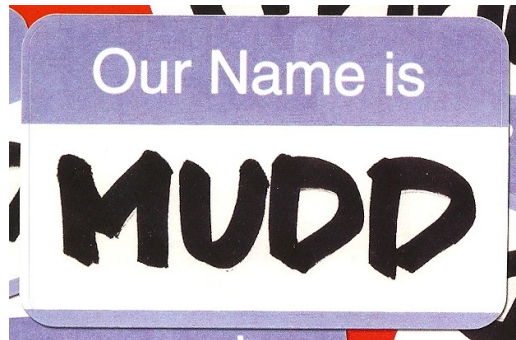


How we rekindled our love affair with **CS**...  
...**one** couple's story.



Zachary Dodds  
Harvey Mudd College

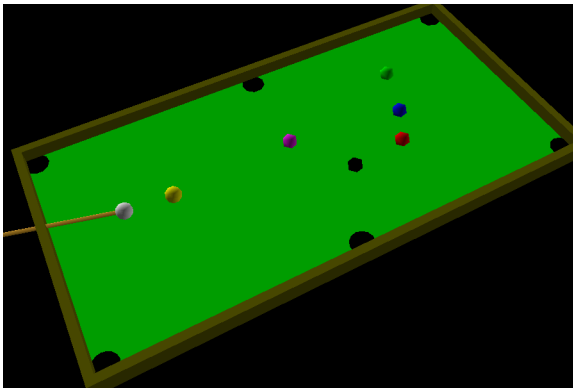
# CS 1 for scientists

breadth-first *and* -last

# CS 1 for scientists

breadth-first *and -last*

## CS's relevance

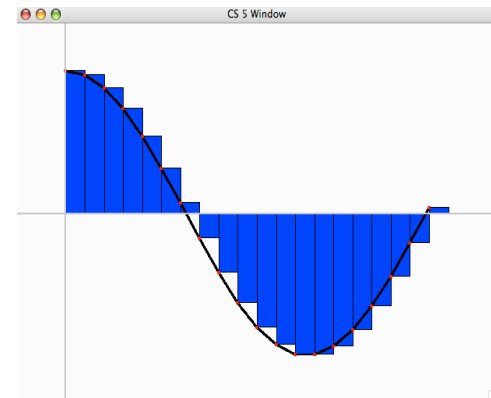
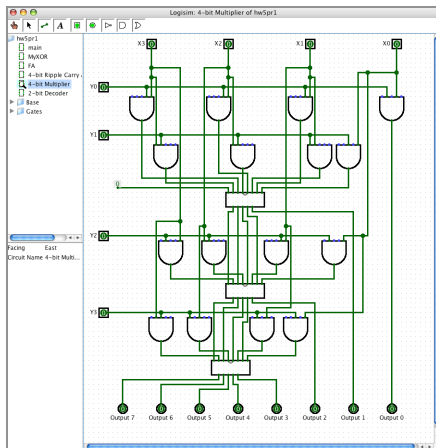


**synthetic creativity**

```
def fft( sound, freq ):
    sinWave = oneFreq( freq )
    return dot( sound, sinWave )
```



**analytic creativity**



# CS 1 for scientists

breadth-first *and -last*

CS ~ "Grady's glimpse" ~ beauty per se

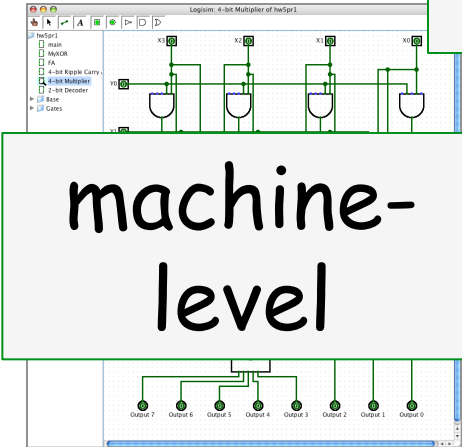


```
def fft( sound, freq ):
    ... ( freq )
    ... Wave )
```

functional programming

VS.

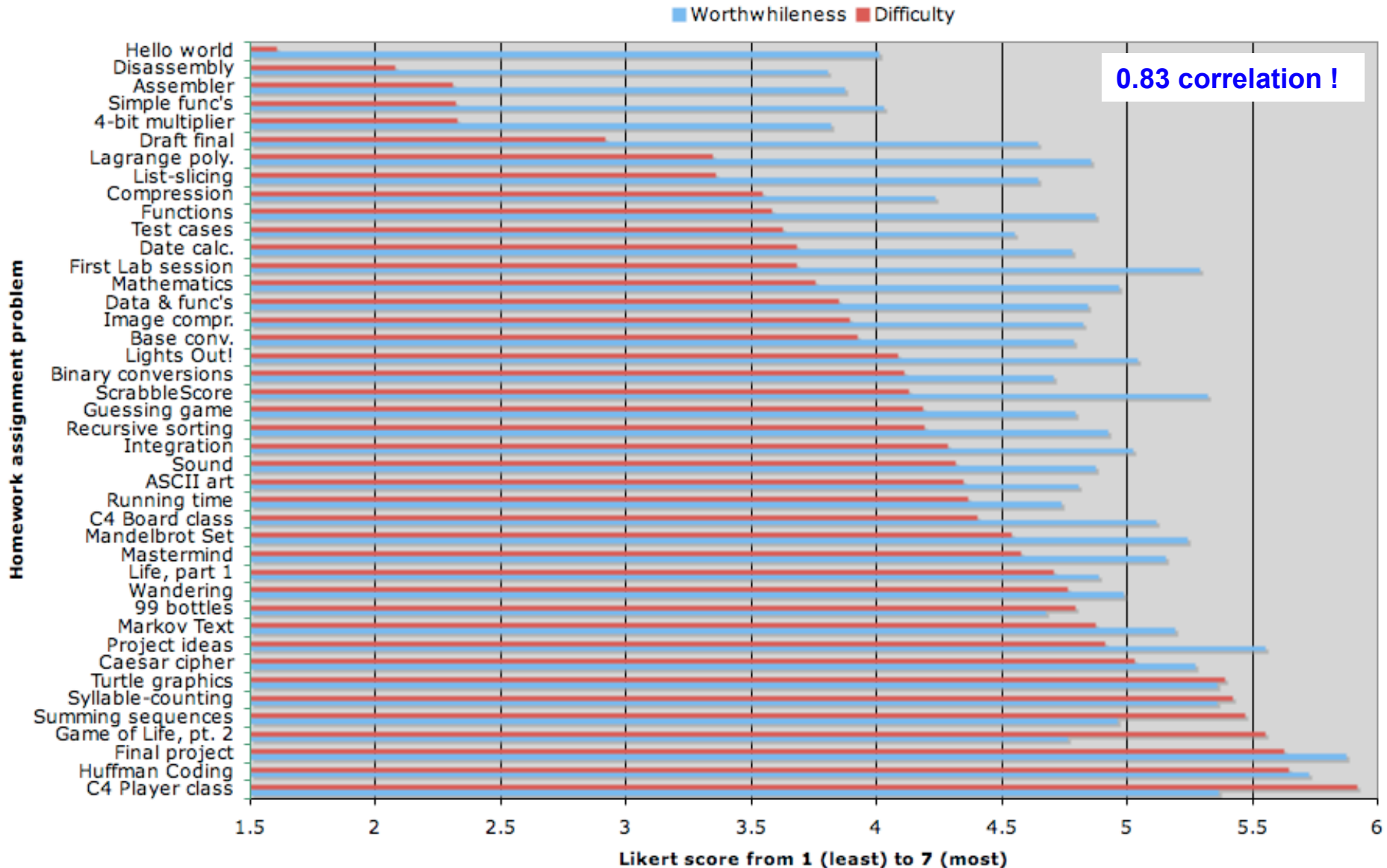
FSMs & Decidability



imperative structures

# Data!

## Student-reported worthwhileness and difficulty



# Data!

## Student-reported worthwhileness and difficulty

Worthwhileness Difficulty

Hello world  
Disassembly  
Assembler  
Simple func's  
4-bit multiplier

0.83 correlation !

Lag  
c

What is learned is the square root of what is taught.

Homework assignment problem

First I  
N  
D:  
In

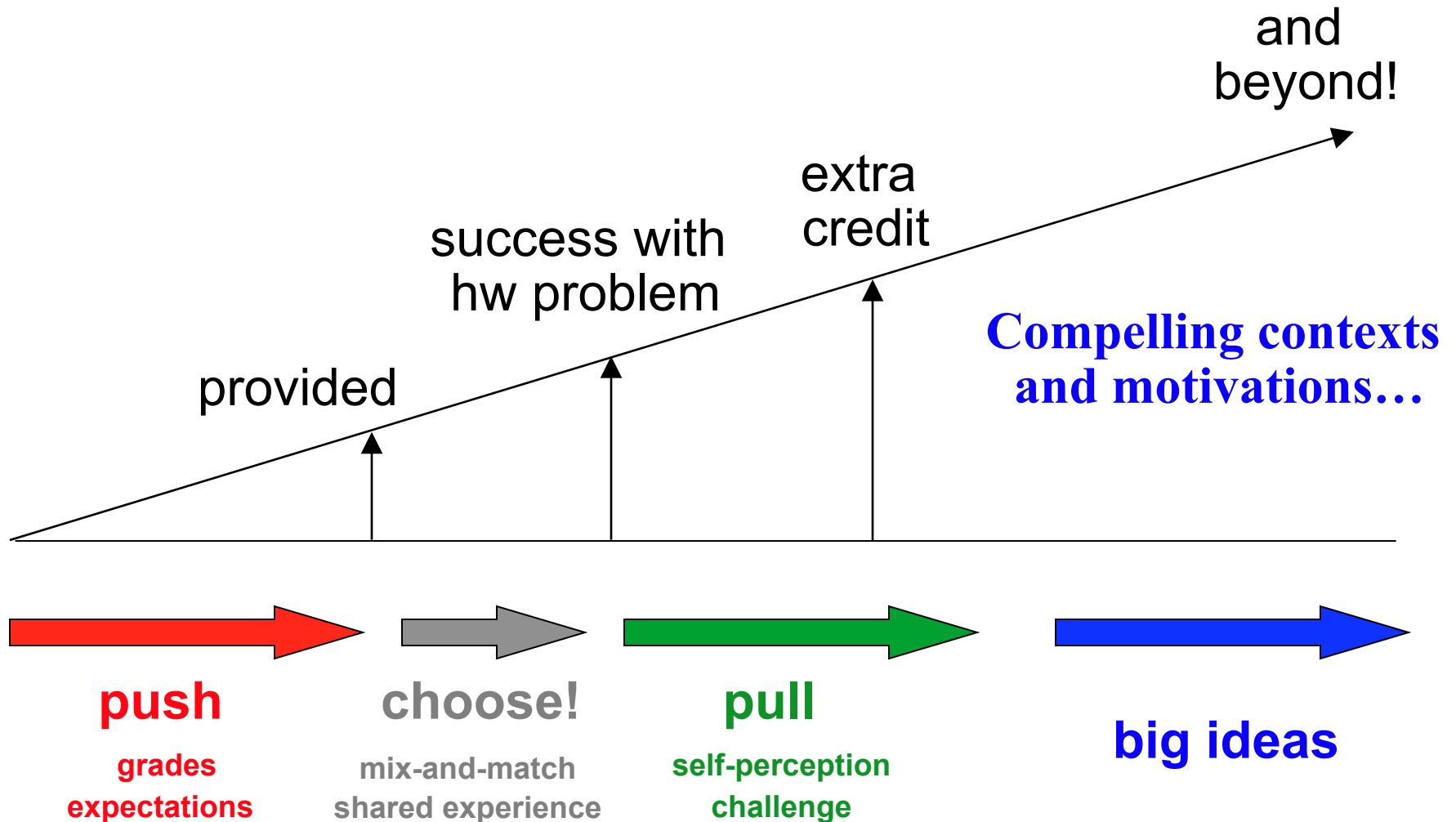
Lights Out!  
Binary conversions  
ScrabbleScore  
Guessing game  
Recursive sorting  
Integration  
Sound  
ASCII art  
Running time  
C4 Board class  
Mandelbrot Set  
Mastermind  
Life, part 1  
Wandering  
99 bottles  
Markov Text  
Project ideas  
Caesar cipher  
Turtle graphics  
Syllable-counting  
Summing sequences  
Game of Life, pt. 2  
Final project  
Huffman Coding  
C4 Player class

1.5 2 2.5 3 3.5 4 4.5 5 5.5 6

Likert score from 1 (least) to 7 (most)

# The Ramp

## Ownership & Creativity *in CS 1*



# Results.

500% increase  
(in *faculty* involvement)

CS 1 is where *we* are  
now most passionate.

## PBJA outward...

CS 0, offered Spring 2009  
outreach *to other departments*  
BioCS1, to be offered Fall 2009

Faculty



Students

... is reflected back.

more CS-savvy and more excited  
applying for summer research  
are checking out CS 2...