STELLA: Status Update

David Mohr

2014-06-27

Overall State

- Basics are done
- Interesting stuff is not
  - No OO, no structs
- Can run simple, unstructured benchmark
  - Fast, too
- ~2k SLOC
  - 600 SLOC tests

Bumps along the way

- llvmpy and LLVM
  - Error messages are often bad!
  - Sometimes on errors LLVM simply calls abort()

Avoiding pitfalls

- Use registers, not stack locations
  - Complicates logic
  - Unecessary because of optimizations

Requirements for compilation

- Based on *types*, not values*
  - Important for semantics, too

Convenience features

- Default values, keyword arguments

```
def f(x, extra=0):
    ...
f(5)
f(6, extra=2)
```

SSA Issues

```
while obs_i < K and t < rununtiltime:
    if leg < substrate:
        R = koffp
    else:
        R = kcat
    t += exp(R)
```

(So far) no copying back from STELLA

- Global scalar changes not reflected in Python
- Structs will need this
  - Better approach necessary?