

## t86\_exchsort

(TMSoYFiE5HLOTx1UNsA6Jwvp4i6Fe7MyMcU)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v16\_waybel\_0 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_exchsort : \iota \Rightarrow o$  be given. Let  $v2\_exchsort : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $m1\_exchsort : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_exchsort : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_exchsort : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v6\_exchsort : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_exchsort : \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
 & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v16\_waybel\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
 & (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 \\
 & X1 (u1\_struct\_0 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 X1) \wedge ((v1\_exchsort \\
 & X1) \wedge (v2\_exchsort X1 k1\_xboole\_0))))))) \Rightarrow (\exists X2. ((v2\_exchsort \\
 & X2 k1\_xboole\_0) \wedge (m2\_exchsort X2 X0 X1)) \wedge (v6\_exchsort X2 X0 X1))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
 & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v16\_waybel\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
 & (\forall X1. ((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 X1 (u1\_struct\_0 X0)) \wedge \\
 & ((v1\_funct\_1 X1) \wedge (v1\_exchsort X1)))) \Rightarrow (\forall X2. ((v1\_finset\_1 \\
 & X2) \wedge (m2\_exchsort X2 X0 X1)) \Rightarrow ((m1\_exchsort (k4\_exchsort X2) X1) \wedge \\
 & (\forall X3. (v3\_ordinal1 X3) \Rightarrow ((X3 \in k9\_xtuple\_0 X2) \Rightarrow (m1\_exchsort \\
 & (k1\_funct\_1 X2 X3) X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
& X0) \wedge ((v5\_orders\_2 X0) \wedge ((v16\_waybel\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
& (\forall X1.((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 X1 (u1\_struct\_0 X0)) \wedge \\
& ((v1\_funct\_1 X1) \wedge (v1\_exchsort X1)))) \Rightarrow (\forall X2.((v2\_exchsort \\
& X2 k1\_xboole\_0) \wedge (m2\_exchsort X2 X0 X1)) \Rightarrow (((v1\_relat\_1 X1) \wedge (( \\
& v5\_relat\_1 X1 (u1\_struct\_0 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 \\
& X1) \wedge (v1\_exchsort X1)))) \Rightarrow (v1\_finset\_1 X2)))))) \quad (3)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
& X0) \wedge ((v5\_orders\_2 X0) \wedge ((v16\_waybel\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
& (\forall X1.((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 X1 (u1\_struct\_0 X0)) \wedge \\
& ((v1\_funct\_1 X1) \wedge (v1\_exchsort X1)))) \Rightarrow (\forall X2.(m2\_exchsort \\
& X2 X0 X1) \Rightarrow ((v6\_exchsort X2 X0 X1) \Leftrightarrow (v5\_exchsort (k4\_exchsort X2) \\
& X0)))) \quad (4)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\
& X0) \wedge ((v5\_orders\_2 X0) \wedge ((v16\_waybel\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\
& (\forall X1.((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v5\_relat\_1 \\
& X1 (u1\_struct\_0 X0)) \wedge ((v1\_funct\_1 X1) \wedge ((v1\_finset\_1 X1) \wedge ((v1\_exchsort \\
& X1) \wedge (v2\_exchsort X1 k1\_xboole\_0)))))) \Rightarrow (\exists X2.(m1\_exchsort \\
& X2 X1) \wedge (v5\_exchsort X2 X0)))
\end{aligned}$$