

Problem Set 5
Comp 301
Fall 2020
Week 7: 16.11.2020 - 20.11.2020

Please use the code boilerplate for PROC language, which includes several tests in `tests.rkt` for you to see if your code is correct. Uncomment corresponding test and run `tests.rkt`, if you see the success message, then it means that your code works properly.

Save your code and draw the contour diagram to a paper/online environment and take the picture/screenshot of it. ZIP the files as `ID_username.zip` with your ID and username (Example: `1234567_ceteki13.zip`), and submit this ZIP file. You are expected to submit by the end of PS, however, you have time until midnight. The solutions will be available on the course BlackBoard after Friday. **Read the questions carefully. Good luck!**

Problem 1. : Draw the contour diagram of the following program

```
let x = 37
in proc(y)
  let z = -(y, x)
  in -(x, y)
```

Problem 2. ¹: Extend the PROC to include procedures with multiple arguments and calls with multiple operands, as suggested by the grammar:

$$\begin{aligned} \textit{Expression} &::= \textit{proc}(\{\textit{Identifier}\}^{*(.)}) \textit{Expression} \\ &::= (\textit{Expression}\{\textit{Expression}\}^*) \end{aligned}$$

Here is an example usage which evaluates to 1:

```
let f = proc(x, y) -(x, y)
in (f 5 4)
```

Note 1: Methods that need to be modified are highlighted inside the PROC language source code with some hints.

Note 2: You need to update the following files: `data-structures.rkt`, `interp.rkt` and `lang.rkt`.

¹EOPL p.80 Exercise 3.21