**Incorrect rules for parentheses and quotes for use in part I**

Students sometimes invent incorrect rules for using parentheses and quotes. Here are some examples. Each example includes the description of the rule, an example—an incorrect call to a function—of the rule, the correct call, and a framework for the definition of the function to be called.

<table>
<thead>
<tr>
<th>rule</th>
<th>explanation</th>
<th>incorrect call resulting from following the rule</th>
<th>correct call</th>
<th>function definition</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>All arguments provided for a function are enclosed in parentheses and quotes.</td>
<td>(example1 '(a thing))</td>
<td>(example1 'a 'thing)</td>
<td>(define (example1 wd1 wd2) ... )</td>
</tr>
<tr>
<td>B</td>
<td>Sentences in general don’t need to be quoted.</td>
<td>(example2 (a b c) (d 2 f))</td>
<td>(example2 '(a b c) '(d 2 f))</td>
<td>(define (example2 sent1 sent2) ... )</td>
</tr>
<tr>
<td>C</td>
<td>Sentences of numbers don’t need to be quoted.</td>
<td>(example3 (5 18 299))</td>
<td>(example3 '(5 18 299))</td>
<td>(define (example3 numSent) ... )</td>
</tr>
<tr>
<td>D</td>
<td>Words don’t need to be quoted.</td>
<td>(example4 try this out)</td>
<td>(example4 'try 'this 'out)</td>
<td>(define (example4 wd1 wd2 wd3) ... )</td>
</tr>
<tr>
<td>E</td>
<td>Quotes may go either inside or outside a sentence.</td>
<td>(example5 ('this 'is 'a 'sentence))</td>
<td>(example5 '(this is a sentence))</td>
<td>(define (example5 L) ... )</td>
</tr>
</tbody>
</table>
Worksheet for problems in part I (definitions of second and third appear in lab3.scm; they are similar to first, but for 2\textsuperscript{nd} and 3\textsuperscript{rd} elements)

**Problem 1**

<table>
<thead>
<tr>
<th>function definition</th>
<th>incorrect call</th>
<th>desired result</th>
<th>incorrect rules used</th>
<th>call that correctly produces the desired result</th>
</tr>
</thead>
</table>
| (define (first-replaced item sent)  
  (sentence item (butfirst sent)) ) | (first-replaced red (the dog)) | (red dog) |                     |                                               |
| (define (paired-sent sent1 sent2)  
  (sentence  
    (word (first sent1) (first sent2))  
    (word (second sent1) (second sent2))  
    (word (third sent1) (third sent2)) ) ) | (paired-sent  
  ('a 'b 'c) (3 7 9) ) | (a3 b7 c9) |                     |                                               |
| (define (square-then-attach num sent)  
  (sentence (* num num) sent) ) | (square-then-attach  
  '(4) '(2 c f 3) ) | (16 2 c f 3) |                     |                                               |

**Problem 2**

<table>
<thead>
<tr>
<th>function definition</th>
<th>desired result</th>
<th>call that correctly produces the desired result</th>
</tr>
</thead>
</table>
| (define (sub-from-all sent num)  
  (sentence  
    (- (first sent) num)  
    (- (second sent) num)  
    (- (third sent) num) ) ) | (7 4 1) |                                               |
| (define (combined e1 e2 e3)  
  (sentence e1 (word e2 e3)) ) | (a bcd) |                                               |
| (define (all-firsts sent1 sent2 sent3)  
  (sentence  
    (first sent1) (first sent2) (first sent3) ) ) | (a bc d) |                                               |