

# t15\_scpqsort

(TMFHSx8aezSstt36grpwD3tQdn7yxkpozXx)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmpds\_2 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v5\_funct\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $v5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_7 : \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_numbers : \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_scpisort : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_scpqsort : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_classes1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_graph\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_57 : \iota$  be given. Let  $r2\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\
& X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\
& X0 k5\_numbers)))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\
& X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge ((v1\_partfun1 X1 (u1\_struct\_0 \\
& k1\_scmpds\_2)) \wedge (v5\_memstr\_0 X1 np\_2 k1\_scmpds\_2 k6\_numbers)))))) \Rightarrow \\
& (\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow (\forall X3. \\
& (m2\_subset\_1 X3 k1\_numbers k5\_numbers) \Rightarrow ((k5\_card\_1 (k2\_scpqsort \\
& X3 X2) = np\_57) \wedge ((r1\_xxreal\_0 np\_7 X2) \Rightarrow ((r2\_scmpds\_6 (k2\_scpqsort \\
& X3 X2) X1 X0) \wedge (\exists X4.(m2\_finseq\_1 X4 k4\_numbers) \wedge (\exists X5. \\
& (m2\_finseq\_1 X5 k4\_numbers) \wedge ((k3\_finseq\_1 X4 = X3) \wedge ((r1\_scpisort \\
& X4 X1 X2) \wedge ((k3\_finseq\_1 X5 = X3) \wedge ((r1\_scpisort X5 (k6\_scmpds\_4 \\
& (k2\_scpqsort X3 X2) X1 X0) X2) \wedge ((r2\_classes1 X4 X5) \wedge (r3\_graph\_2 \\
& X5 np\_1 X3)))))))))))))
\end{aligned} \tag{1}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\ & X0 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X0) \wedge (v1\_partfun1 \\ & X0 k5\_numbers)))))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\ & X1 (u1\_struct\_0 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge ((v5\_funct\_1 \\ & X1 (k2\_memstr\_0 np\_2 k1\_scmpds\_2)) \wedge ((v1\_partfun1 X1 (u1\_struct\_0 \\ & k1\_scmpds\_2)) \wedge (v5\_memstr\_0 X1 np\_2 k1\_scmpds\_2 k6\_numbers)))))) \Rightarrow \\ & (\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow (\forall X3. \\ & (m2\_subset\_1 X3 k1\_numbers k5\_numbers) \Rightarrow (\neg(r1\_xxreal\_0 np\_7 \\ & X2) \wedge (\forall X4.(m2\_finseq\_1 X4 k4\_numbers) \Rightarrow (\forall X5.(m2\_finseq\_1 \\ & X5 k4\_numbers) \Rightarrow (\neg(k3\_finseq\_1 X4 = X3) \wedge ((r1\_scpisort X4 X1 X2) \wedge \\ & ((k3\_finseq\_1 X5 = X3) \wedge ((r1\_scpisort X5 (k6\_scmpds\_4 (k2\_scpqsort \\ & X3 X2) X1 X0) X2) \wedge ((r2\_classes1 X4 X5) \wedge (r3\_graph\_2 X5 np\_1 X3)))))))))))))) \end{aligned}$$