



Conses in Ruby: So Much More Than Lists

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**Ruby is my ~~most second~~ third favorite
programming language of all time.**

1. My own super-awesome programming language, Teepee
(but it's not that awesome just yet)

2. Common Lisp

3. Ruby

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999. Java

Nearly every programming language has some way to do things to a list/array/vector/whatever of things.

to do list

1. Make vanilla pudding. Put in mayo jar. Eat in public.
2. Hire two private investigators. Get them to follow each other.
3. Wear shirt that says "Life." Hand out lemons on street corner.
4. Get into a crowded elevator and say "I bet you're all wondering why I gathered you here today."
5. Major in philosophy. Ask people WHY they would like fries with that.
6. Run into a store, ask what year it is. When someone answers, yell "It worked!" and run out cheering.
7. Become a doctor. Change last name to Acula.
8. Change name to Simon. Speak in third person.
9. Buy a parrot. Teach the parrot to say "Help! I've been turned into a parrot."
10. Follow joggers around in your car blasting "Eye of the Tiger" for encouragement.

Ruby has arrays.

```
1 a = [1,2,3,4,5]
2 a.class # Array
3 a.length # 5
4 a.first # 1
5 a.map {|i| i*2} # [2,4,6,8,10]
```

Common Lisp prefers linked lists.

```
1 (setf a '(1 2 3 4 5))  
2 (class-of a) ; #<BUILT-IN-CLASS COMMON-LISP:CONS>  
3 (length a) ; 5  
4 (first a) ; 1  
5 (mapcar (lambda (i) (* 2 i)) a) ; '(2 4 6 8 10)
```

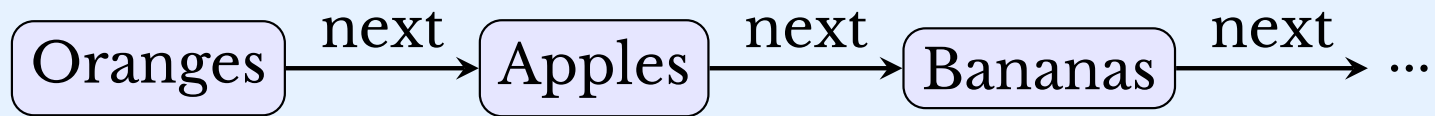
But Common Lisp also has vectors, which are basically the same as Ruby arrays.

```
1 (let v (vector 1 2 3 4 5))
2 (class-of v)
3 ;; #<BUILT-IN-CLASS COMMON-LISP:SIMPLE-VECTOR>
4 (length v) ; 5
5 (elt v 0) ; 1
6 (map 'vector (lambda (i) (* 2 i)) v)
7 ;; #(2 4 6 8 10)
```

And I'm adding a really nice Cons gem!

```
1 require 'cons'
2 c = [1,2,3,4,5].to_cons
3 c.class # Cons
4 c.length # 5
5 c.first # 1
6 c.map {|i| i*2} # Cons.list 2,4,6,8,10
```

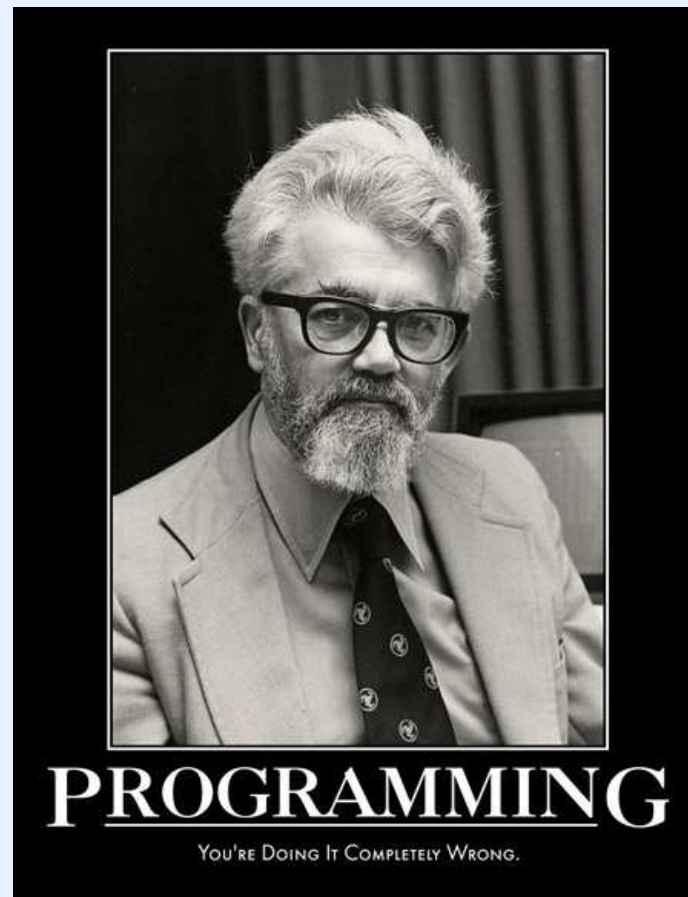
Remember linked lists?



We can do this something like this in Ruby:

```
1 class LinkedList
2   attr_accessor :data, :next
3   def initialize data, next
4     @data, @next = data, next
5     ...
6   end
7   ...
8 end
```


Well, they don't work like that at all in Lisp.



Questions?