61A Extra Lecture 2
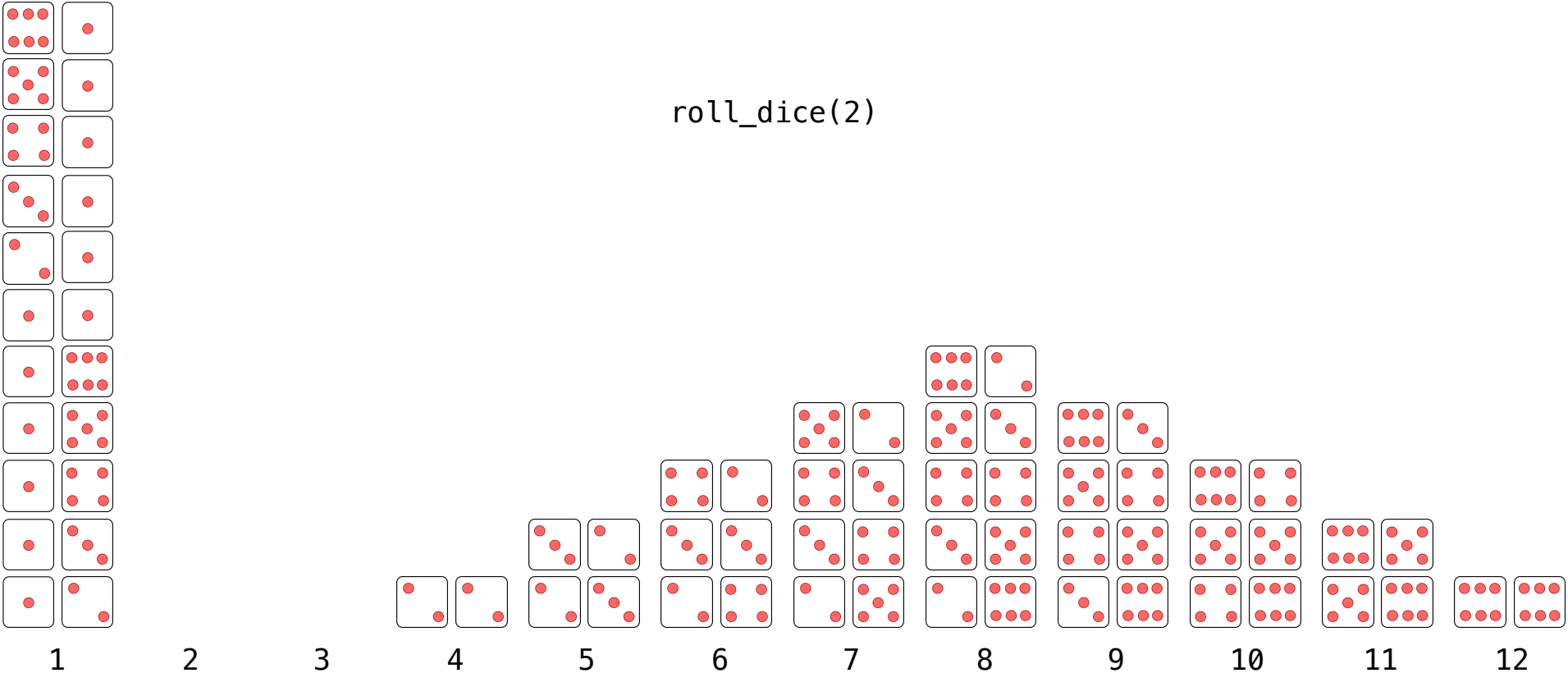
Announcements

cs61a.org/extra.html

Quines

(Demo)

Church Numerals

(Demo)

Dice

Exact Chances for Rolling Dice

roll_dice(2)

(Demo)

Hog: The End Game

You: 99
Them: 99

You: 88
Them: 99

You: 80
Them: 99

What is the chance that I'll score *at least* **k** points rolling **n** six-sided dice?

(Demo)

Memoization

(Demo)

Twenty-One (Nim)
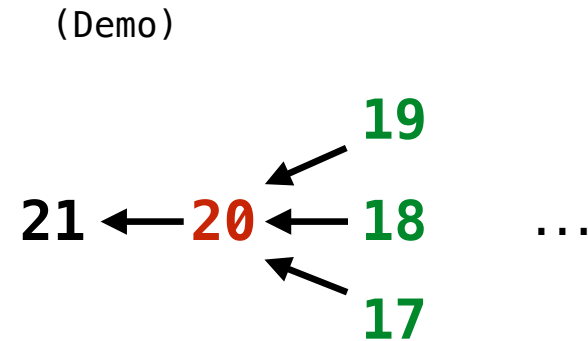
(Demo)

Twenty-One Rules

Two players alternate turns, on which they can add 1, 2, or 3 to the current total

The total starts at 0

The game end whenever the total is 21 or more

The last player to add to the total loses

(Demo)

Some states are good; some are bad

$$21 \leftarrow 20 \leftarrow 18 \quad \ldots$$

$$19$$

$$17$$

(Demo)

Hog Optimal Strategies

Contest Challenges

Larger state space than Nim & random transition function

Spring 2015 Optimal Strategy

- Rules: http://inst.eecs.berkeley.edu/~cs61a/sp15/proj/hog/

- Designed for what opponent?

Partial information: your strategy is not a function of the dice being used