

# l13\_scpisort

(TMZQnwgiiTxp79eZHnatmiJQJt8k6pfU2i)

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Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmpds\_2 : \iota$  be given. Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $k2\_scmpds\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_scmpds\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $k3\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_scmpds\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xcmplx\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_scmpds\_2 : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1\_subset\_1 X1 (k1\_zfmisc\_1 X2)) \wedge (v1\_xboole\_0 X2)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1\_subset\_1 X0 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow (\forall X3. ((\neg v1\_xboole\_0 X3) \wedge \\ & ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 \\ & (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 \\ & X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow (k3\_scmpds\_4 (k3\_scmpds\_4 (k2\_scmpds\_4 \\ & X0 X3) X1) X2 = k2\_scmpds\_4 X0 (k3\_scmpds\_4 (k3\_scmpds\_4 X3 X1) X2)))))) \quad (3) \end{aligned}$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_3) \wedge (m2\_subset\_1 \ np\_3 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_3 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_3 \ k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_2) \wedge (m2\_subset\_1 \ np\_2 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_2 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_2 \ k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge ((\neg v1\_xboole\_0 \ X1) \wedge \\ & (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & \quad X2 \ X0 \ X1) \Leftrightarrow (m1\_subset\_1 \ X2 \ X1)) \end{aligned} \quad (6)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1\_subset\_1 \ X0 \ k5\_numbers) \wedge (v7\_ordinal1 \\ & \quad X1)) \Rightarrow (k2\_nat\_1 \ X0 \ X1 = k2\_xcmplx\_0 \ X0 \ X1) \end{aligned} \quad (8)$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_int\_1 \ X0) \Rightarrow ((v1\_xcmplx\_0 \ (k4\_xcmplx\_0 \ X0)) \wedge (v1\_int\_1 \\ & \quad (k4\_xcmplx\_0 \ X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_int\_1 \ X0) \wedge (v1\_int\_1 \ X1)) \Rightarrow (v1\_int\_1 \\ & \quad (k2\_xcmplx\_0 \ X0 \ X1)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_ami\_2 \ X0) \wedge (m1\_subset\_1 \\ & \quad X0 \ (u1\_struct\_0 \ k1\_scmpds\_2))) \wedge ((v1\_int\_1 \ X1) \wedge (v1\_int\_1 \ X2))) \Rightarrow \\ & (m1\_subset\_1 \ (k8\_scmpds\_2 \ X0 \ X1 \ X2) \ (u1\_compos\_1 \ k1\_scmpds\_2)) \end{aligned} \quad (12)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (13)$$

Assume the following.

$$\forall X0. (v1\_finset\_1 \ X0) \Rightarrow (m1\_subset\_1 \ (k5\_card\_1 \ X0) \ k4\_ordinal1) \quad (14)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0) \Rightarrow (m1\_subset\_1 (k3\_scmpds\_2 X0) (u1\_compos\_1 k1\_scmpds\_2)) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1\_ami\_2 X0) \wedge (m1\_subset\_1 \\ & X0 (u1\_struct\_0 k1\_scmpds\_2))) \wedge ((v1\_int\_1 X1) \wedge (v1\_int\_1 X2))) \Rightarrow \\ & (m1\_subset\_1 (k11\_scmpds\_2 X0 X1 X2) (u1\_compos\_1 k1\_scmpds\_2)) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow \\ & (\forall X1.(v1\_int\_1 X1) \Rightarrow (\forall X2.(m2\_subset\_1 X2 k1\_numbers \\ & k5\_numbers) \Rightarrow (\forall X3.((\neg v1\_xboole\_0 X3) \wedge ((v1\_relat\_1 X3) \wedge \\ & ((v4\_relat\_1 X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 (u1\_compos\_1 k1\_scmpds\_2)) \wedge \\ & ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow \\ & (k2\_scmpds\_7 X0 X1 X2 X3 = k3\_scmpds\_4 (k3\_scmpds\_4 (k2\_scmpds\_4 \\ & (k8\_scmpds\_2 X0 X1 (k2\_nat\_1 (k5\_card\_1 X3) np\_3)) X3) (k11\_scmpds\_2 \\ & X0 X1 (k4\_xcmplx\_0 X2))) (k3\_scmpds\_2 (k4\_xcmplx\_0 (k2\_nat\_1 ( \\ & k5\_card\_1 X3) np\_2)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers) \wedge (v7\_ordinal1 X1)) \Rightarrow (k2\_nat\_1 X0 X1 = k2\_nat\_1 X1 X0) \quad (18)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (19)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_int\_1 X0) \quad (20)$$

### Theorem 1

$$\begin{aligned} & \forall X0.(((v1\_ami\_2 X0) \wedge (m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2))) \Rightarrow \\ & (\forall X1.(v1\_int\_1 X1) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k5\_numbers) \Rightarrow \\ & (\forall X3.((\neg v1\_xboole\_0 X3) \wedge ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\ & X3 k5\_numbers) \wedge ((v5\_relat\_1 X3 (u1\_compos\_1 k1\_scmpds\_2)) \wedge \\ & ((v1\_funct\_1 X3) \wedge ((v1\_finset\_1 X3) \wedge (v1\_afinsq\_1 X3)))))) \Rightarrow ( \\ & k2\_scmpds\_7 X0 X1 X2 X3 = k2\_scmpds\_4 (k8\_scmpds\_2 X0 X1 (k2\_nat\_1 \\ & (k5\_card\_1 X3) np\_3)) (k3\_scmpds\_4 (k3\_scmpds\_4 X3 (k11\_scmpds\_2 \\ & X0 X1 (k4\_xcmplx\_0 X2))) (k3\_scmpds\_2 (k4\_xcmplx\_0 (k2\_nat\_1 ( \\ & k5\_card\_1 X3) np\_2)))))) \end{aligned}$$