

CSE 11

discussion 7

with

Chris Taylor

btw, i have office hours Thu 5-6PM

I'm telling you this now on week 7 but better late than never

2048

- Play it and watch closely:
<https://gabrielecirulli.github.io/2048/>
- When is a row/column allowed to move?
- How exactly do the numbers move in each row/column?



2048

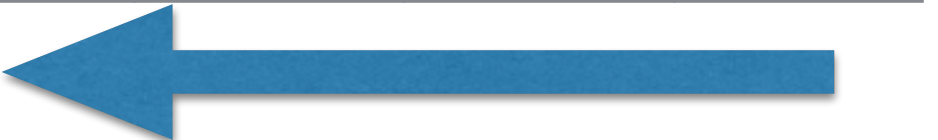
Can this column go down?

2	8	4	4
64	2	32	16
8	32	4	
2	8		2



Same as asking:
Can this row go left?

2		16	4
---	--	----	---



So pretty much everything reduces to moving rows left...
(this is what `getRow` does)

Moving stuff to the left which reminds me of that one Beyoncé song

transform does all of this
if you understand `transform` then everything else is gravy

0	2	2	8
---	---	---	---



4	8	0	0
---	---	---	---

Combine 2s, skip the first 0

0	2	0	4
---	---	---	---



2	4	0	0
---	---	---	---

“Collapse” into the zeros

4	4	4	4
---	---	---	---



8	8	0	0
---	---	---	---

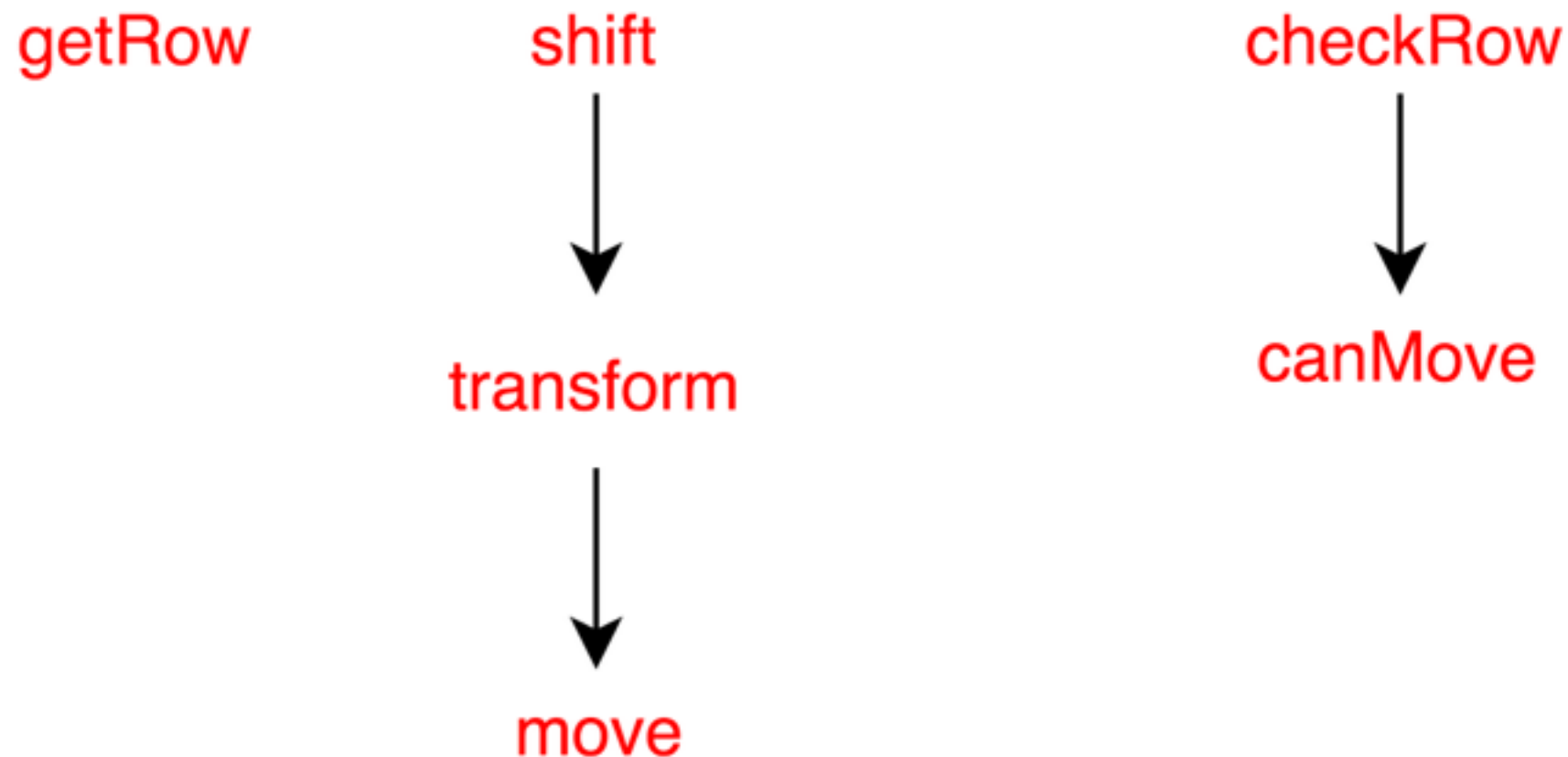
Combine 2 equal numbers, but only once

Important 2048 functions

- **getRow**: turn pretty much everything into a row going left
- **transform**: Slide the row left, combining numbers and skipping zeros
- **shift**: A helper function for transform() to skip a bunch of zeros
- **checkRow**: Can the row go left?

Methods which cause failures (all in Board.java)

Arrow means “is used inside of”



So, start by fixing the methods that don't call anything else
Then work your way down

The Bigger Picture of HW7

- `move` uses `transform` which uses `shift`
- What if you only had a failing test for `move`? How would you know where the bug is?
- You want to test the smallest parts of a program that you can
- Someone decided to call these *units*
- Hence, *unit testing*, not just testing

Questions

Various cat gifs which you can only see if you went to section

(doesn't work in the pdf version 😊)

