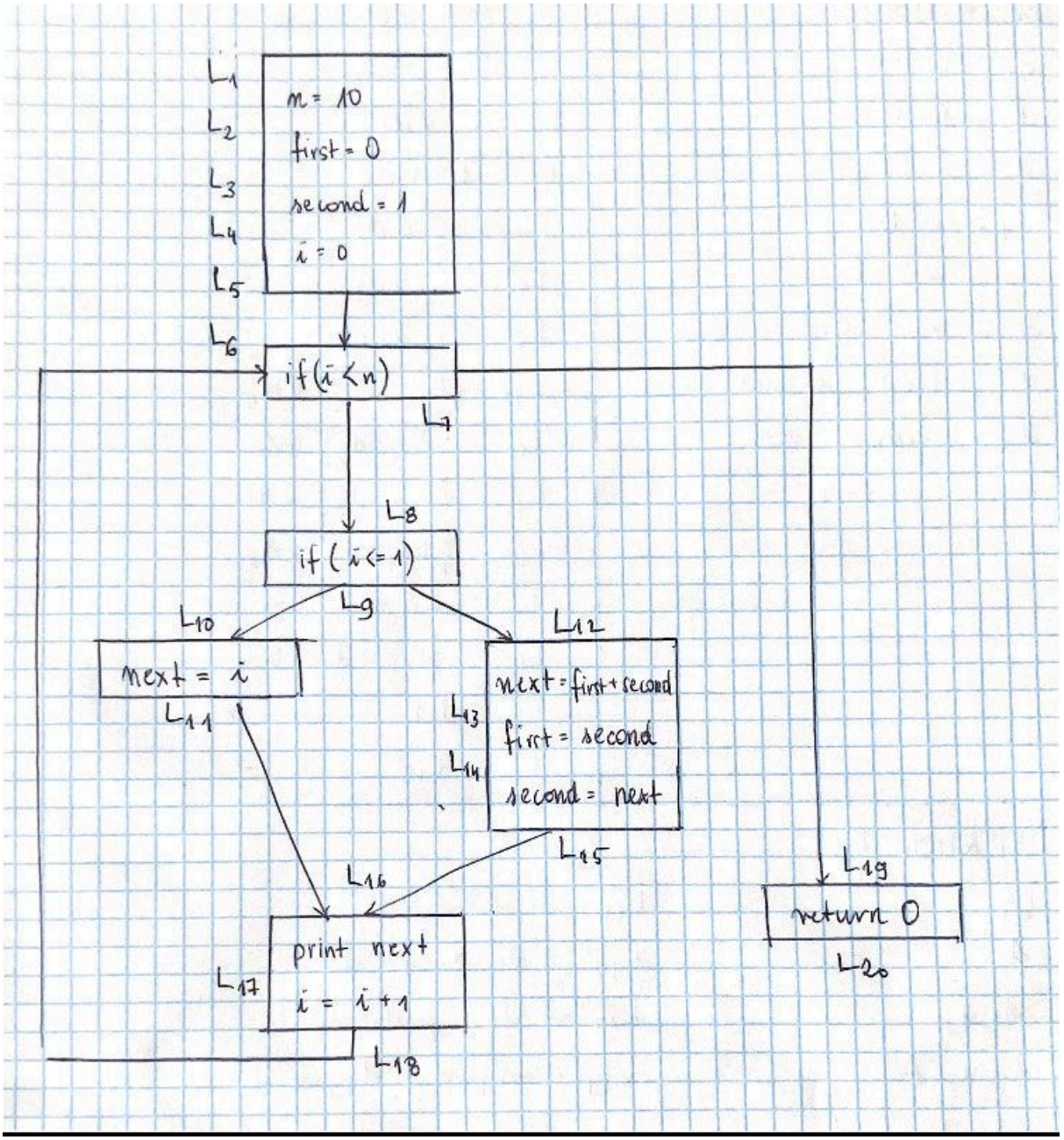
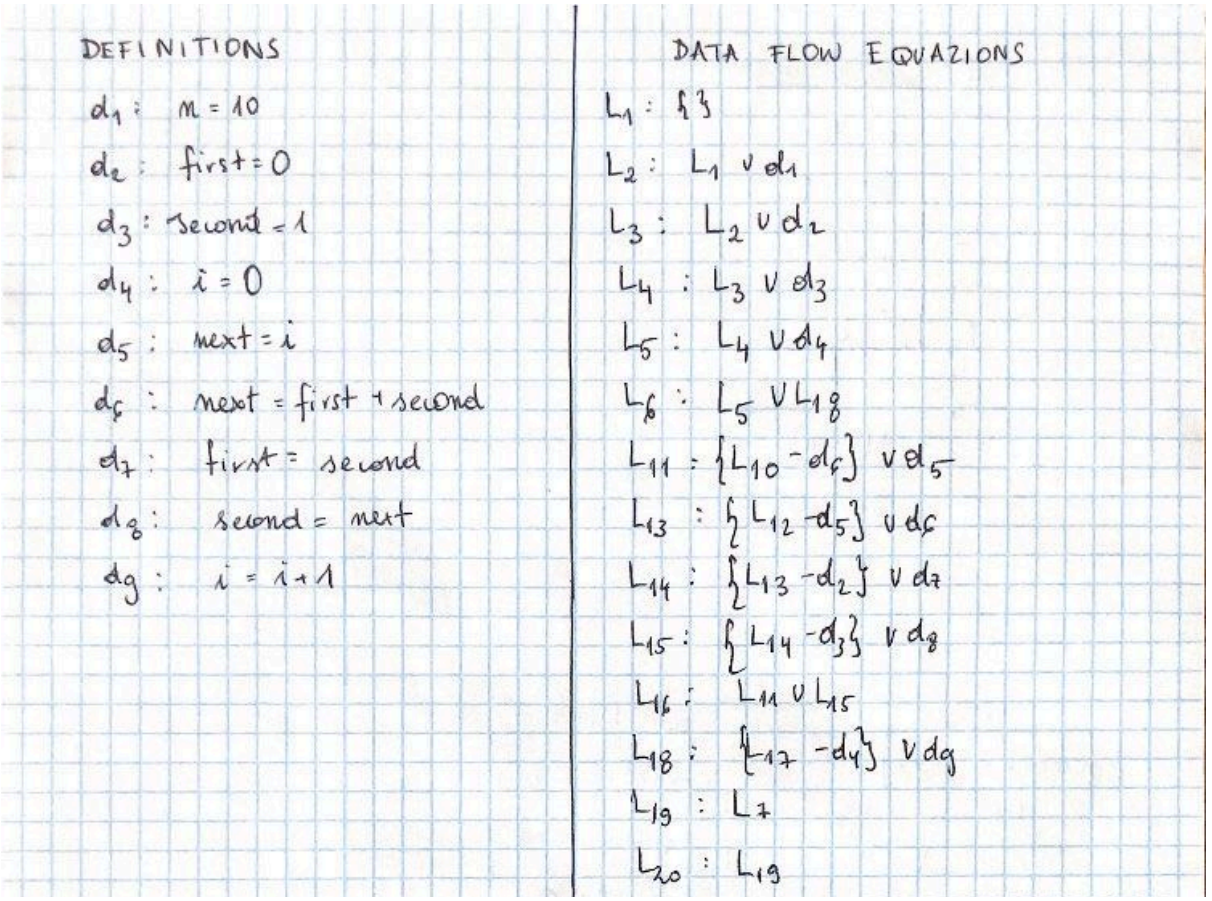
Compiler Construction
Problem Set 6
Alicja Jonczyk

1.1 Control flow graph (15%)



1.2 Reaching definitions (25%)



ITERATION 1

$L_1 = \{\}$

$L_2 = d_1$

$L_3 = d_1, d_2$

$L_4 = d_1, d_2, d_3$

$L_5 = d_1, d_2, d_3, d_4$

$L_6 = d_1, d_2, d_3, d_4$

$L_7 = d_1, d_2, d_3, d_4$

$L_8 = d_1, d_2, d_3, d_4$

$L_9 = d_1, d_2, d_3, d_4$

$L_{10} = d_1, d_2, d_3, d_4$

$L_{11} = d_1, d_2, d_3, d_4, d_5$

$L_{12} = \{\}$

$L_{13} = \{\}$

$L_{14} = \{\}$

$L_{15} = \{\}$

$L_{16} = d_1, d_2, d_3, d_4, d_5$

$L_{17} = d_1, d_2, d_3, d_4, d_5$

$L_{18} = d_1, d_2, d_3, d_5, d_9$

$L_{19} = \{\}$

$L_{20} = \{\}$

ITERATION 2

$L_1 = \{\}$

$L_2 = d_1$

$L_3 = d_1, d_2$

$L_4 = d_1, d_2, d_3$

$L_5 = d_1, d_2, d_3, d_4$

$L_6 = d_1, d_2, d_3, d_4, d_5, d_9$

$L_7 = d_1, d_2, d_3, d_4, d_5, d_9$

$L_8 = d_1, d_2, d_3, d_4, d_5, d_9$

$L_9 = d_1, d_2, d_3, d_4, d_5, d_9$

$L_{10} = d_1, d_2, d_3, d_4, d_5, d_9$

$L_{11} = d_1, d_2, d_3, d_4, d_5, d_9$

$L_{12} = \{\}$

$L_{13} = \{\}$

$L_{14} = \{\}$

$L_{15} = \{\}$

$L_{16} = d_1, d_2, d_3, d_4, d_5, d_9$

$L_{17} = d_1, d_2, d_3, d_4, d_5, d_9$

$L_{18} = d_1, d_2, d_3, d_5, d_9$

$L_{19} = \{\}$

$L_{20} = \{\}$

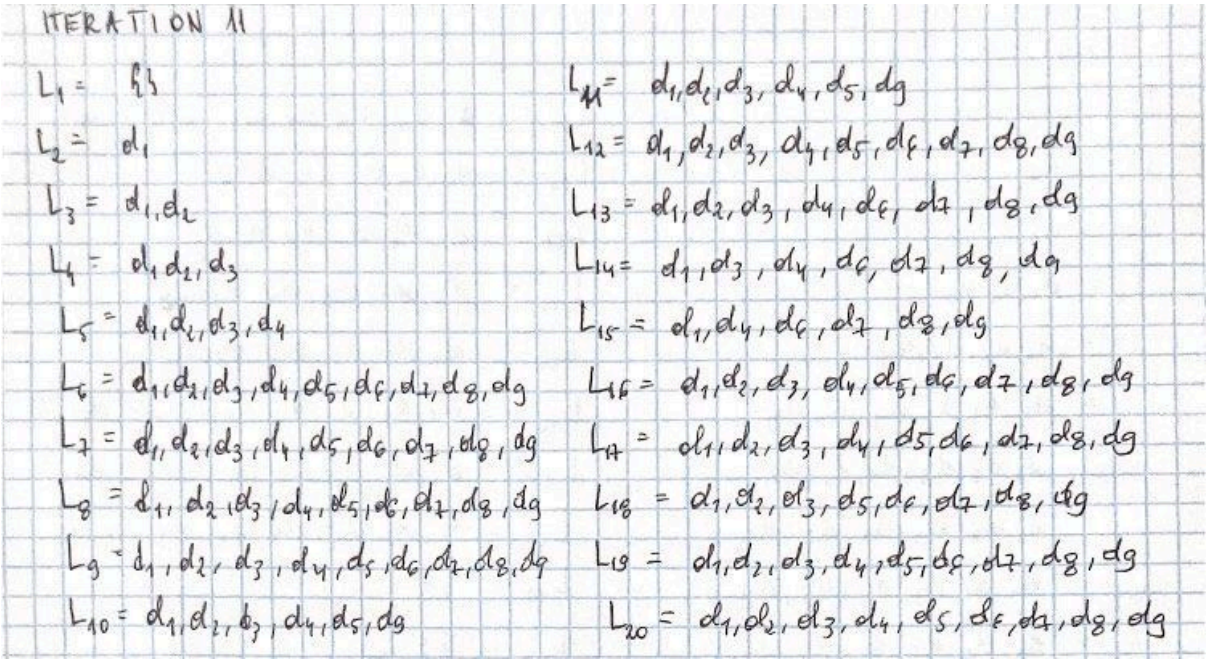
ITERATION 3

$L_1 = \{\}$
$L_2 = d_1$
$L_3 = d_1, d_2$
$L_4 = d_1, d_2, d_3$
$L_5 = d_1, d_2, d_3, d_4$
$L_6 = d_1, d_2, d_3, d_4, d_5, dg$
$L_7 = d_1, d_2, d_3, d_4, d_5, dg$
$L_8 = d_1, d_2, d_3, d_4, d_5, dg$
$L_9 = d_1, d_2, d_3, d_4, d_5, dg$
$L_{10} = d_1, d_2, d_3, d_4, d_5, dg$
$L_{11} = d_1, d_2, d_3, d_4, d_5, dg$
$L_{12} = d_1, d_2, d_3, d_4, d_5, dg$
$L_{13} = d_1, d_2, d_3, d_4, d_6, dg$
$L_{14} = d_1, d_3, d_4, d_6, d_7, dg$
$L_{15} = d_1, d_4, d_6, d_7, d_8, dg$
$L_{16} = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_{17} = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_{18} = d_1, d_2, d_3, d_5, d_6, d_7, d_8, dg$
$L_{19} = \{\}$
$L_{20} = \{\}$

ITERATION 4

$L_1 = \{\}$
$L_2 = d_1$
$L_3 = d_1, d_2$
$L_4 = d_1, d_2, d_3$
$L_5 = d_1, d_2, d_3, d_4$
$L_6 = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_7 = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_8 = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_9 = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_{10} = d_1, d_2, d_3, d_4, d_5, dg$
$L_{11} = d_1, d_2, d_3, d_4, d_5, dg$
$L_{12} = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_{13} = d_1, d_2, d_3, d_4, d_6, d_7, d_8, dg$
$L_{14} = d_1, d_3, d_4, d_6, d_7, d_8, dg$
$L_{15} = d_1, d_4, d_6, d_7, d_8, dg$
$L_{16} = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_{17} = d_1, d_2, d_3, d_4, d_5, d_6, d_7, d_8, dg$
$L_{18} = d_1, d_2, d_3, d_5, d_6, d_7, d_8, dg$
$L_{19} = \{\}$
$L_{20} = \{\}$

THE ITERATIONS FROM 5 TO 10 (INCLUDED) ARE IDENTICAL AS ITERATION 4.



2. Code generation II

```
jonczyk@alicja:~/COMPILER_CONSTRUCTION/problem_set_6/vsl_programs$ make ps6-check
find ps6-codegen2 -wholename "*.vsl" | xargs -L 1 ./codegen-tester.py
Running 1 test cases for file ps6-codegen2/break.vsl
  Running ps6-codegen2/break.out
Running 1 test cases for file ps6-codegen2/all_if_types.vsl
  Running ps6-codegen2/all_if_types.out
Running 2 test cases for file ps6-codegen2/sieve.vsl
  Running ps6-codegen2/sieve.out 600
  Running ps6-codegen2/sieve.out 100
Running 1 test cases for file ps6-codegen2/simple_while.vsl
  Running ps6-codegen2/simple_while.out 6
Running 3 test cases for file ps6-codegen2/simple_if.vsl
  Running ps6-codegen2/simple_if.out 7
  Running ps6-codegen2/simple_if.out 5
  Running ps6-codegen2/simple_if.out -2
Running 4 test cases for file ps6-codegen2/if.vsl
  Running ps6-codegen2/if.out 4
  Running ps6-codegen2/if.out 0
  Running ps6-codegen2/if.out 10
  Running ps6-codegen2/if.out -20
Running 1 test cases for file ps6-codegen2/while.vsl
  Running ps6-codegen2/while.out
Running 1 test cases for file ps6-codegen2/simple_break.vsl
  Running ps6-codegen2/simple_break.out
No differences found in PS6!
jonczyk@alicja:~/COMPILER_CONSTRUCTION/problem_set_6/vsl_programs$
```