



IN [5/9]440: static analysis

Autumn 2018

Handout 1

22. 08. 2018

Handout 1: Intro

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The handouts generally don't contain information which is not also on the slides. They are just there to have a look during the lecture, to follow some examples etc. better when discussing the slides.

The abstract grammar of the While language looks as follows:

$a ::= x \mid n \mid a \text{ op}_a a$	arithm. expressions
$b ::= \text{true} \mid \text{false} \mid \text{not } b \mid b \text{ op}_b b \mid a \text{ op}_r a$	boolean expr.
$S ::= [x := a]^l \mid [\text{skip}]^l \mid S_1; S_2$ $\text{if}[b]^l \text{ then } S \text{ else } S \mid \text{while}[b]^l \text{ do } S$	statements

Example 1 (Factorial) The following is the code of the factorial "function" (in labelled, abstract syntax). The corresponding flow graph is given in Figure 1.

$$[y := x]^0; [z := 1]^1; \text{while}[y > 1]^2 \text{ do}([z := z * y]^3; [y := y - 1]^4); [y := 0]^5 \quad (1)$$

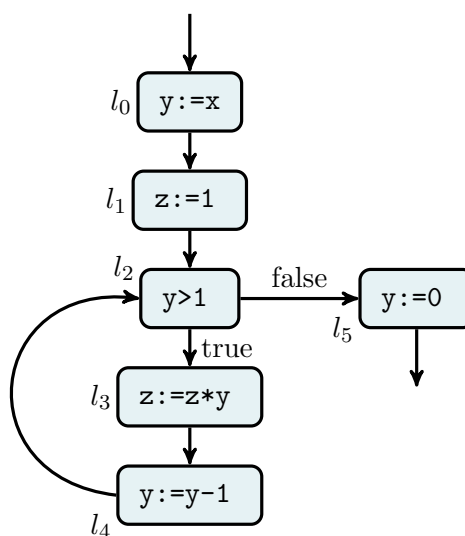


Figure 1: Flow graph