

Program Analysis and Verification
Course 0368-4479 / 2013/14 - Semester B
Noam Rinetzky

Home Work Assignment #1

Due: Lesson 6

In the following, we refer to the “Semantics with Application” book as “the book”.
The book can be found here: http://www.daimi.au.dk/~bra8130/Wiley_book/wiley.html.

1. Solve Ex 2.8 and 2.18 in the book.
2. In the previous question, you were asked to extend the while language with a new construct (a for loop). Extend the proof of theorem 2.26 in the book (semantic equivalence) to handle for commands.
3. Solve Ex 2.34 in the book.
4. Read Section 2.5 in the book and solve Ex 2.45.
5. Prove or disprove: The denotational semantics of any statement in the while language shown in the lectures is a monotone and continuous function.
6. Define a denotational semantics for the the while language extended with the random command. (The extension is described in Question 3) .