Homework 1, due midnight Thursday Mar 1

Full electronic submission due 1st, paper version due Friday in TA mailbox (101A Smith).

Working together

- A&S 1.6
- Do A&S 1.12 (Consider each row a list; work on getting from the nth row to the (n+1)st row).
- Code the procedures `append` and `reverse`. Code each one twice: recursively and iteratively. Note: an iterative procedure that calls a recursive process helper is no longer iterative; but it may certainly call other iterative procedures.

Do not submit these.

Working alone: for submission

You may talk with another student and share ideas with another student for these problems, but you MAY NOT look at another student's answers or code for any reason. You may of course discuss anything with the TA or professor.

Pay special attention to what is required. If the question asks for drawings, process illustrations, answers, descriptions, etc., be sure to provide those things.

1. A&S 1.8
2. A&S 1.9
3. Write a definition, in your own words, of "syntactic sugar".
4. A&S 1.11 and give big O for each (time and space) with a brief explanation.
5. A&S 1.14 (paper submission only)
6. If 2^{30} function calls can be processed each second, calculate the amount of time required to perform the tree recursive fib code from class for (fib 70). Report your answer in sensible units. Show all of your calculations.
7. A&S 1.17
8. Write a procedure which uses the map procedure we wrote in class and displays every element of a list argument. Put two spaces between each item in the list and a newline after the last item.
9. Modify the previous procedure so that it takes an arbitrary number of arguments instead of a list. If one of the items in the list is itself a list, it should appear on its own line.
10. Draw the box-and-pointer structure of

```
(cons 2 (cons (list 3 4) 5))

(cons (cons 1 2)(cons 1 ()))

(list (cons 1 ()) (cons 2 ()) ())
```