

# l55\_o\_ring\_1 (TMacQo- HXW4536ZQa6etmWihNEEK4dijvXkt)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  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  $v9\_o\_ring\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v12\_o\_ring\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k12\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k5\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $v10\_o\_ring\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (\neg(r1\_xxreal\_0 X0 np\_1) \wedge ((X0 \neq k6\_numbers) \wedge (X0 \neq np\_1))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow (k12\_finseq\_1 X0 X1 = k5\_finseq\_1 X1) \quad (2)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v9\_o\_ring\_1 X1 X0) \Rightarrow (v10\_o\_ring\_1 (k12\_finseq\_1 (u1\_struct\_0 X0) X1) X0))) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m2\_finseq\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((X2 = k12\_finseq\_1 (u1\_struct\_0 X0) X1) \Leftrightarrow ((k3\_finseq\_1 X2 = np\_1) \wedge (k7\_partfun1 (u1\_struct\_0 X0) X2 np\_1 = X1)))))) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow (m2\_finseq\_1 (k12\_finseq\_1 X0 X1) X0) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ & (m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v12\_oring\_1 X1 X0) \Leftrightarrow ((k3\_finseq\_1 \\ & X1 \neq k6\_numbers) \wedge (\forall X2.(v7\_ordinal1 X2) \Rightarrow (\neg(X2 \neq k6\_numbers) \wedge \\ & ((r1\_xxreal\_0 X2 (k3\_finseq\_1 X1)) \wedge ((\neg v9\_oring\_1 (k7\_partfun1 \\ & (u1\_struct\_0 X0) X1 X2) X0) \wedge (\forall X3.(v7\_ordinal1 X3) \Rightarrow (\forall X4. \\ & (v7\_ordinal1 X4) \Rightarrow (\neg((k7\_partfun1 (u1\_struct\_0 X0) X1 X2 = k6\_algstr\_0 \\ & X0 (k7\_partfun1 (u1\_struct\_0 X0) X1 X3) (k7\_partfun1 (u1\_struct\_0 \\ & X0) X1 X4)) \vee (k7\_partfun1 (u1\_struct\_0 X0) X1 X2 = k1\_algstr\_0 X0 \\ & (k7\_partfun1 (u1\_struct\_0 X0) X1 X3) (k7\_partfun1 (u1\_struct\_0 \\ & X0) X1 X4)))) \wedge ((X3 \neq k6\_numbers) \wedge ((\neg r1\_xxreal\_0 X2 X3) \wedge ((X4 \neq k6\_numbers) \wedge \\ & (\neg r1\_xxreal\_0 X2 X4)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ & (m2\_finseq\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v10\_oring\_1 X1 X0) \Leftrightarrow ((k3\_finseq\_1 \\ & X1 \neq k6\_numbers) \wedge ((v9\_oring\_1 (k7\_partfun1 (u1\_struct\_0 X0) \\ & X1 np\_1) X0) \wedge (\forall X2.(v7\_ordinal1 X2) \Rightarrow (\neg(X2 \neq k6\_numbers) \wedge \\ & ((\neg r1\_xxreal\_0 (k3\_finseq\_1 X1) X2) \wedge (\forall X3.(m1\_subset\_1 \\ & X3 (u1\_struct\_0 X0)) \Rightarrow (\neg(v9\_oring\_1 X3 X0) \wedge (k7\_partfun1 (u1\_struct\_0 \\ & X0) X1 (k1\_nat\_1 X2 np\_1) = k1\_algstr\_0 X0 (k7\_partfun1 (u1\_struct\_0 \\ & X0) X1 X2) X3)))))) \end{aligned} \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l6\_algstr\_0 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((v9\_oring\_1 X1 X0) \Rightarrow (v12\_oring\_1 \\ & (k12\_finseq\_1 (u1\_struct\_0 X0) X1) X0)) \end{aligned}$$