

Homework Series 2

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June 15, 2015

1

1.1

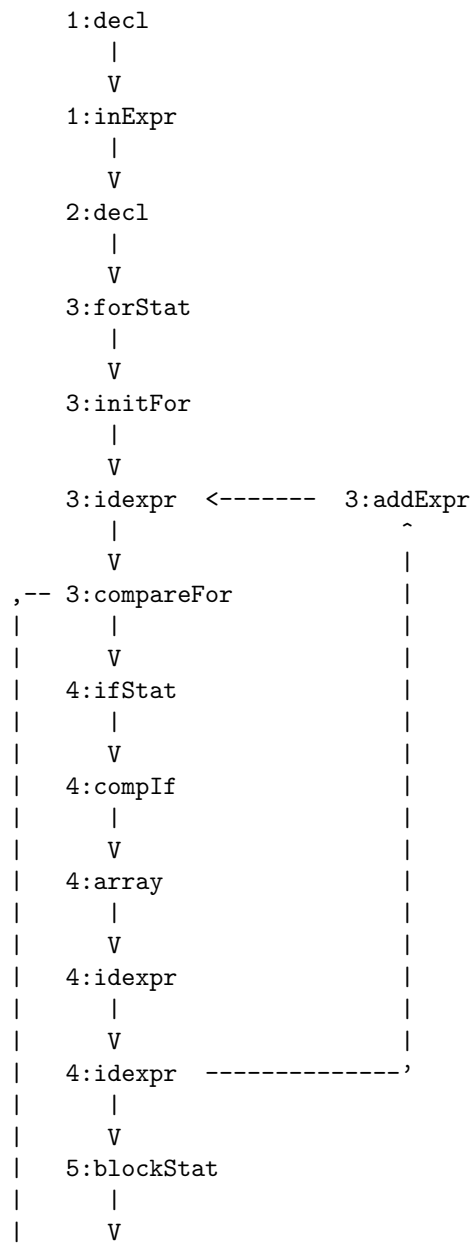
```
1:decl
|
V
1:inExpr
|
V
2:decl
|
V
3:forStat
|
V
3:initFor
|
V
,-- 3:compareFor <-- 3:addExpr
|   |               ^
|   V               |
|  4:ifStat         |
|   |               |
|   V               |
|  4:compIf  -----'
|   |
|   V
|  5:blockStat
|   |
|   V
|  5:breakStat
|   |
|   V
'-> 8:print
```

Basic blocks:

- 1:inExpr, 1:decl, 2:decl, and 3:initFor

- 3:compareFor
- 4:compIf, 4:ifStat
- 3:addExpr
- 5:blockStat, 5:breakStat
- 8:print

1.2



```

|    5:breakStat
|      |
|      V
'-> 8:print

```

Basic blocks:

- 1:decl, 1:inExpr, 2:decl, 3:forStat, 3:initFor
- 3:addExpr
- 3:idexpr, 3:compareFor
- 4:ifStat, 4:compIf, 4:array, 4:idexpr, and 4:idexpr
- 5:blockStat, 5:breakStat
- 8:print

1.3

The basic blocks match with the same outgoing edges and incoming edges. The only difference is the amount of detail. This is generalisable to other source programs, since more details does not change the control flow.

2

See lab files in `pp.s1378791.q2_2`

3

See lab files in `pp.s1378791.q2_3`

Implementing a visitor instead of a listener would be a lot easier when optimising the generated code, so I will not optimise the code.

4

5

See lab files in `pp.s1378791.q2_5`