

t25\_cfuncdom (TM-  
JAI13bXMEbJffx1DJDaeZPfSK2TkMKPGJ)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k7\_cfuncdom : \iota \Rightarrow \iota$  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  $v5\_group\_1 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v10\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v36\_algstr\_0 : \iota \Rightarrow o$  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  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$

be given. Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\
& \quad (k7\_cfunclom X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad (k7\_cfunclom X0))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\
& \quad (k7\_cfunclom X0))) \Rightarrow ((k1\_algstr\_0 (k7\_cfunclom X0) X1 X2 = k1\_algstr\_0 \\
& \quad (k7\_cfunclom X0) X2 X1) \wedge ((k1\_algstr\_0 (k7\_cfunclom X0) (k1\_algstr\_0 \\
& \quad (k7\_cfunclom X0) X1 X2) X3 = k1\_algstr\_0 (k7\_cfunclom X0) X1 (k1\_algstr\_0 \\
& \quad (k7\_cfunclom X0) X2 X3)) \wedge ((k1\_algstr\_0 (k7\_cfunclom X0) X1 (k4\_struct\_0 \\
& \quad (k7\_cfunclom X0)) = X1) \wedge ((v10\_algstr\_0 X1 (k7\_cfunclom X0)) \wedge ( \\
& \quad (k6\_algstr\_0 (k7\_cfunclom X0) X1 X2 = k6\_algstr\_0 (k7\_cfunclom \\
& \quad X0) X2 X1) \wedge ((k6\_algstr\_0 (k7\_cfunclom X0) (k6\_algstr\_0 (k7\_cfunclom \\
& \quad X0) X1 X2) X3 = k6\_algstr\_0 (k7\_cfunclom X0) X1 (k6\_algstr\_0 (k7\_cfunclom \\
& \quad X0) X2 X3)) \wedge ((k6\_algstr\_0 (k7\_cfunclom X0) X1 (k5\_struct\_0 (k7\_cfunclom \\
& \quad X0)) = X1) \wedge ((k6\_algstr\_0 (k7\_cfunclom X0) (k5\_struct\_0 (k7\_cfunclom \\
& \quad X0)) X1 = X1) \wedge ((k6\_algstr\_0 (k7\_cfunclom X0) X1 (k1\_algstr\_0 (k7\_cfunclom \\
& \quad X0) X2 X3) = k1\_algstr\_0 (k7\_cfunclom X0) (k6\_algstr\_0 (k7\_cfunclom \\
& \quad X0) X1 X2) (k6\_algstr\_0 (k7\_cfunclom X0) X1 X3)) \wedge (k6\_algstr\_0 ( \\
& \quad k7\_cfunclom X0) (k1\_algstr\_0 (k7\_cfunclom X0) X2 X3) X1 = k1\_algstr\_0 \\
& \quad (k7\_cfunclom X0) (k6\_algstr\_0 (k7\_cfunclom X0) X2 X1) (k6\_algstr\_0 \\
& \quad (k7\_cfunclom X0) X3 X1)))))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((\neg v2\_struct\_0 (k7\_cfunclom X0)) \wedge (v36\_algstr\_0 (k7\_cfunclom X0))) \tag{2}$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \tag{3}$$

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.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \tag{7}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (l6\_algstr\_0 (k7\_cfunclom X0)) \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow ((v5\_vectsp\_1 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow ((k6\_algstr\_0 X0 X1 (k1\_algstr\_0 X0 X2 X3) = k1\_algstr\_0 \\
& \quad X0 (k6\_algstr\_0 X0 X1 X2) (k6\_algstr\_0 X0 X1 X3)) \wedge (k6\_algstr\_0 X0 \\
& \quad (k1\_algstr\_0 X0 X2 X3) X1 = k1\_algstr\_0 X0 (k6\_algstr\_0 X0 X2 X1) ( \\
& \quad k6\_algstr\_0 X0 X3 X1))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l4\_algstr\_0 X0)) \Rightarrow ((v4\_vectsp\_1 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((k6\_algstr\_0 \\
& \quad X0 X1 (k5\_struct\_0 X0) = X1) \wedge (k6\_algstr\_0 X0 (k5\_struct\_0 X0) X1 = \\
& \quad X1))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2\_algstr\_0 X0) \Rightarrow ((v4\_rlvect\_1 X0) \Leftrightarrow (\forall X1.( \\
& \quad m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 X1 (k4\_struct\_0 \\
& \quad X0) = X1)))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_algstr\_0 X0) \Rightarrow ((v3\_rlvect\_1 X0) \Leftrightarrow (\forall X1.( \\
& \quad m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\
& \quad (k1\_algstr\_0 X0 (k1\_algstr\_0 X0 X1 X2) X3 = k1\_algstr\_0 X0 X1 (k1\_algstr\_0 \\
& \quad X0 X2 X3))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v3\_group\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 \\
& \quad X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\
& \quad X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 \\
& \quad X0 (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 X0 X2 \\
& \quad X3))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1\_algstr\_0 X0) \Rightarrow ((v2\_rlvect\_1 X0) \Leftrightarrow (\forall X1.( \\
& \quad m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& \quad (u1\_struct\_0 X0)) \Rightarrow (k1\_algstr\_0 X0 X1 X2 = k1\_algstr\_0 X0 X2 X1))))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2\_algstr\_0 X0) \Rightarrow ((v13\_algstr\_0 X0) \Leftrightarrow (\forall X1. \\
& \quad (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (v10\_algstr\_0 X1 X0)))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v5\_group\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \Rightarrow (k6\_algstr\_0 X0 X1 X2 = k6\_algstr\_0 X0 X2 X1)))) \end{aligned} \quad (16)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow ((\neg v2\_struct\_0 (k7\_cfundom X0)) \wedge \\ ((v13\_algstr\_0 (k7\_cfundom X0)) \wedge (v2\_rlvect\_1 (k7\_cfundom \\ X0)) \wedge (v3\_rlvect\_1 (k7\_cfundom X0)) \wedge (v4\_rlvect\_1 (k7\_cfundom \\ X0)) \wedge (v3\_group\_1 (k7\_cfundom X0)) \wedge (v5\_group\_1 (k7\_cfundom \\ X0)) \wedge (v4\_vectsp\_1 (k7\_cfundom X0)) \wedge (v5\_vectsp\_1 (k7\_cfundom \\ X0)) \wedge (l6\_algstr\_0 (k7\_cfundom X0)))))) \end{aligned}$$