

current state Args locals
init state trans finals

* Destructive assignment in scheme

13
100

* Closure Bank acc.

23 Sept Monday

PL Unrigor 10:50

* set! f \rightarrow destructive assignment

13
100 \rightarrow f(10) value of sequence of Expr. changed
and so it got displayed

* Closure Bank Acc.

When you return \rightarrow Code + env.

* Regular fib

* Memorization - have result of a time consuming f's
avoids repetitive calls

* Timing recursive Vs Memorization

* Evaluating Dynamic Exprs.

cval x \Rightarrow 21

Proj 2!

Can't use anything in f's other than ones

discussed

1) count pairs
2) Tetrahedron

3) 3^{2^2}
 3^4
81

2^{2^2}
 2^{2^1}

4) 1/1

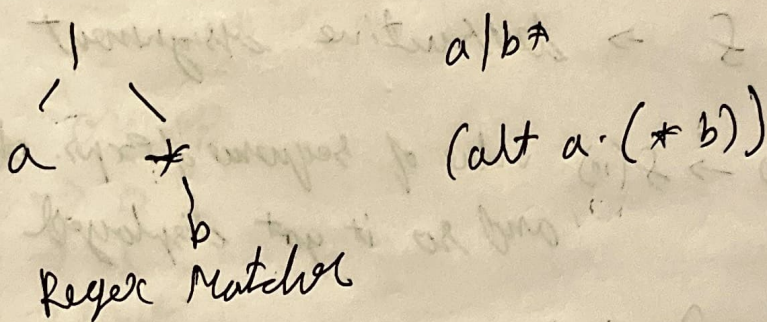
5. given sorted list
indexing returns

6. hailstone sequence even $\rightarrow h/2$
odd $\rightarrow 3h + 1$

7. max hailstone-seed limit
length. no. + seq. length

8. sorted list to string

9.!! regex to match list, basically same as strings



* Prolog *

- all alt pattern matching
- logic programming

* Ancestor Facts, rules, just identifiers

DAH Patrick 2:20

Friday video!!

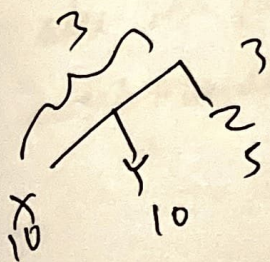
Q.2!!

* Encoding Data

* Prefix Free codes - rather than sending 8 bits per letter each, use binary tree

* Counting bits

* Proof of Optimality



X. m Bits

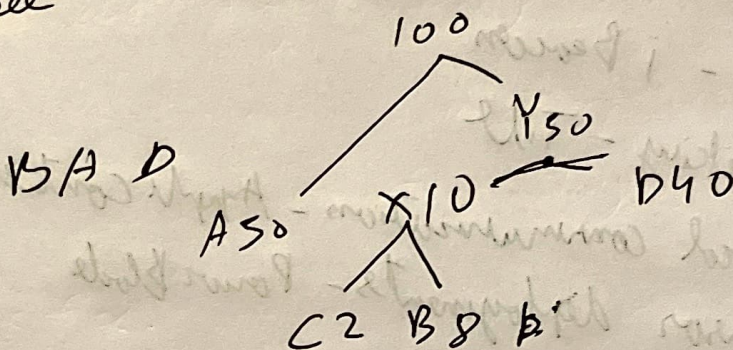
Y. m Bits

2. (m-1) bits

$$10 \cdot 3 \quad \swarrow \quad \searrow \quad 5 \cdot 2 = 40 \text{ bits}$$

$$5 \cdot 3 \quad \searrow \quad 10 \cdot 2 = 35 \text{ bits}$$

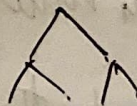
* Huffman tree



*
A 50
B 8
C 2
D 40
X 10
Y 50

$$\begin{array}{rcl} A 50 \cdot 1 & 50 & \\ B 8 \cdot 3 & 30 & \\ C 2 \cdot 3 & 80 & \\ D 40 \cdot 2 & 160 & \text{Bits} \end{array}$$

$$90 \cdot 2 = 180 \text{ Bits}$$



IOT Pali 4:40

Mail ~~✗~~ ✓

* Bluetooth classic & BLE

* HCI

* Adv & Learning in Action
Read the DOC!

* LTV format

* Advertisements already being used for communication

Beacons - i Beacons

Tracking - Tile

Local communication - Apple Continuity

Sensor deployments - Power Blade

* Edystone - used in Museum

* RSSI activity

* Uses BLE manufacturing specific Data
read paper about Apple BLE

* Low comm. exposure notifications

* Energy model for BLE

$\text{power} \times \text{duration} = \text{Energy}$

* Q How much energy does one adv. cycle consume? ~~✗~~

* Coin battery

* Pkt collisions

* Q₉

- * Packet & Data reception rate
- * BLE adv are periodic, broadcast transmissions
- * what causes transmission not to be received.