

**Problem Set 9**  
**COMP301 Fall 2021**  
**Week 11: 13.11.2021 - 17.11.2021**

**Instructions:**

- Submit your answers to the Blackboard PS9 assignment until December 18th Saturday, at 23.59.
- Please use the code boilerplate, which includes several tests for you to see if your code is correct.
- Submit your code and PDF file to BlackBoard as a single zip file *yourIDno\_username.zip*. (Example: *123456\_ftokmak17.zip*)

**Problem 1:** What is the return value of this function? Explain why.

```
let g = proc(x)
  let counter = newref(x)
  in proc (dummy)
    begin
      setref(counter, -(deref(counter), -1));
      deref(counter)
    end
in let a = (g 3)
  in let b = (g 7)
    in begin
      (a 3);
      (a 3);
      (b 3);
      -(b 3), (a 3)
    end
```

**Problem 2:** Modify the interp.scm so that a setref-exp returns the old contents of the location.

**Problem 3:** <sup>1</sup> Implement the store in constant time by representing it as a Scheme vector. You can look at the documentation of Scheme vectors.

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<sup>1</sup>EOPL Exercise 4.9