Announcements

- Midterm 2 is on Monday 10/27 7pm-9pm
- Topics and locations: http://cs61a.org/exams/midterm2.html
- Bring 1 hand-written, 2-sided sheet of notes; Two study guides will be provided
- Emphasis: mutable data, object-oriented programming, recursion, and recursive data
- Review session on Saturday 10/25 from 3pm to 6pm in 2050 VLSB
- HKN review session on Sunday, 10/26 12-3pm in 155 Dwinelle
- Includes content through Wednesday 10/22 (today is review & examples)
- Discussion handouts contain practice questions!
- No lecture next Monday, No lab next Tuesday & Wednesday, No office hours next Mon-Wed

Recursive Lists Can Change

Attribute assignment statements can change first and rest attributes of a Link

The rest of a linked list can contain the linked list as a sub-list

```
>>> s = Link(1, Link(2, Link(3)))
>>> s.first = 5
>>> t = s.rest
>>> s.first
5
>>> s.rest
Link(5, Link(2, Link(3)))
```

Note: The actual environment diagram is much more complicated.

Mutable Linked Lists

```
Mutable Lists
```
def oski(bear):
    def cal(berk):
        nonlocal bear
        if bear(berk) == 0:
            return [berk+1, berk-1]
        bear = lambda ley: berk-ley
        return [berk, cal(berk)]
    return cal(2)

oski(abs)