

Week 11 - Day 1 (Finishing streams & Carets)

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Week 11 - Day 1 (Finishing streams & Carets)

Mar 31, 2016

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Navigate using audio

Where we left off...

We were working on getting a stream of convergences to pi

```
(define (let s)
  (define s0 (scar s))
  (define s1 (scar (scdr s)))
  (define s2 (scar (scdr (scdr s))))
  (define denominator (+ s0 (* -2 s1) s2))
  (scons
    (- s2 (/ (^ (- s2 s1) 2) denominator ))
    (et (scdr s))
  )
)
```

```

;@ Audio 0:03:14
(define (tableau xform s) (scons s (tableau (xform s)))))

Audio 0:04:00
The state of the world is not being saved...
Audio 0:05:12
The tableau applies the stream an extra time after each transform
(print "2 xform: ")
(sdisplay (sscale (et (et (psum pi-stream)) 4) 10)
;@ Audio 0:06:54

Audio 0:07:30 A map function for streams
(define (smap f s) (scons (f (scar s)) (smap f (scdr s)))))

Audio 0:08:50
(sdisplay (sscale (smap scar (tableau et (psum pi-stream)) 4) 10))

Audio 0:16:00
for (i = 0; i < infinity; i++) {
    for (j = 0; j <= i; j++) {
        print("(%d,%d)",j,i)
    }
}

Creates the stream of pairs: (0,0),(0,1)(1,1)(0,2)(1,2)(2,2)
Which are pairs s.t. i <= j
Audio 0:19:43
(define (pairs s t)

Breaking it up into:
(0,0) (0,1) (0,2) (0,3) (0,4)
(1,1) (1,2) (1,3) (1,4)
(2,2) (2,3) (2,4)

Audio 0:22:00
(pairs (0 1 2 ...) (0 1 2 ...).....
(define (pairs s t)
  (scons
    ;@ This only takes care of the (0,0)
    (list (scar s) (scar t))
    (smap (lambda (x) (list (scar s) x))
      (scdr t)))

```

```
;@ Audio 0:27:00
(pairs (scdr s) (scdr t))
```

Do the Lusth Shuffle

Audio 0:31:10

```
;@ You have
;@ a b c d e ... and
;@ A B C D E
;@      v
;@      v
;@ a A b B c C d D e E ...
(define (shuffle s t)
  (scons
    (scar s)
    (shuffle t (scdr s))
  )
)
(define (pairs s t)
  (scons
    ;@ This only takes care of the (0,0)
    (list (scar s) (scar t))
    (shuffle
      (smap (lambda (x) (list (scar s) x))
        (scdr t))
      ;@ Audio 0:27:00
      (pairs (scdr s) (scdr t))
    )
)
```

Audio 0:35:00 Caret dog ayyyy lmao

Caret dog world changes over time

Streams, on the other hand, look like they change, but they don't



CS 403 - 001 Spring 2016

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Website for notes and study material for CS 403 (Programming Languages) at
The University of Alabama Spring 2016