

Assignment 2

Principles of Programming Languages
II UW_r, 2017/18

due October 25, 2017

Problem 1 (1 pts). Solve Exercise 2.5 from EoPL.

Problem 2 (1 pts). Solve Exercise 2.10 from EoPL.

Problem 3 (2 pts). Solve Exercise 2.11 from EoPL.

Problem 4 (1 pts). Solve Exercise 2.21 from EoPL.

Problem 5 (1 pts). Solve Exercise 2.28 from EoPL.

Problem 6 (1 pts). Solve Exercise 2.29 from EoPL.

Problem 7 (2 pts). Solve Exercise 2.31 from EoPL.

Problem 8 (1 pts). Solve Exercise B.1 from EoPL.

Problem 9 (2 pts). Solve Exercise B.3 from EoPL. Additionally, generate a REPL.

Problem 10 (2 pts). Defunctionalize the following program (use `define-datatype`):

```
;; ZeroOrOne ::= 0 | 1
;; walk : Listof(ZeroOrOne) -> (Listof(ZeroOrOne) -> Bool) -> Bool
(define (walk xs k)
  (if (and (not (null? xs)) (eqv? (car xs) 0))
      (walk (cdr xs)
            (lambda (ys)
              (if (and (not (null? ys)) (eqv? (car ys) 1))
                  (k (cdr ys))
                  #f)))
      (k xs)))

;; main : Listof(ZeroOrOne) -> Bool
(define (main xs)
  (walk xs (lambda (ys) (null? ys))))
```

What does this program compute?