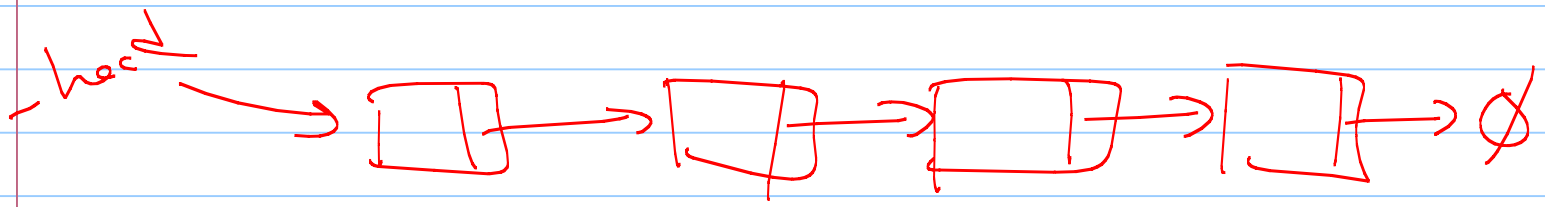
CS180 - Queues

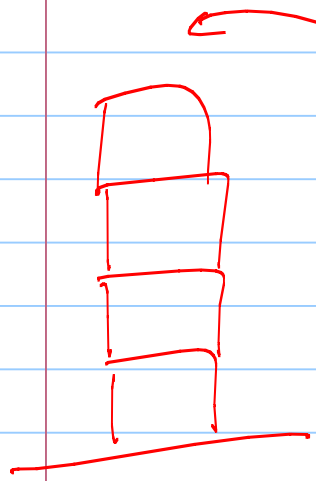
Note Title 9/30/2011

Announcements

- Checkpoint today
- Office hours : 2-2:50
- Exam: 1 week from Monday
  review in class next Friday
  sample test will be handed out Monday
  material - up through Ch 5 - stacks & queues

SLinked List & Linked Stacks





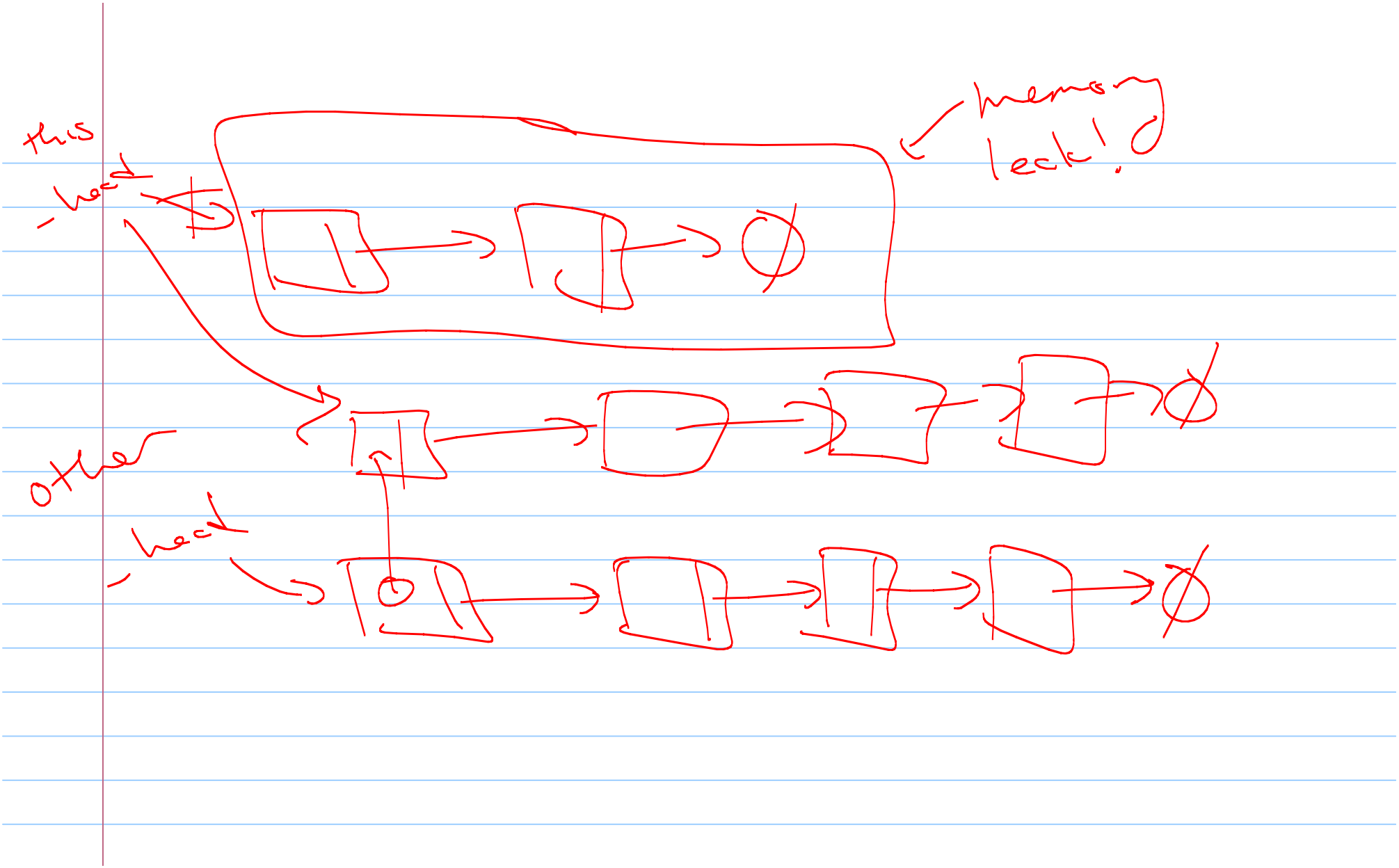
push & pop

abstract view

Last time

Housekeeping functions

no pointers!
↳ no housekeeping!


this
-head
memory
leak!
other
-head

Queue

British for what word?

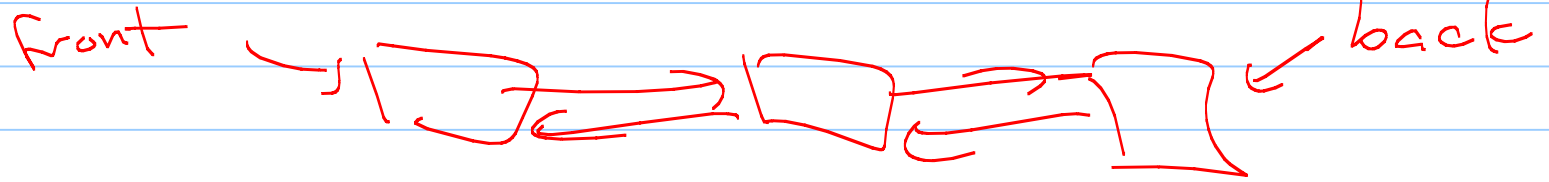
Line (people as "data")

First in, first out

STL

push
pop

enqueue - add to "back"
dequeue - remove from "front"



Behavior

```
push(5)
push(2)
push(11)
push(16)
pop()
pop()
push(3)
pop()
push(12)
```

Q

5

5, 2

5, 2, 11

front → 5, 2, 11, 16 ← back

2, 11, 16

11, 16

11, 16, 3

16, 3

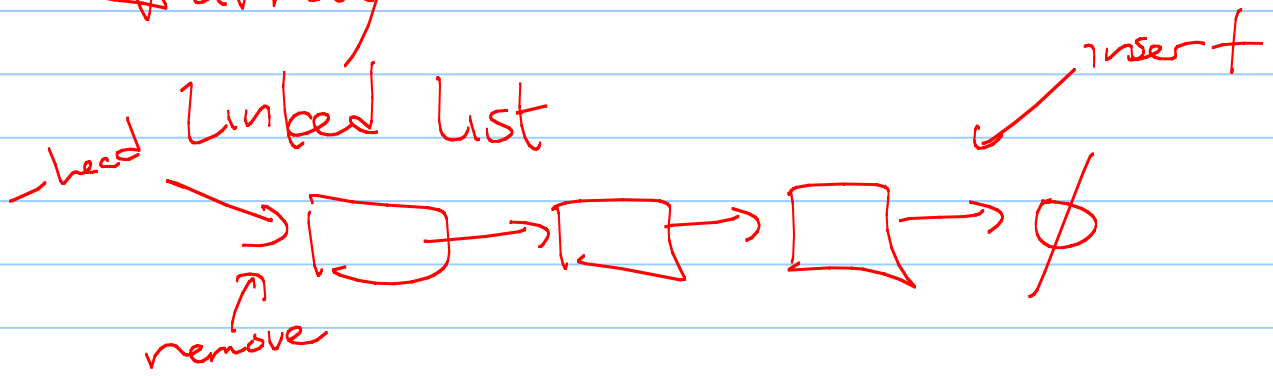
16, 3, 12

Setup

- Templating again
- Underlying structure is really a list with some functionality
- Private data:

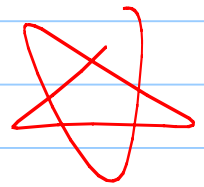
~~array~~

Linked list



Functions (not same a stack)

- size
- empty
- push
- pop
- top



Array Queues

- We must wrap around! Why?

Two options

- A lot of if statements (messy) ✗
- Modular arithmetic

(front + 1) % capacity