge (k1\_algstr\_3 X0 X5 X2 X6 = X4)))))) \wedge ((\forall X1. \\
& (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u1\_struct\_0 X0)) \Rightarrow ((X1 \neq X2) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\exists X5. \\
& (m1\_subset\_1 X5 (u1\_struct\_0 X0)) \wedge (k1\_algstr\_3 X0 X1 X5 X3 = k1\_algstr\_3 \\
& X0 X2 X5 X4)))))) \wedge ((\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 \\
& X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6. \\
& (m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (\neg(k1\_algstr\_3 X0 X3 X1 X5 = k1\_algstr\_3 \\
& X0 X4 X1 X6) \wedge ((k1\_algstr\_3 X0 X3 X2 X5 = k1\_algstr\_3 X0 X4 X2 X6) \wedge (( \\
& X1 \neq X2) \wedge (X3 \neq X4)))))))))))))))))
\end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_algstr\_3 X0) \wedge (l1\_algstr\_3 \\
& X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& ((k1\_algstr\_3 X0 X1 X2 X3 = k1\_algstr\_3 X0 X1 X4 X3) \Rightarrow ((X1 = k4\_struct\_0 \\
& X0) \vee (X2 = X4))))))
\end{aligned}$$