CSE 341 — Racket Discussion Questions Part 2

These questions deal with structs, representing objects, lexical scoping, and macros.

- 1. Define a struct called point3d that represents 3D points. Create a point p at the origin; change its z value to be 10; and print it out. It should print as (point3d 0 0 10).
- 2. Define a make-cell function that returns a simulated instance of a cell with a single field value, which should be hidden (using lexical scoping). The cell should provide "methods" for get-value and set-value!. Follow the bank account example in doing this. The value should start out as null.
- 3. Similarly but with more bells and whistles ... define a make-point function that returns a simulated instance of point with x and y fields, which should be hidden (using lexical scoping). The point should provide "methods" for get-x, get-y, set-x!, set-y!, and print-point. Follow the bank account example in doing this. The fields should start out as 0.
- 4. What does this expression evaluate to? Why? (What environment is (£ 3) evaluated in? What environment is the body of the lambda evaluated in?)

5. What does this expression evaluate to? Why?

6. Define a Racket macro and2 that is a 2-argument version of and. Hint: the value of the and expression in Racket is the value of the *last* subexpression if all of them are something other than #f. The and2 macro should work the same, so (and2 #t "squid") should evaluate to "squid".