Assignment 3

Yulei Sui

University of Technology Sydney, Australia

Assignment 3: Quiz + A Coding Task

- A quiz (10 points)
  - Data dependence
  - Constraint graph
  - Andersen's points-to analysis

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- A quiz (10 points)
  - Data dependence
  - Constraint graph
  - Andersen's points-to analysis
- One coding task (15 points)
  - **Goal**: implement Andersen's pointer analysis by solving the constraint graph of a program.
  - **Specification and code template**:
    `https://github.com/SVF-tools/SVF-Teaching/wiki/Assignment-3`
  - **SVF CPP API**
    `https://github.com/SVF-tools/SVF-Teaching/wiki/SVF-CPP-API`

Andersen's Pointer Analysis

Algorithm

```
define i32 @main() #0 {
entry:
%a1 = alloca i8, align 1        // O1
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store i8* %a1, i8** %a, align 8
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define void @swap(i8** %p, i8** %q)
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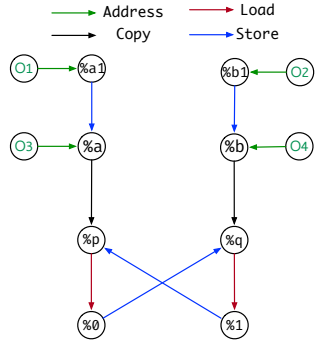


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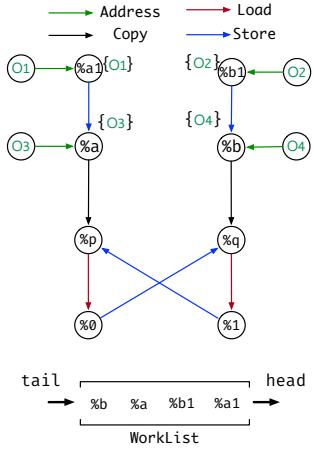


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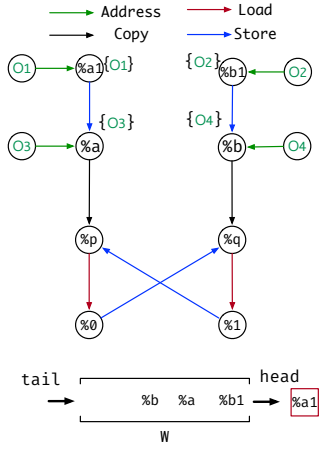


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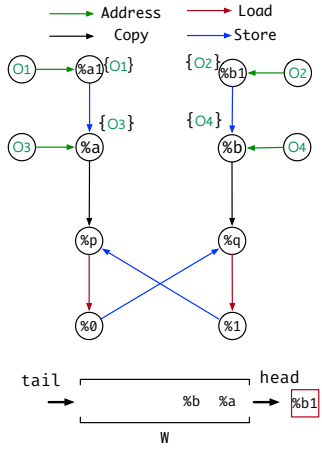


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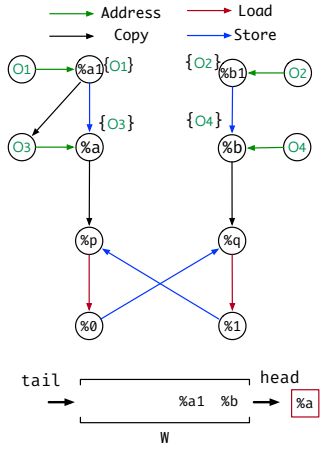


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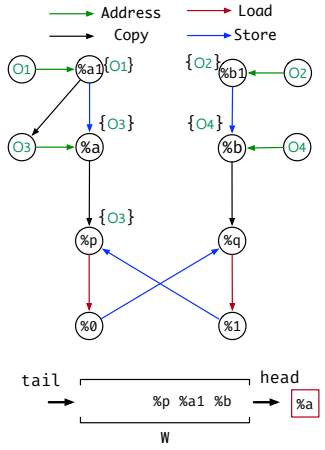


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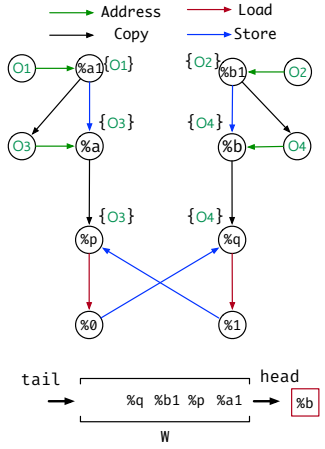


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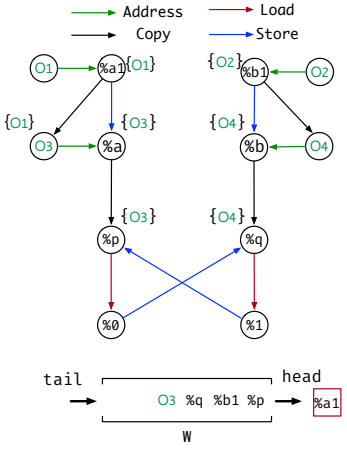


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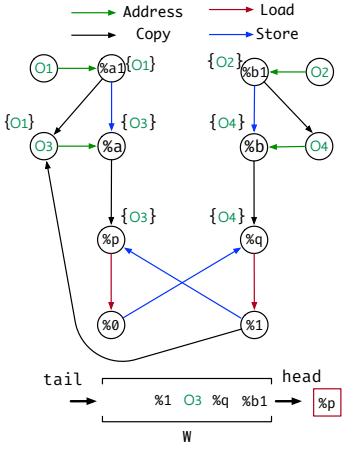


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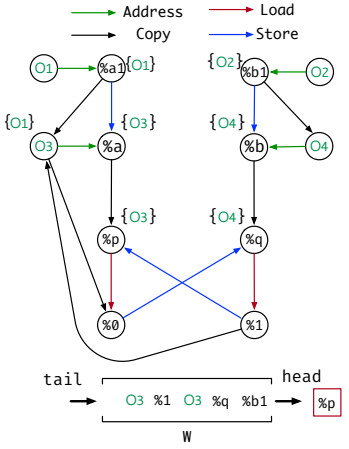


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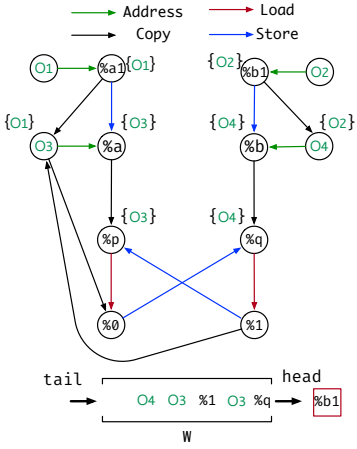


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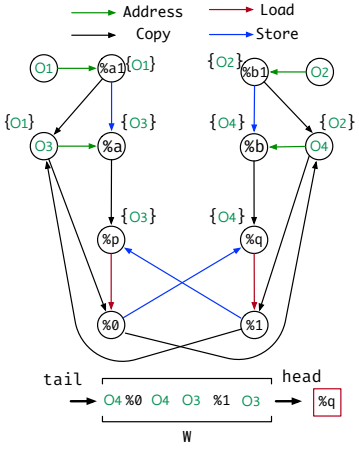


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Andersen's Pointer Analysis

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%b = alloca i8*, align 8        // O4
store i8* %a1, i8** %a, align 8
store i8* %b1, i8** %b, align 8
call void @swap(i8** %a, i8** %b)
ret i32 0
}
define void @swap(i8** %p, i8** %q)
#0 {
entry:
%0 = load i8** %p, align 8
%1 = load i8** %q, align 8
store i8* %1, i8** %p, align 8
store i8* %0, i8** %q, align 8
ret void
}
```

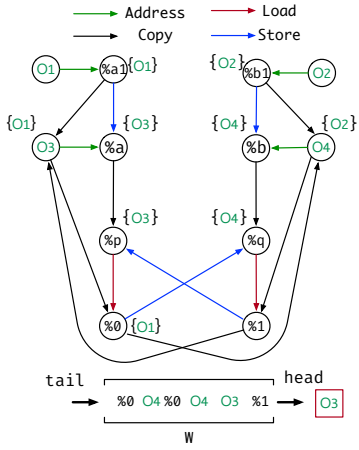


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}
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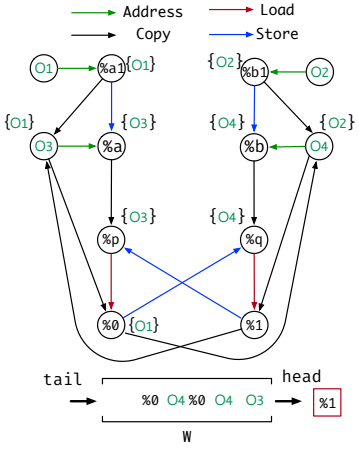


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ret void
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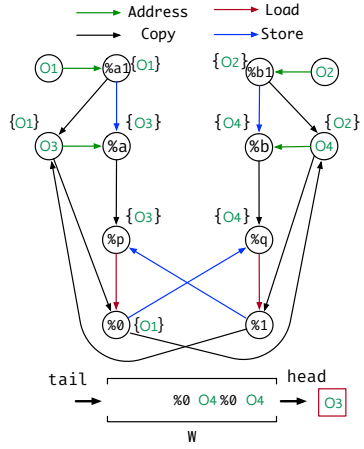


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ret i32 0
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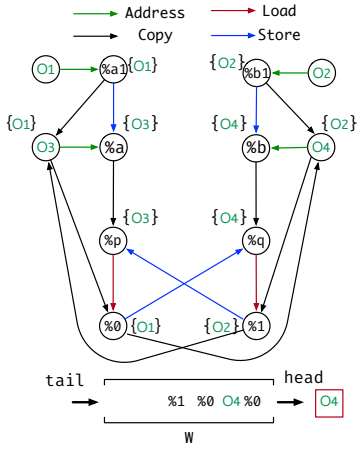


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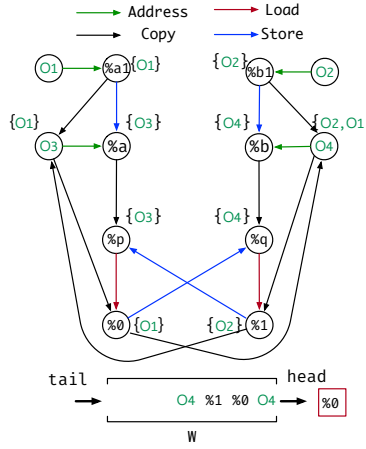


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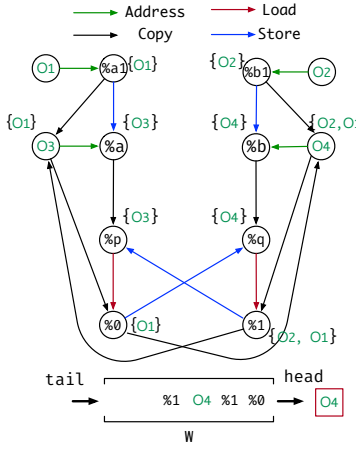


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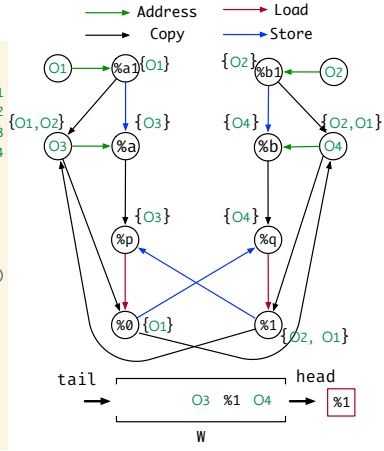


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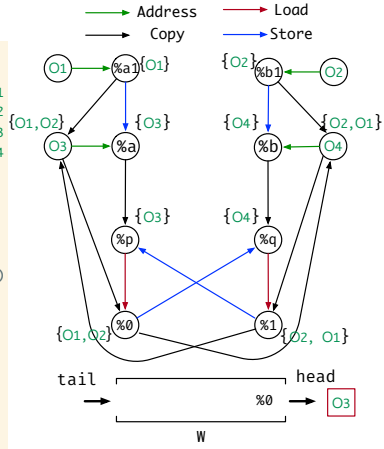


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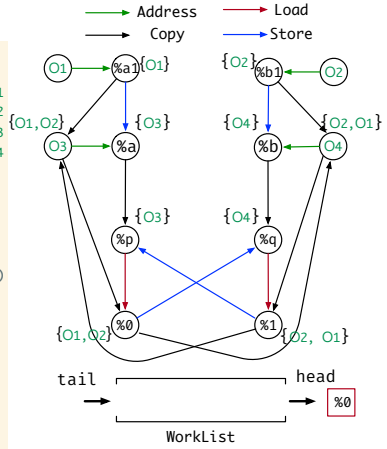


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