

Section 4

CSE 341 – Patrick Larson

Mutual Recursion

What if we need function f to call g ,
and function g to call f ?

Mutual Recursion

Does this work?

1 fun f x =

2 ...

3 g y

4 ...

5 fun g y =

6 ...

7 f x

8 ...

Mutual Recursion

We can employ higher order functions
for a work around.

```
fun earlier (f, x) = ... f y ...  
...  
fun later x = ... earlier(later, y)
```

Mutual Recursion

But ML gives us special syntax for this

```
1 fun f x =          5 and g y =  
2   ...             6   ...  
3   g y             7   f x  
4   ...             8   ...
```

Modules

Remember that signatures are good both for organization and management and for maintaining invariants

Modules - Invariants

- Ordering of operations
 - e.g. insert, then query
- Data kept in good state
 - e.g. fractions in lowest terms
- Policies followed
 - e.g. don't allow shipping request without purchase order
- Sensitive information hidden
 - e.g. force authentication for api use

Currying and Higher Order Functions

Questions?