Why does the following code evaluate to #f

(eq? - (car '(-)))

One evaluates to - and the other evaluates to <builtin -(@)>. Why?

Subject: Re: Functional Equality
Posted by jzarob on Sun, 21 Feb 2016 01:36:00 GMT

Because - is defined as a function, while the (car '(-)) is a symbol.

If you want to check if they're equal I think the correct call would be (eq? '- (car (-))) which should evaluate to true.

Subject: Re: Functional Equality
Posted by tscrompton on Sun, 21 Feb 2016 02:31:25 GMT

Ah. However, I don’t that that’s technically the semantically correct way to do it. I guess I didn’t fully understand what the apostrophe did. It looks like (eq? - (car (list -))) seems to work. Thanks!

Subject: Re: Functional Equality
Posted by lusth on Sun, 21 Feb 2016 16:44:45 GMT

tscrompton wrote on Sat, 20 February 2016 20:31:Ah. However, I don't that that’s technically the semantically correct way to do it.

I don't follow. What's semantically incorrect about (eq? '- (car '(-)))? The expression is asking, "does the symbol - start this list?".

Subject: Re: Functional Equality
Posted by tscrompton on Mon, 22 Feb 2016 21:20:53 GMT

If I do (define minus -), the following would evaluate to #f:
Whereas, the following would evaluate to #t.

(eq? - (car (list minus)))

Subject: Re: Functional Equality  
Posted by jarobinson3 on Mon, 22 Feb 2016 22:03:34 GMT  
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Lets take a look at each separately,

Here is your first piece of code:

(eq? '- (car '(minus)))

This is a symbol (use symbol? to check)

'-'  

This is a list (use list? to check) which contains a function called minus.  
'(minus)

Does the symbol minus equal the function minus?  I would say not.

Let's look at the second piece of code:

(eq? - (car (list minus)))

This is a function (builtin)

-  

This is a list containing the function minus:  
(list minus)

Since you defined minus to be - they are the same.  So you should get true.
(define a 3)
(= 3 (car (list a)))

On the other hand:

(eq? ':- (car '(minus)))

is the same as:

(eq? ':- (car (list 'minus)))

The symbol - is not the same symbol as the symbol minus.