

Exercise 2.24.

Suppose we evaluate the expression `(list 1 (list 2 (list 3 4)))`. Give the result printed by the interpreter, the corresponding box-and-pointer structure, and the interpretation of this as a tree (as in figure 2.6).

Answer.

Send the expression `(list 1 (list 2 (list 3 4)))` for evaluation, the interpreter will print:

`(1 (2 (3 4)))`

Like figure 2.5, here we can also represent this structure in terms of pairs, as is shown in Figure 1. And figure 2 interprets the structure in Figure 1 as a tree.

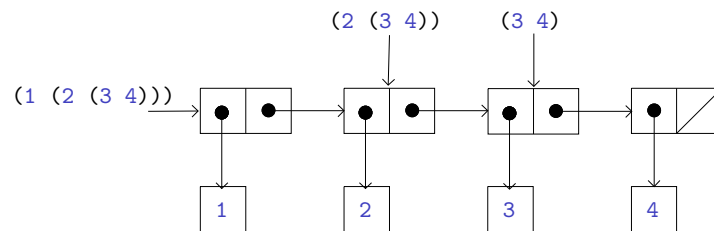


Figure 1. Box-and-pointer structure form by `(cons (list 1 (list 2 (list 3 4))))`.

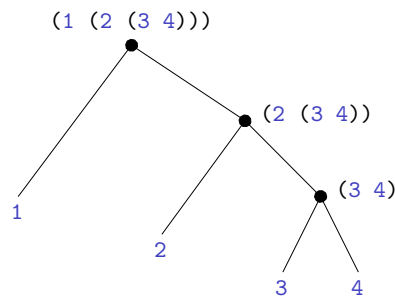


Figure 2. The list structure in figure 1 viewed as a tree.