CS180 - Lists

Note Title 10/21/2011

Announcements

- HW up later today
- Lab as usual next week

Lists:

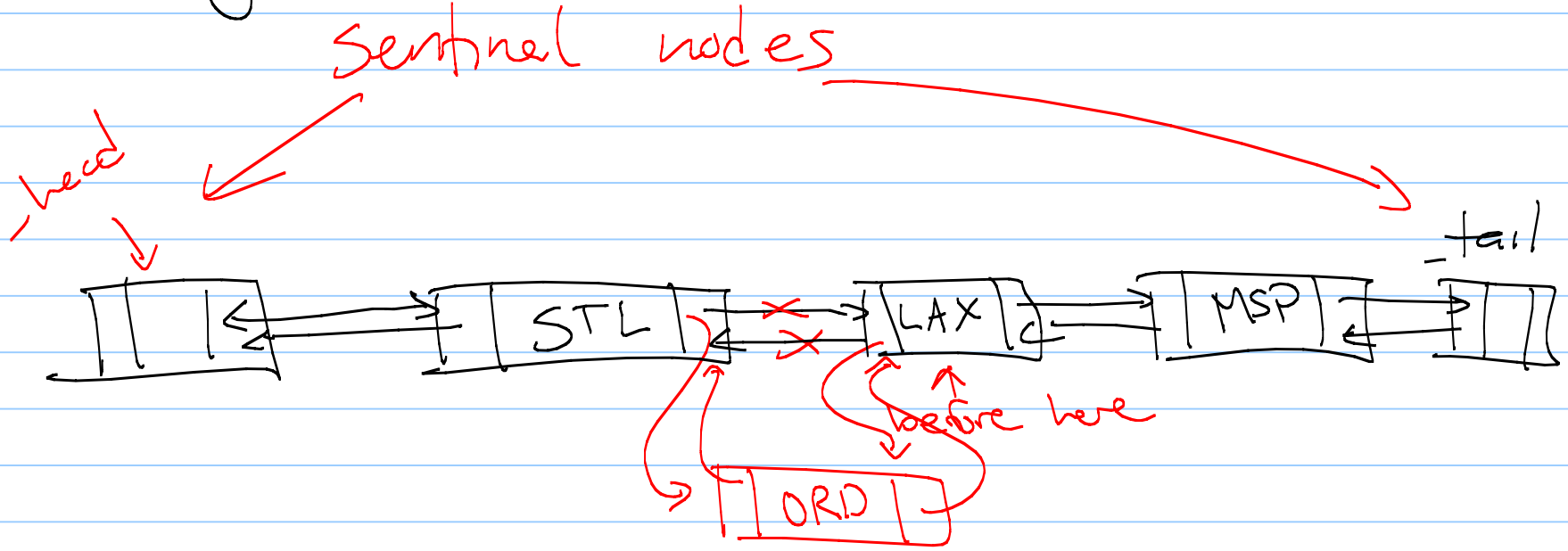
Motivation: insert in vectors is slow!

(Running time?) O(n)

Idea: If I know where the element should go, inserting should be easy.

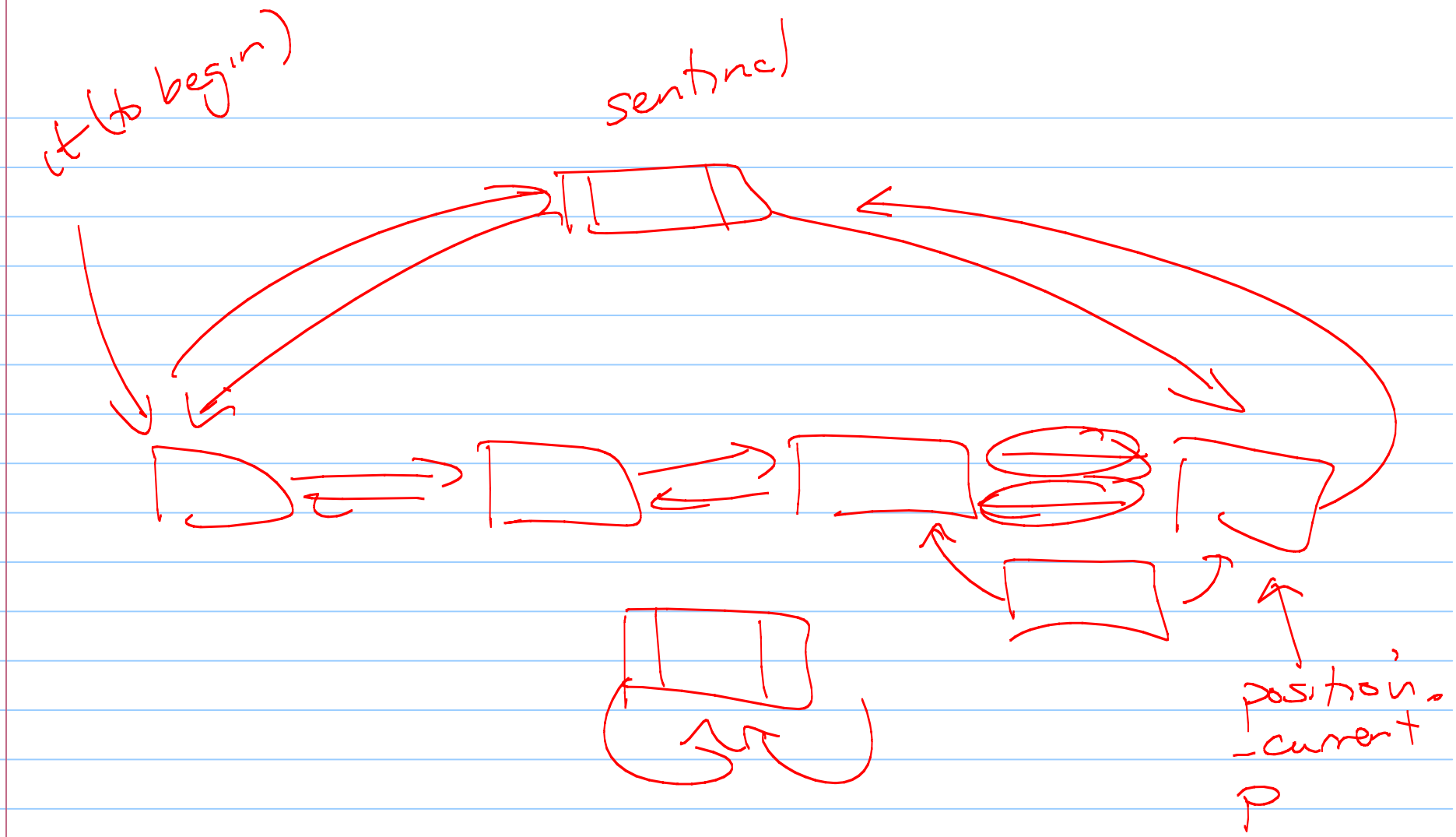
Base setup: similar to SLinkedList

Doubly Linked Lists



insert (ORD) - where?

given locator
4 pointer updates


t (to begin)
sentinel
position_current
p

Problem: Pointers!

What do we need in order to know where we should insert?

pointer! (= Seg faults)

Solution: Iterator: wrap up pointers and provide very limited functionality.

Iterators

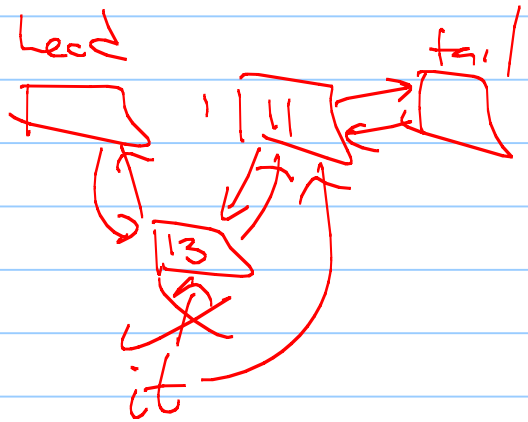
An iterator will give the user a "pointer", but with a heavily controlled structure.
(So they can't touch nodes directly)

Compromise: Functionality versus info. encapsulation

STL functions

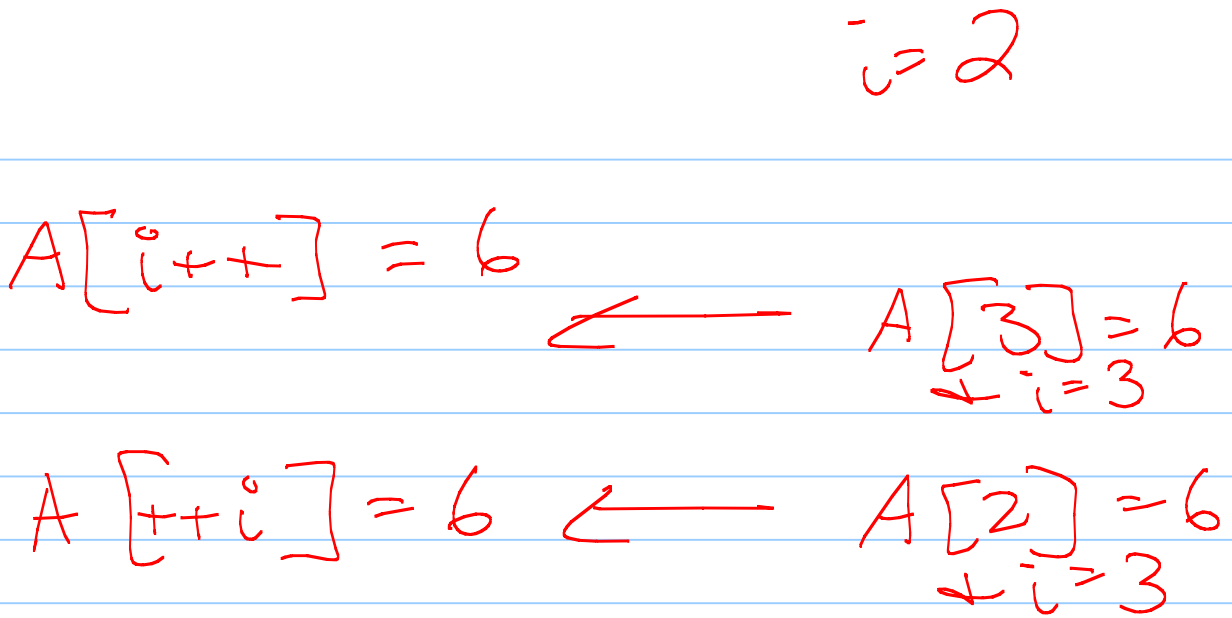
Usage:

```
list <int>  mylist;
list <int> :: iterator  it;
it = mylist.begin();
mylist.insert (it, 11);
mylist.insert (it, 13);
it ++;
```



Code:

2 internal classes


i = 2
A[i++] = 6
A[3] = 6
i = 3
A[++i] = 6
A[2] = 6
i = 3