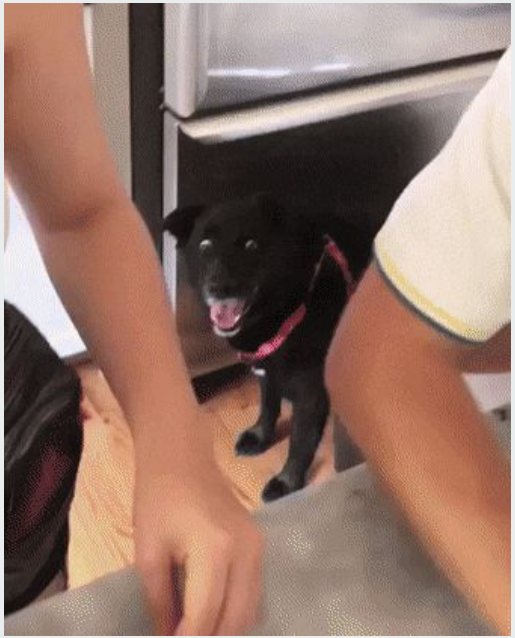
CSE 341 AA: Section 4

Porter Jones
pbjones@cs.washington.edu
Office Hours: Wednesdays 8:30 - 10:30am



Mutual Recursion

- What if we need function f to call g, and function g to call f?
- The attempt below doesn't work…. :(

```
fun earlier x =
        ...
        later x
        ...
fun later x =
        ...
        earlier x
```

One possible solution:

```
fun earlier f x =
        ...
        f x
        ...
fun later x =
        ...
        earlier later x
        ...
```

A more pleasant solution that uses special SML syntax:

```
fun earlier x =
        ...
        later x
        ...
and later x =
        ...
        earlier x
        ...
```

Module System

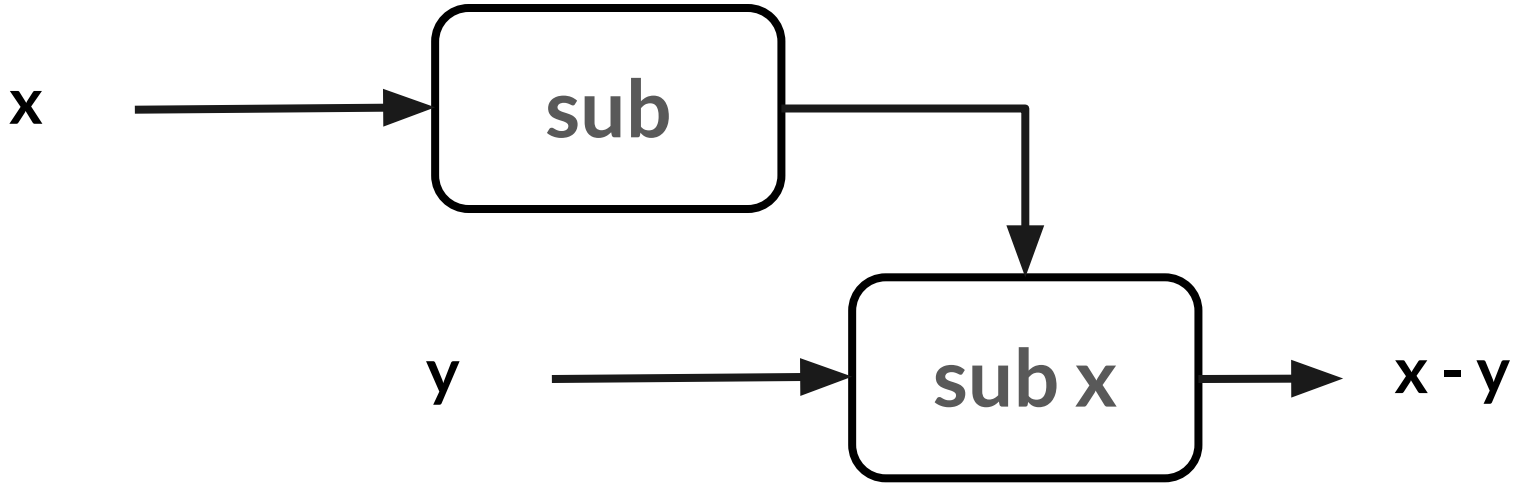
- Good for organizing code, and managing namespaces (useful, relevant)
- Good for maintaining invariants (interesting)
- Good for data hiding (useful)

sub not curried

```
fun sub (x, y) = x - y
```

sub curried

```
fun sub x y = x - y
```



SML List structure functions

- All of these take curried arguments!!!
  - List.map
  - List.filter
  - List.foldl
  - List.foldr

Tangent: foldl and foldr

List.foldl (fn (x, acc) => x+acc) 0 xs

0 [1, 2, 3, 4, 5]

List.foldr (fn (x, acc) => x+acc) 0 xs

[1, 2, 3, 4, 5] 0