

## 61A Lecture 22

## Announcements

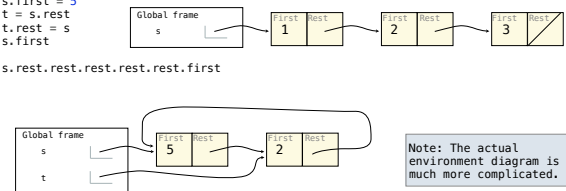
## Linked Lists

### 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

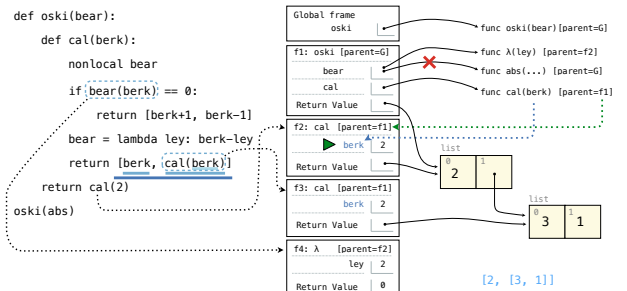
```
>>> s = Link(1, Link(2, Link(3)))
>>> s.first = 5
>>> t = s.rest
>>> t.rest = s
>>> s.first
5
>>> s.rest.rest.rest.rest.rest.first
2
```



Note: The actual environment diagram is much more complicated.

## Environment Diagrams

### Go Bears!



## Objects

### Land Owners

Instance attributes are found before class attributes; class attributes are inherited

```
class Worker:
    greeting = 'Sir'
    def __init__(self):
        self.elf = Worker
    def work(self):
        return self.greeting + ', I work!'
    def __repr__(self):
        return Bourgeoisie.greeting

class Bourgeoisie(Worker):
    greeting = 'Peon'
    def work(self):
        print(Worker.work(self))
        return 'I gather wealth'

jack = Worker()
john = Bourgeoisie()
jack.greeting = 'Maam'
```

```
>>> Worker().work()
'Sir, I work'
>>> jack
Peon
>>> jack.work()
'Maam, I work'
>>> john.work()
Peon, I work
'I gather wealth'
>>> john.elf.work(john)
'Peon, I work'
```

