main

IN

const 34, 7, 23, 32, 5, 62

cons ×6 = [34,7,23,32,5,62]

callsnd mergeSort

retsnd

callsnd print_final

mergeSort (recursive template)

lst (input)

isNil lst

steer

[] → return []

(x:xt)

head lst

tail lst

isNil (tail)

[x] → return [head]

steer

_ (len ≥ 2)

callsnd split

retsnd (left, right)

fst = left

snd = right

callsnd mergeSort left

callsnd mergeSort right

retsnd leftSorted

retsnd rightSorted

recursive callsnd

return to caller

split (recursive template)

lst (input)

isNil lst

steer

[] → return ([], [])

(x:xt)

head x

tail

head y

tail zs

[x] → return ([x], [])

isNil zs + steer

x:y:zs

callsnd split zs

retsnd (xs, ys)

cons (x:xs, y:ys)

ret split

ret mergeSort

rec

merge (recursive, 2 inputs)

xs (input)

callsnd merge (leftSorted, rightSorted)

isNil xs

retsnd result

steer

[] → return ys

(x:xt)

head x

tail xt

ys (input)

isNil ys

steer

(y:yt)

[] → return xs

head y

tail yt

lthan (x ≤ y)

steer

true

callsnd merge (xt, ys)

cons x : result

false

callsnd merge (xs, yt)

cons y : result

ret merge

recursive callsnd

print_final

xs (input)

super #4 (GHC print)

OUT

604 TALM instructions (4 functions, 3 recursive)

super-instruction (GHC-compiled)   dataflow node (TALM-interpreted)