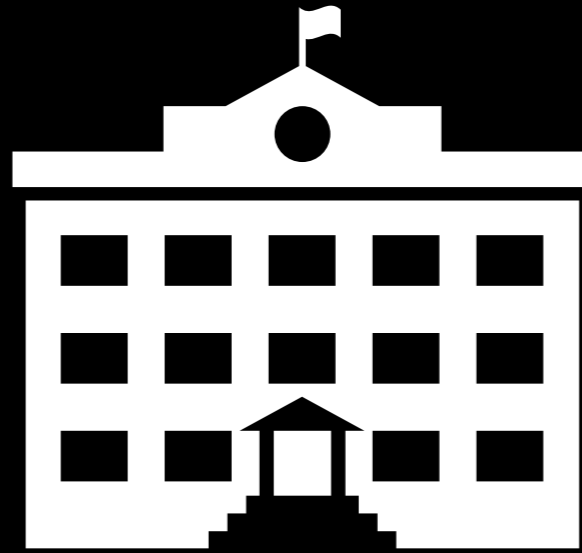


#7 Scheme

TA: Jerry Chen (jerry.c@berkeley.edu)

```
((((( SCHEME )))
((( SCHEM )))
((( SCHE )))
(( SCHEM ))
(( SCHEME ))
((( SCHEMESC )))
((( SCHE MESC )))
(( SCHEM ESCH ))
(( SCHEM ESCH ))
((( SCHE SCHEMES )))
((( SCHEM SCHEMES )))
```



Staff Interpreter

scheme.cs61a.org

Scheme Interpreter and Visualizer

By Jack Thakar
Based on CS 61A's Scheme Project

`(save 'symbol)` saves executed code to be loaded with `(load 'symbol)`

```
scm> (demo 'songs)
```

`(demo-song <name> [times] [tempo])` to play a song

Available songs: ode-to-joy, sarias-song, kakariko-village,
song-of-storms, fight-for-california

To load a song from a GitHub Gist, use:

```
(gist-song <gist-id> <name> [times] [tempo])
```

```
scm> (demo-song 'song-of-storms)
```

Preparing song...

Loading accordion...


Loading tango_accordion...

Loading oboe...

Loading vibraphone...

Loading percussion...

Playing

Help 
I'm trapped
in an
interpreter



Quoted Expressions

- Not **evaluated**
- Can create **compound objects** (generally, Scheme lists)

WWSD? 2.1

```
scm> (define a 1)
```

```
a
```

```
scm> a
```

```
1
```

```
scm> (define b a)
```

```
b
```

```
scm> b
```

```
1
```

```
scm> (define c 'a)
```

```
c
```

```
scm> c
```

```
a
```

WWSD? 3.1

```
scm> (+ 1)
```

```
1
```

```
scm> (* 3)
```

```
3
```

```
scm> (+ (* 3 3) (* 4 4))
```

```
25
```

```
scm> (define a (define b 3))
```

```
a
```

```
scm> a
```

```
b
```

```
scm> b
```

```
3
```


WWSD? 4.1

```
scm> (if (or #t (/ 1 0)) 1 (/ 1 0))
```

```
1
```

```
scm> (if (> 4 3) (+ 1 2 3 4) (+ 3 4 (* 3 2)))
```

```
10
```

```
scm> ((if (< 4 3) + -) 4 100)
```

```
-96
```

```
scm> (if 0 1 2)
```

```
1
```

Scheme Lists

"Bonus" questions! Draw diagrams and WWSD

```
scm> (list 1 '(2 . (3)) '(4) 5)
```

```
scm> (list 1 nil)
```

; Also, rewrite this using only cons

```
scm> (cons 1 nil)
```