

CS4215 Programming Language Implementation

Lab task for Week 03

Dynamic Semantics of simPL

1. Download the file <http://www.comp.nus.edu.sg/~cs4215/labtasks/week3.zip>, and extract it to the Eclipse workspace folder. The workspace folder should now contain a file `cs4215_week_3`.
2. In Eclipse, go to “File”, “New”, “Java Project”, and choose “`cs4215_week_3`” as “Project name”. Press “Finish”.
3. Use the “Run Configurations” to run `simPLdynamic.simpl` with a file name as “Program argument”. The file name should be a simPL file in the “Working directory”.

Note that the `Evaluator` in `simPLdynamic` cannot handle applications. Add all operations that deal with applications (`Application.java`), following the dynamic semantics given in class. For applications with multiple arguments, use the translation mechanism described in the Notes 03, pages 13–14. You will also need to handle the case where arguments include `let` expressions. For this, you need to implement the `eliminateLet()` method in `Application.java`.

4. Submit the resulting file
5. `Application.java` from your folder `simPL` in the IVLE workbook “Week 3”.

Make sure that you do not change any other files when you test your programs.

Suggestion: When you are done with the solution, save your file `Application.java` in a secure place. Then download a fresh copy of the lab task, and place your three files into that copy. Then re-do your tests.

Note: We will only test well-typed programs (see next lecture). This means that you do not need to handle cases where the number of arguments does not match the number of formal parameters. However, do note that division by zero can get the evaluation “stuck”. The dynamic semantics prescribes at exactly what place the evaluation gets stuck. Please follow the semantics to achieve this behavior.