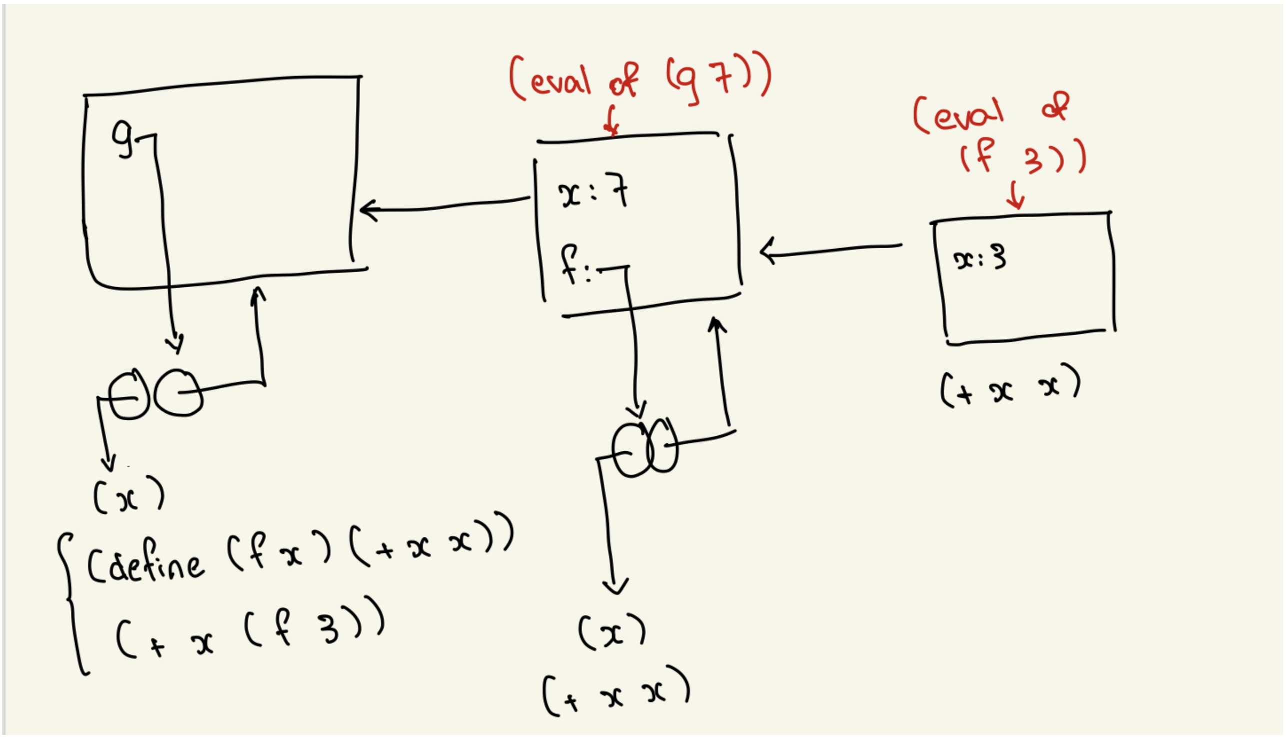
Class: CSc 335

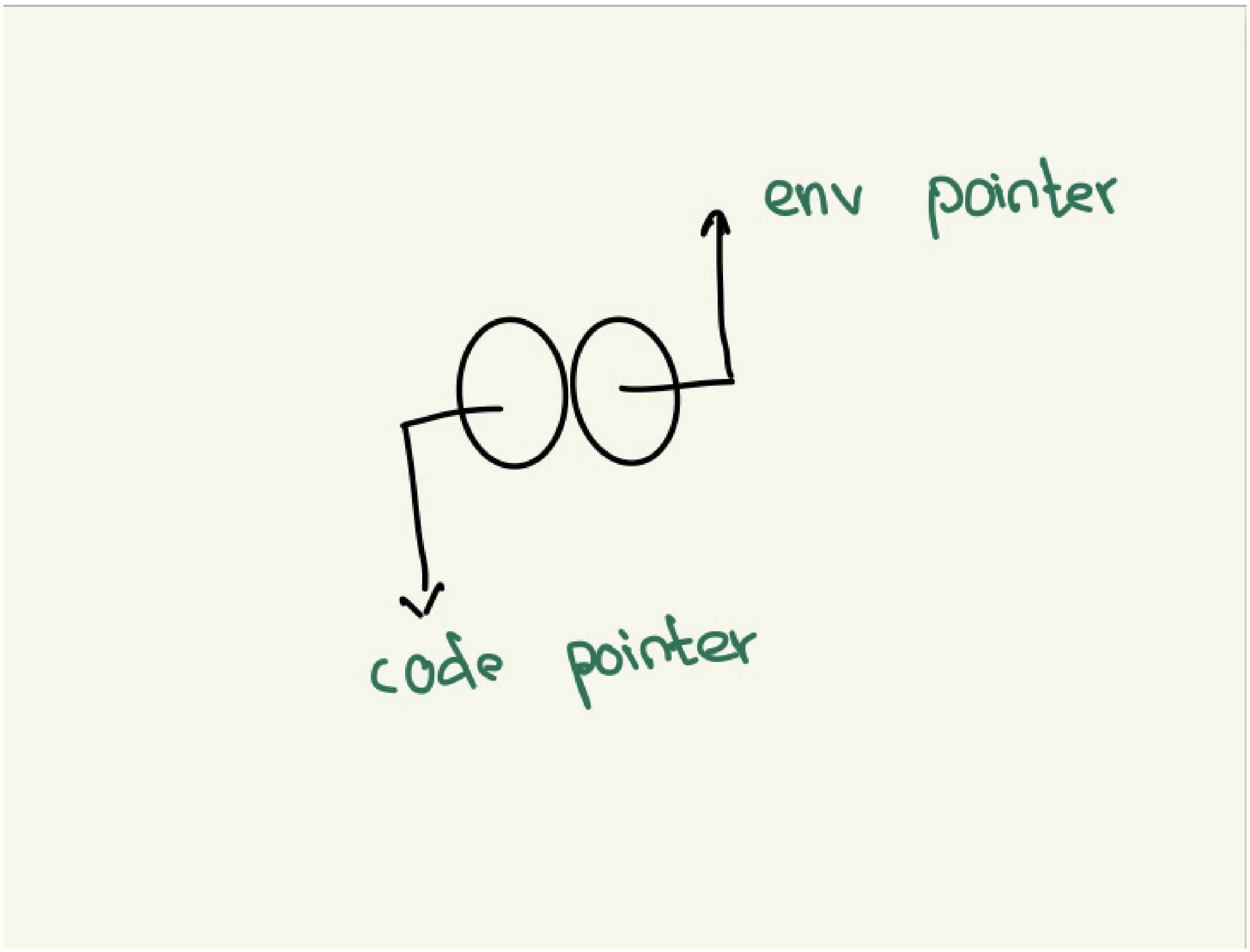
Date: Feb 7, 2023

Environment Diagram

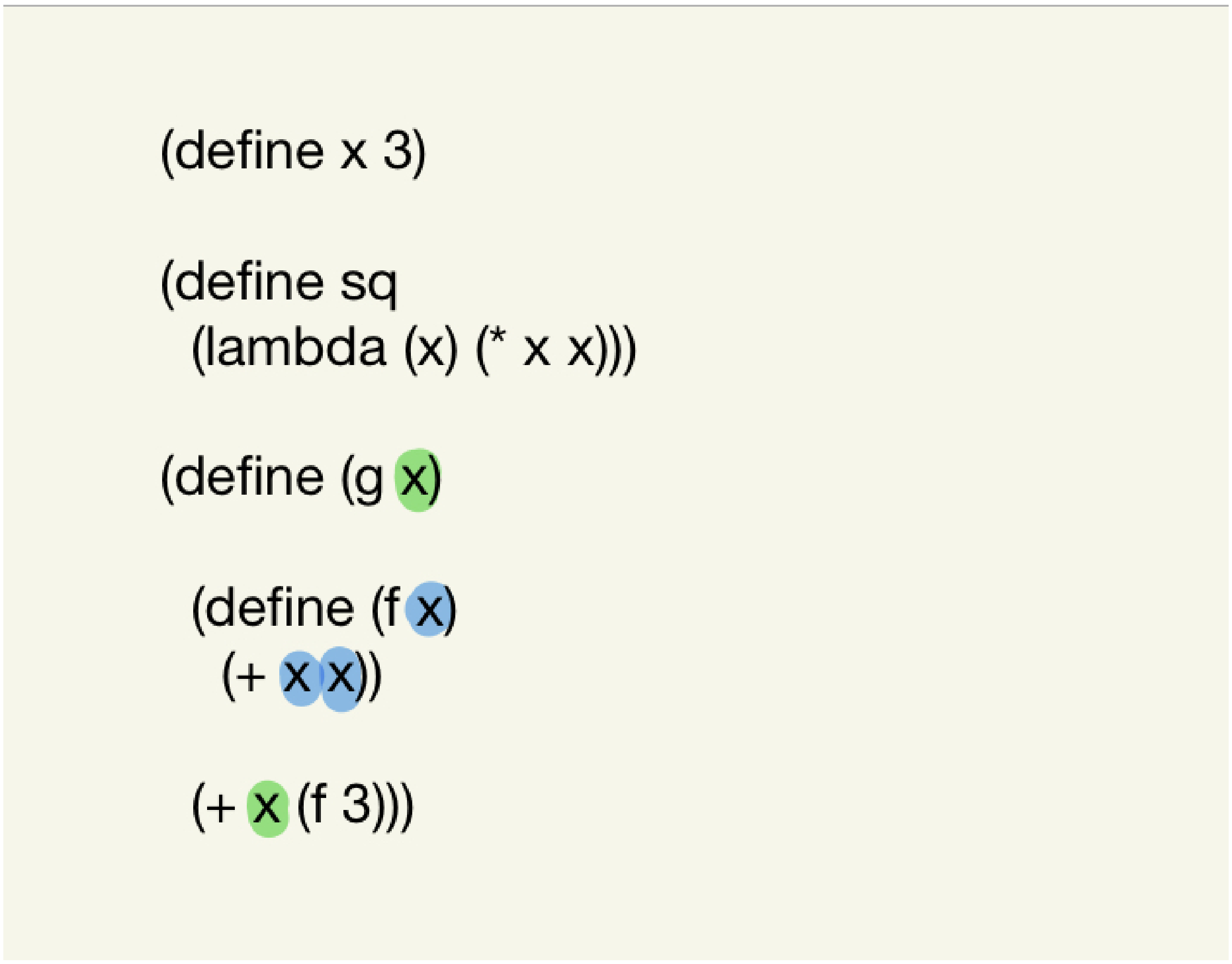
- The new frame will always point to the frame that contains the evaluation func



- Pointers in the environment diagram



- example code on which `x` is bound to which



```
(define x 3)

(define sq
  (lambda (x) (* x x)))

(define (g x)

  (define (f x)
    (+ x x))

  (+ x (f 3)))
```

COND (RESERVED KEYWORD)

```
(cond (q1 a1)
      (q2 a2)
      (q3 a3)
      (qn an)
        |
        |
        |
      (else a-else))
```

- The `q-i` are 'questions" [i.e. boolean valued scheme expressions] and the `a-i` are "answers" => arbitrary scheme expressions.

`if` can be expressed via `cond`

```
(if x y z) === (cond (x y)
                     (else z))
```

- `x` is the condition

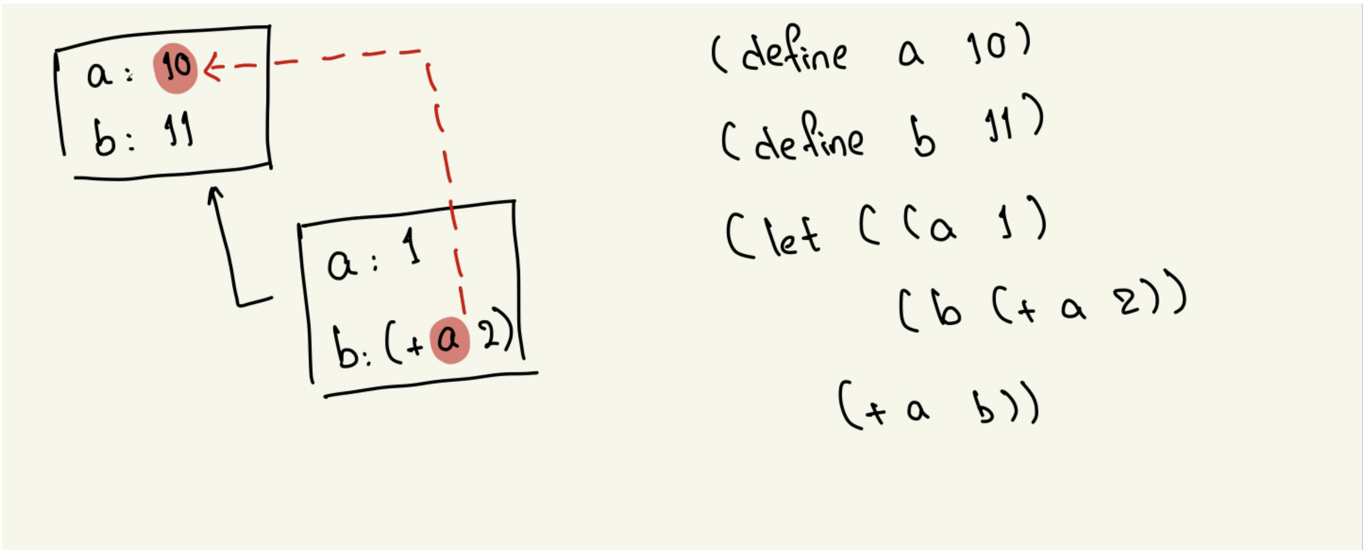
- y will return if x is true else z will return.

Can cond be used to express and ?

```
(and x y) === (cond (x y)
                    (else #f))
```

From the notes on let

```
(define a 10)
(define b 11)
(let ((a 1)
      (b (+ a 2)))
  (+ a b))
```

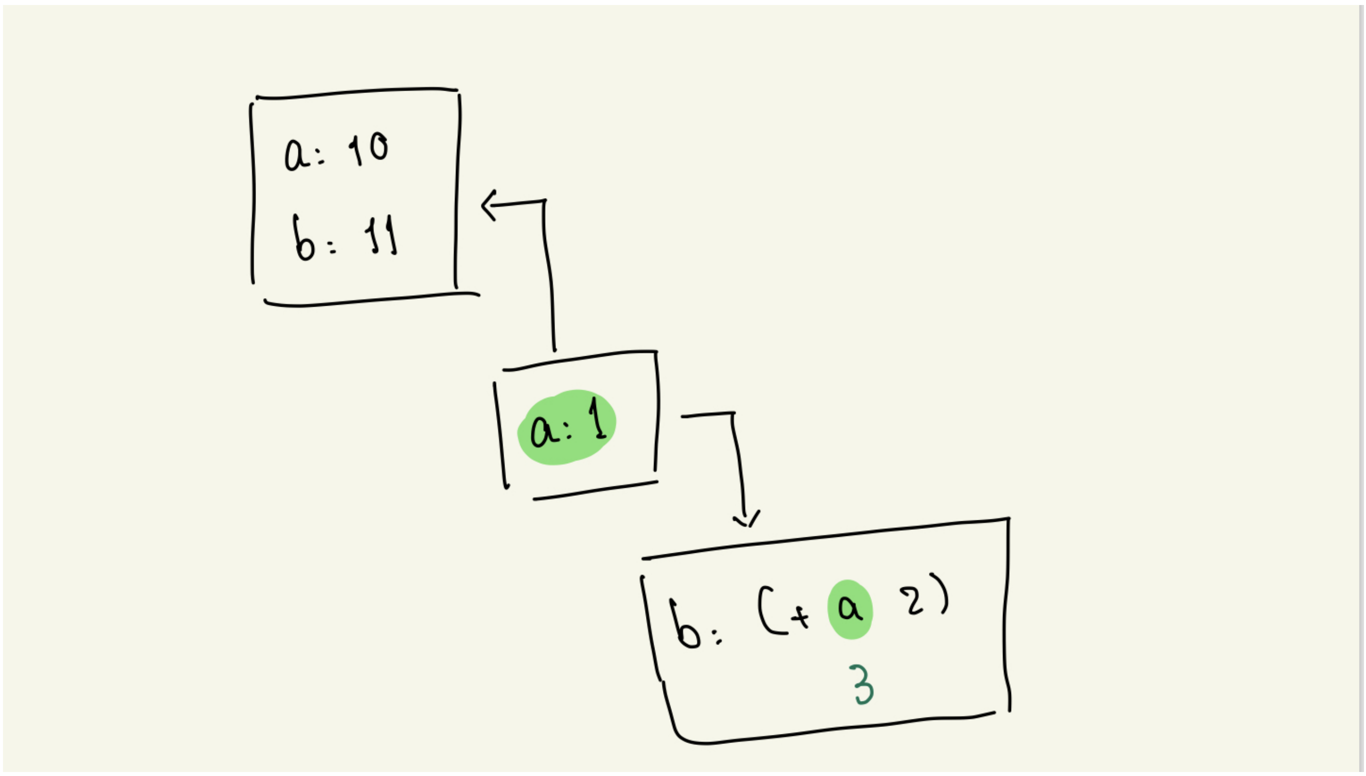


- let constracts with let* (iterated let)

```
(let* ((a 1)
       (b (+ a 1)))
  (+ a b))
```

is equal to the following

```
(let ((a 1))
  (let ((b (+ a 1))))
  (+ a b))
```


a: 10
b: 11
a: 1
b: (+ a 2)
3