



Dr. Matthias Heizmann  
Tanja Schindler  
Dominik Klumpp

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## Tutorial for Program Verification

### Exercise Sheet 7

#### Exercise 1: Semantics of Boo

2 Points

In the lecture we defined the semantics for the assignment statement and the semantics for the concatenation of two statements. In this exercise we use both definitions and compute for statements the corresponding relations.

- (a) Let  $V$  be  $x, y$ ,  $\mu(x) = \mathbb{N}$  and  $\mu(y) = \mathbb{N}$ .

Write down the relation  $\llbracket x := x-y; y := x+1; \rrbracket$ .

- (b) Let  $V$  be  $x, y$ ,  $\mu(x) = \{\mathbf{true}, \mathbf{false}\}$  and  $\mu(y) = \{\mathbf{true}, \mathbf{false}\}$ .

Write down the relation  $\llbracket x := x \ \&\& \ y; y := \mathbf{true}; \rrbracket$  by listing all elements of the relation explicitly.