CS 61A Structure and Interpretation of Computer Programs

Summer 2016

Quiz 9 Solutions

INSTRUCTIONS

- You have 25 minutes to complete this quiz.
- The exam is closed book, closed notes, closed computer, closed calculator.
- Mark your answers **on the quiz itself**. We will *not* grade answers written on scratch paper.

Last name	
First name	
Student ID number	
Instructional account (`cs61a-_`)	
BearFacts email (`_@berkeley.edu`)	
TA	
Name of the person to your left	
Name of the person to your right	
All the work on this exam is my own. **(please sign)**	

1. (5 points) Remove All These Quizzes!

Write facts for `remove-all`, a relation between a value `elem` and two lists. This relation is only satisfied if the second list is the same as the first list, except with all instances of `elem` removed. The `equal` fact from lecture has been defined for you. You will very likely find this to be useful.

You may only use the lines provided. You may not need to fill all the lines.

```
(fact (equal ?x ?x))

(fact (remove-all ?elem () ()))

(fact (remove-all ?elem (?elem . ?rest) ?rest-removed)
      (remove-all ?elem ?rest ?rest-removed))

(fact (remove-all ?elem (?first . ?rest) (?first . ?rest-removed))
      (remove-all ?elem ?rest ?rest-removed)
      (not (equal ?first ?elem)))

logic> (query (remove-all 1 (1 2 3 1 2 3 1 2 3) ?what))
Success!
what: (2 3 2 3 2 3)

logic> (query (remove-all 2 (1 2 2 3 1 2 2 2)   ?what))
Success!
what: (1 3 1)

logic> (query (remove-all 4 (1 2 3 1 2 3 1 2 3) ?what))
Success!
what: (1 2 3 1 2 3 1 2 3)
```