CS150 – Recursion (Ch. 11)

Note Title 3/30/2012

Announcements

- HW6 solutions posted
- HW7 due Sunday
- HW8 is posted – due Monday after Easter
- Tuesday after Easter – review
  Wednesday – midterm 2
  up to Ch. 10

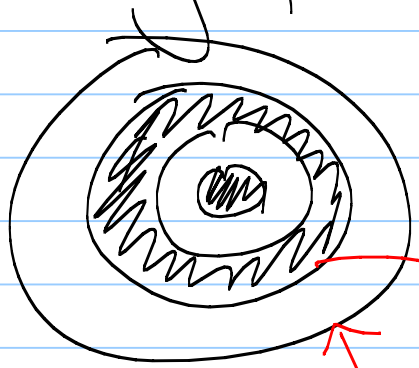
Recursion

A function which calls itself (on a smaller input).
+ base case

Last time:

- fibonacci ~~#5~~
- searching / sorting

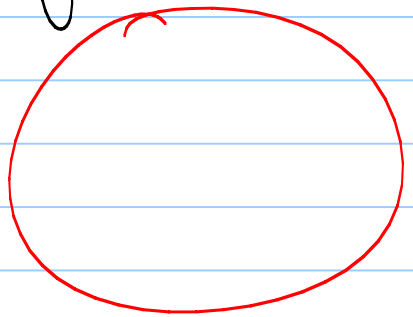
CS1 graphics example: Bullseye

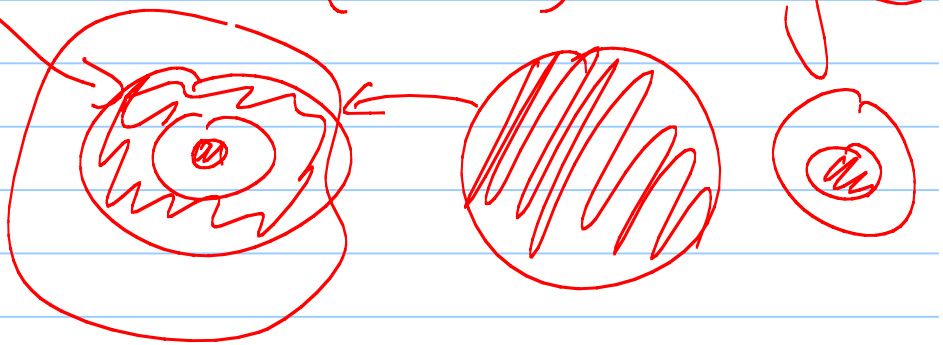


base case: None

defining recursively:

- outer circle
- inner (smaller) bullseye





Code: Using Inheritance (from Drawable)

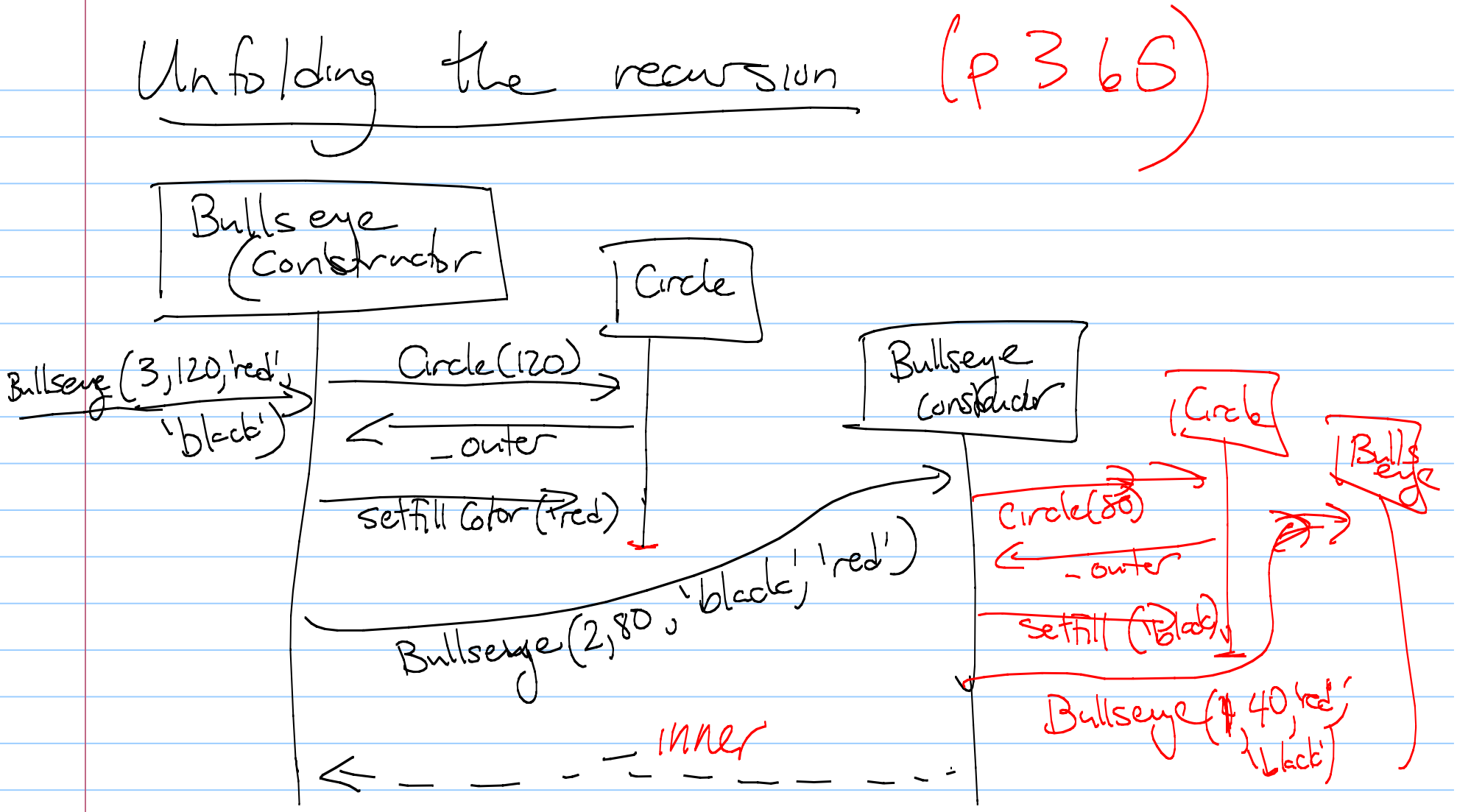
Constructor:

```
self._outer = Circle()
    #set size + color

self._inner = Bullseye(numBands-1)

if numBands == 0:
    self.inner = None
else:
```

Unfolding the recursion (p 365)

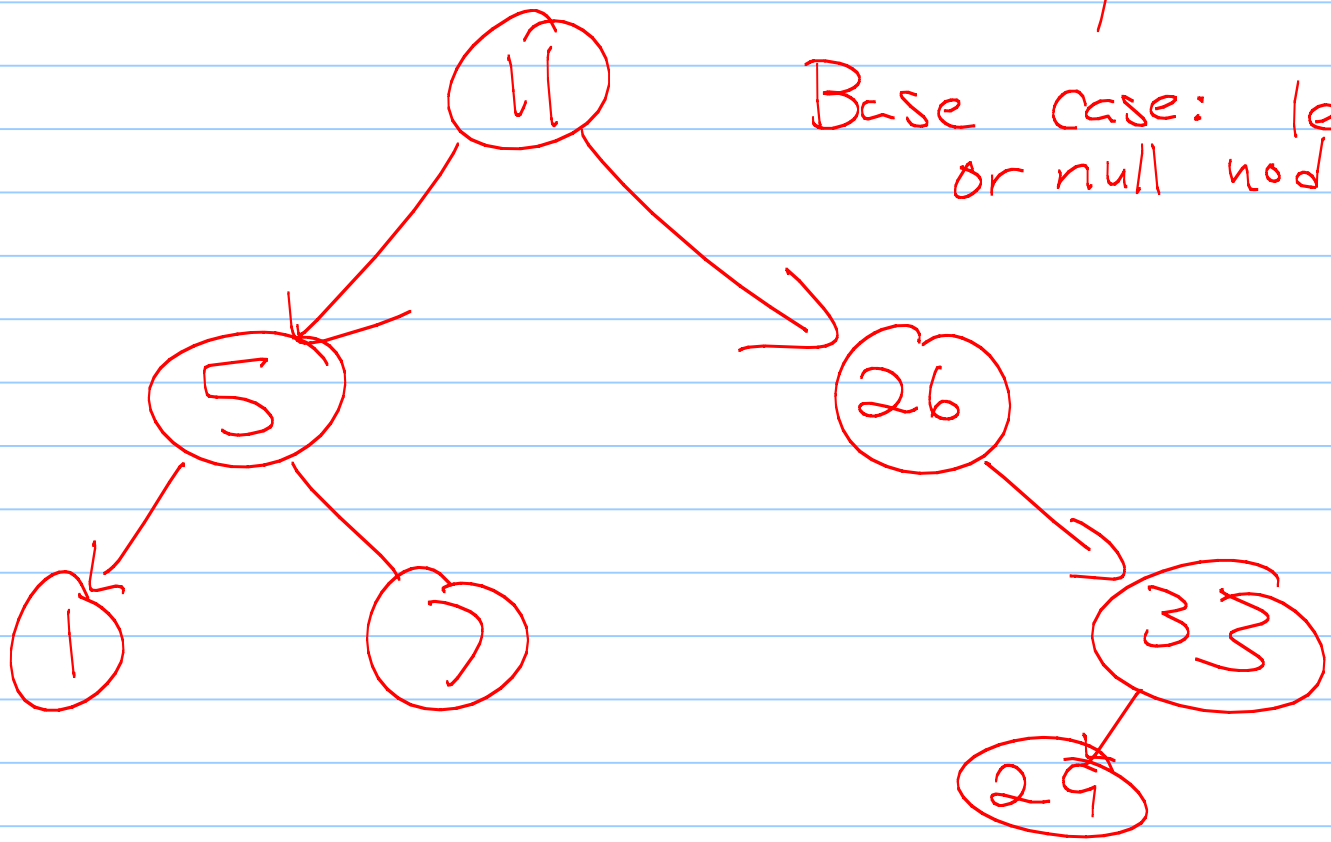


Other functions

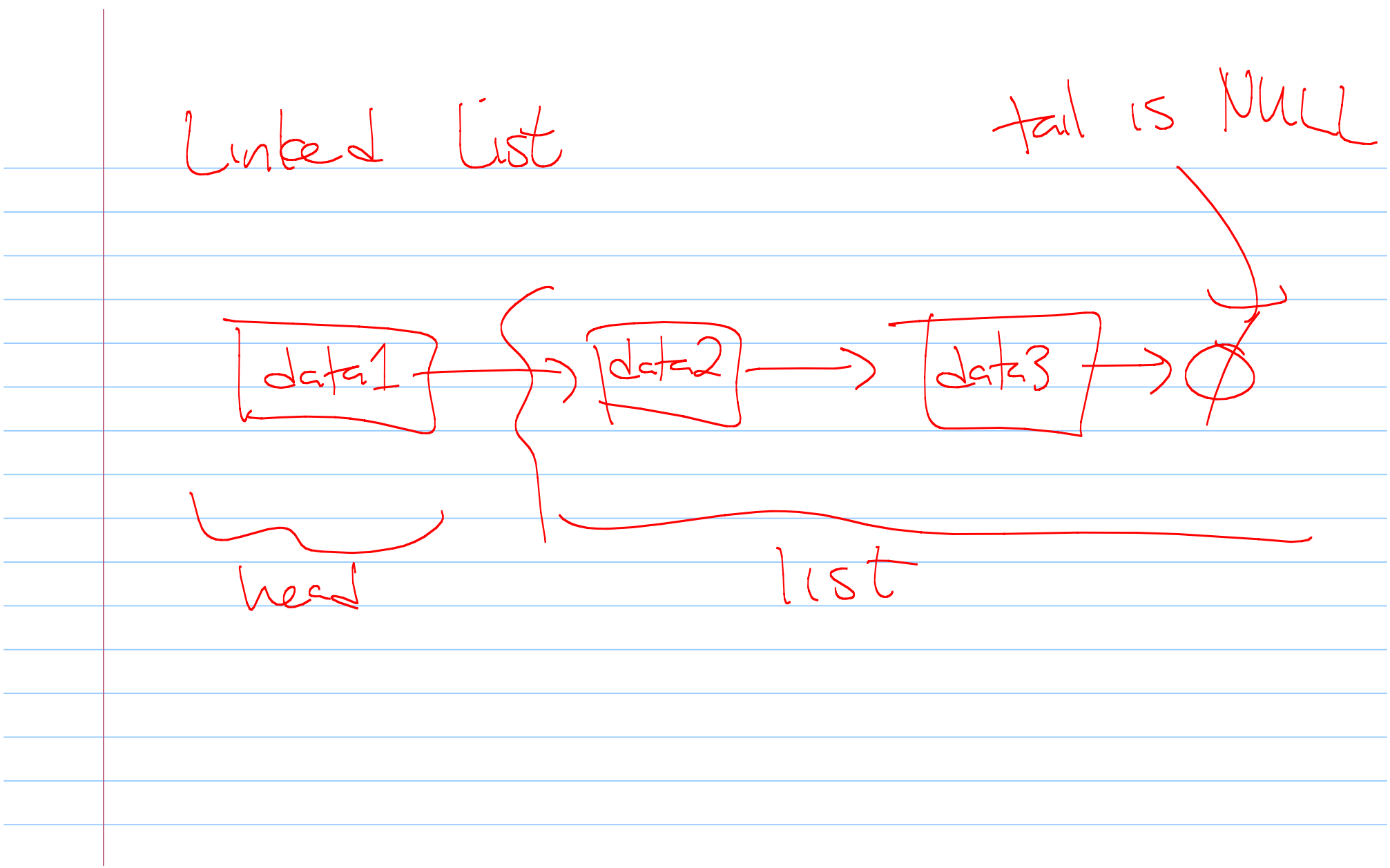
- getNumBands
- getRadius
- setColors
- _draw ← required whenever we inherit from Drawable!

all recursive

Binary Tree : root + 2 bingry trees



Base case: leaf or null node


Linked list
tail is NULL
data1
data2
data3
head
list