



# Destroying Democracy

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Have you voted for anything, and if so, what was it for?

# Voting and Representation

During elections, people in a state vote for who they want representing them

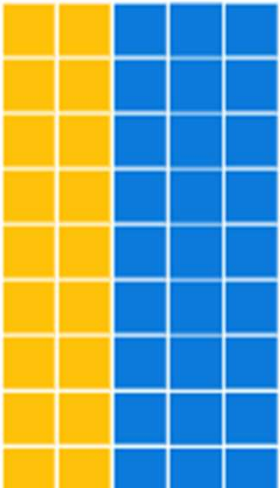
Usually, we want to divide the state into many small districts so that each district gets 1 representative

- Just like how the US is divided into many states!

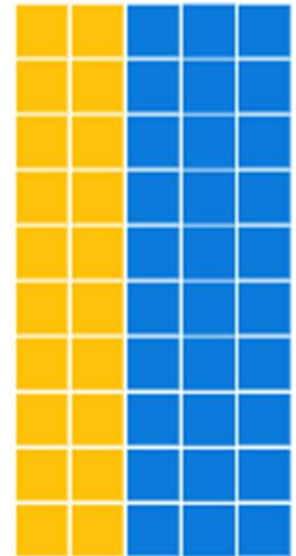
The borders of these districts can change, and this can affect election results

# Gerrymandering

- Gerrymandering is a way of drawing districts to influence the election results
  - Let's look at this state without district borders.
  - After polling 50 people, we find 30 are blue supporters
  - 20 of them are yellow supporters
- 60% Blue,  
40% Yellow

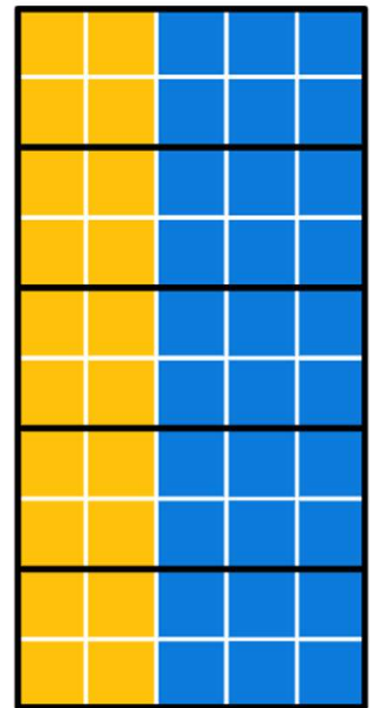


60% Blue,  
40% Yellow



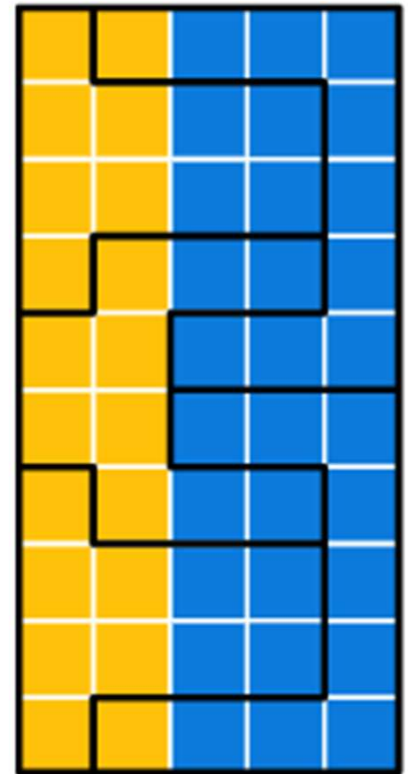
# Gerrymandering

- If we divide them like this
- There will be 5 blue representatives and 0 yellow representatives
- Does this sound fair?



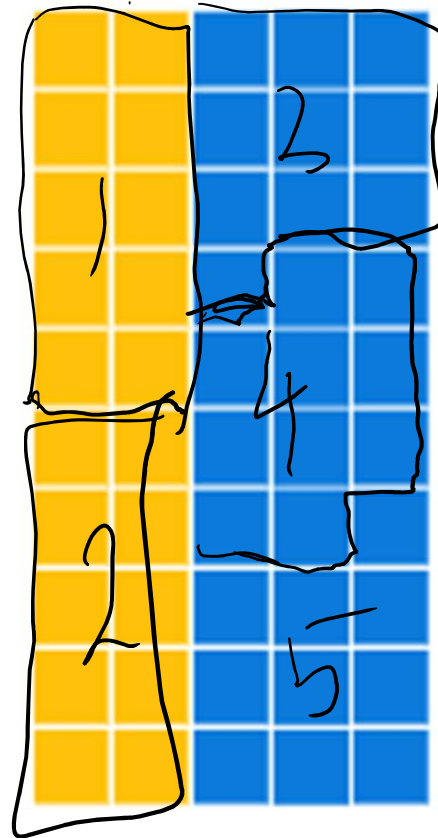
# Gerrymandering

- If we divide them like this
- There will be 2 blue representatives and 3 yellow representatives
- Does this sound fair?
  - Remember, blue has 60% support and yellow has 40% support



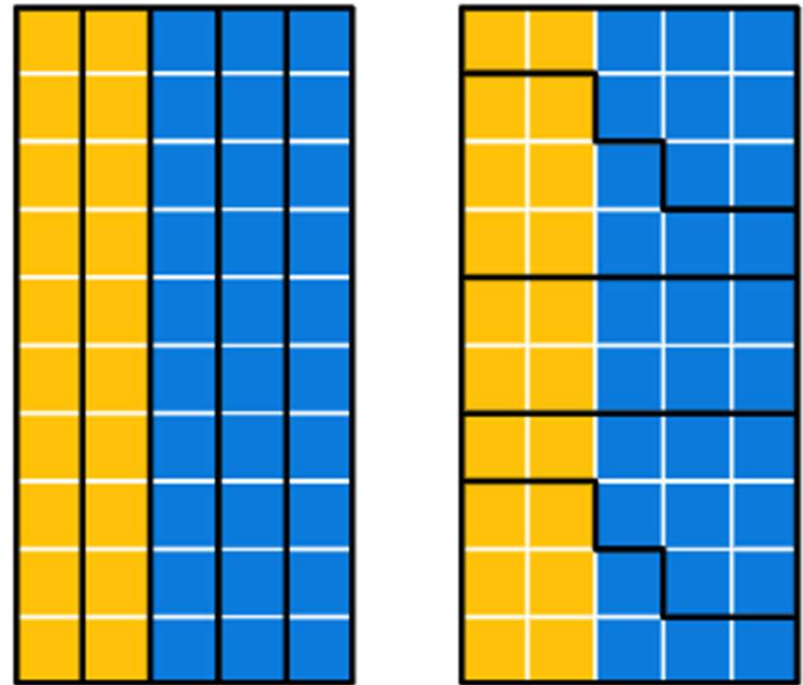
# Gerrymandering

- How would you divide them?



# Proportionate Outcomes

- In both cases, there are 3 blue representatives
- There are 2 yellow representatives
- Is this more fair?



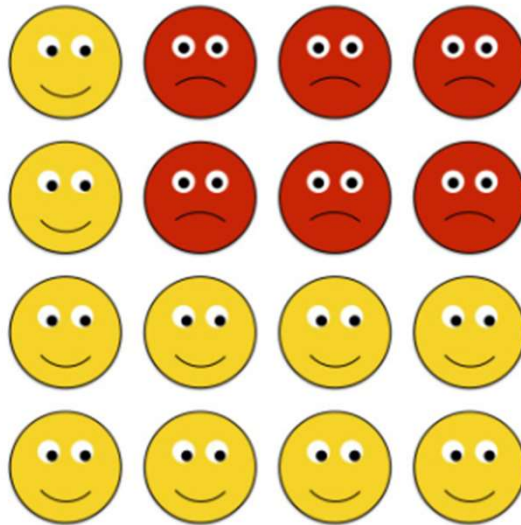
# BREAKOUT ROOMS

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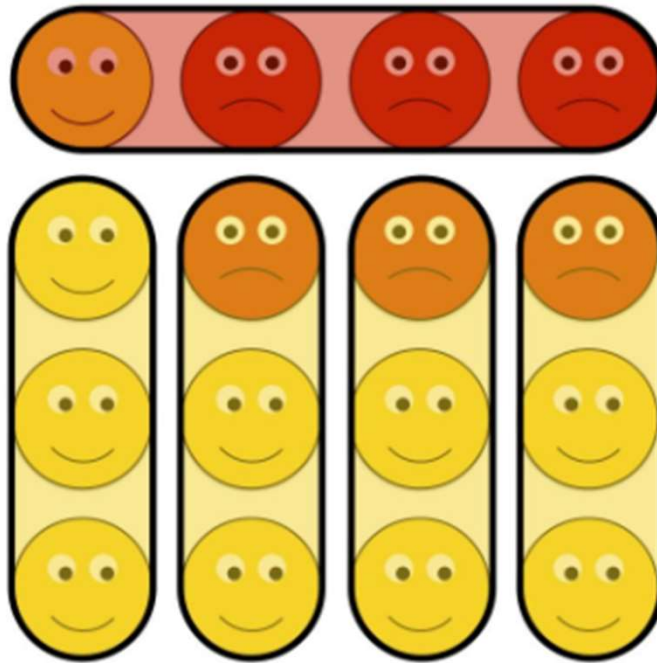


# Let's play a new game

- In this puzzle, we are going to be the evil red wizards trying to subvert democracy.



The good folks win here

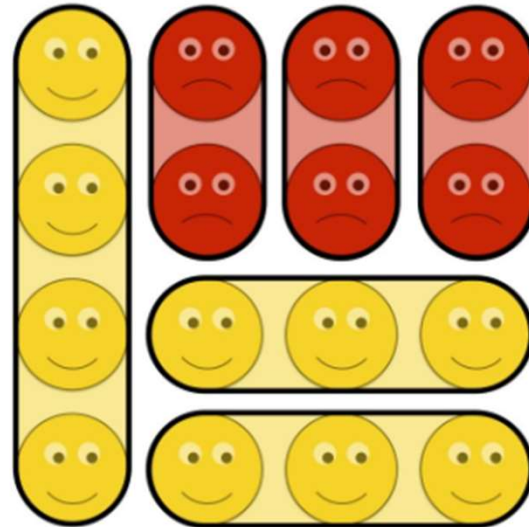
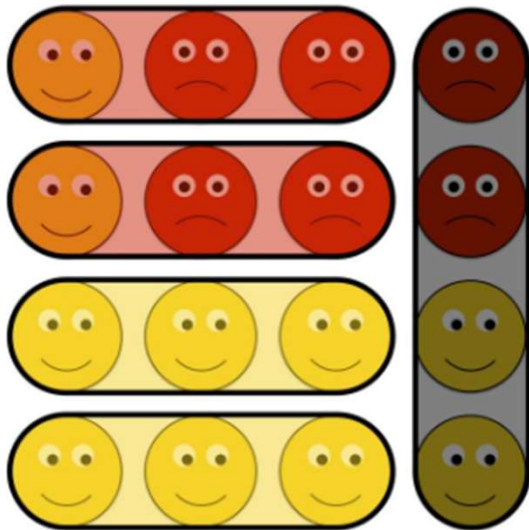


# But we are evil!

- How do we gerrymander the districts to help the evil wizards win?
- Rules:
  - all districts must be rectangular or square.
  - each voter must be in exactly one district.
  - no district can contain twice as many votes as another district.

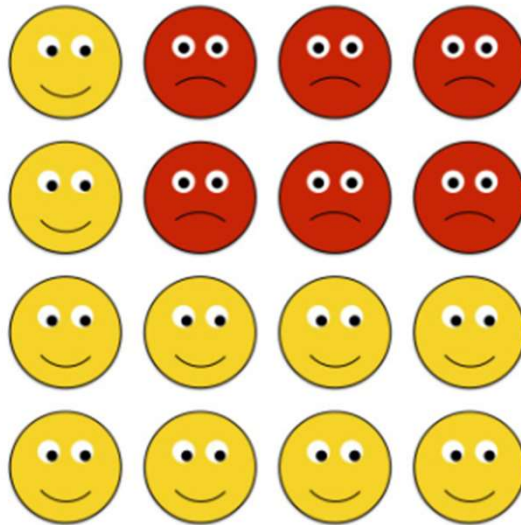
# But we are evil!

- Why did we fail here?

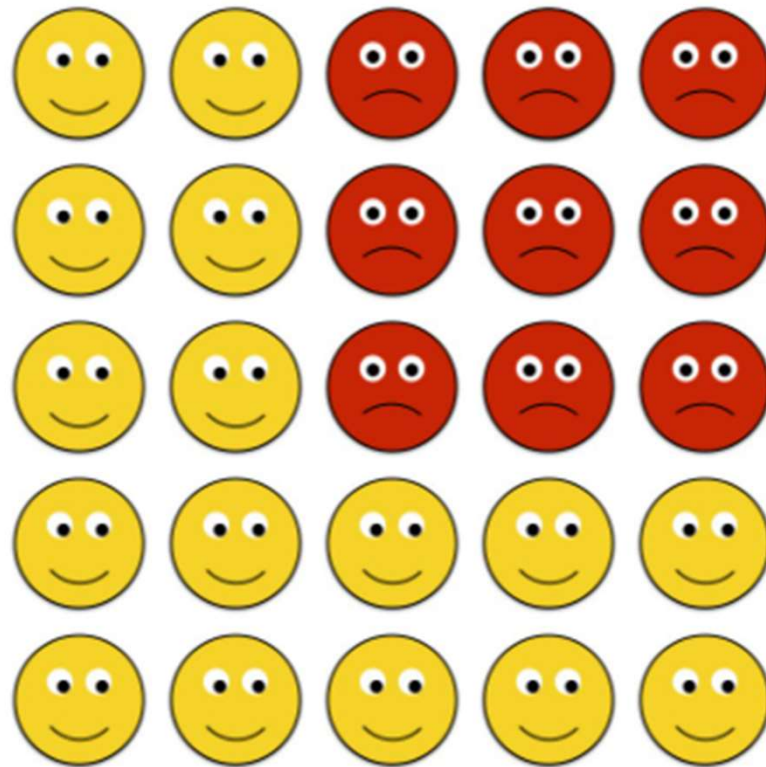


# But we are evil!

- How do we gerrymander the districts to help the evil wizards win?

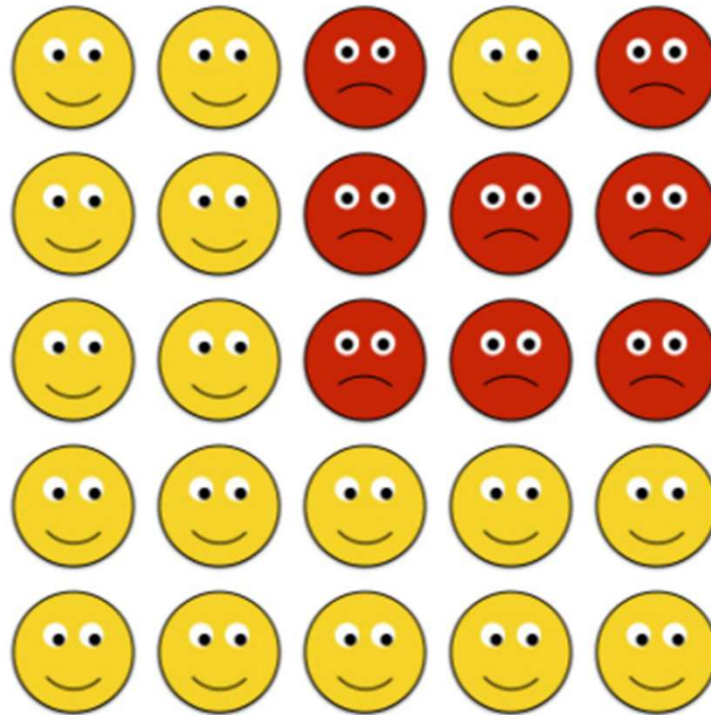


Let's now destroy this election



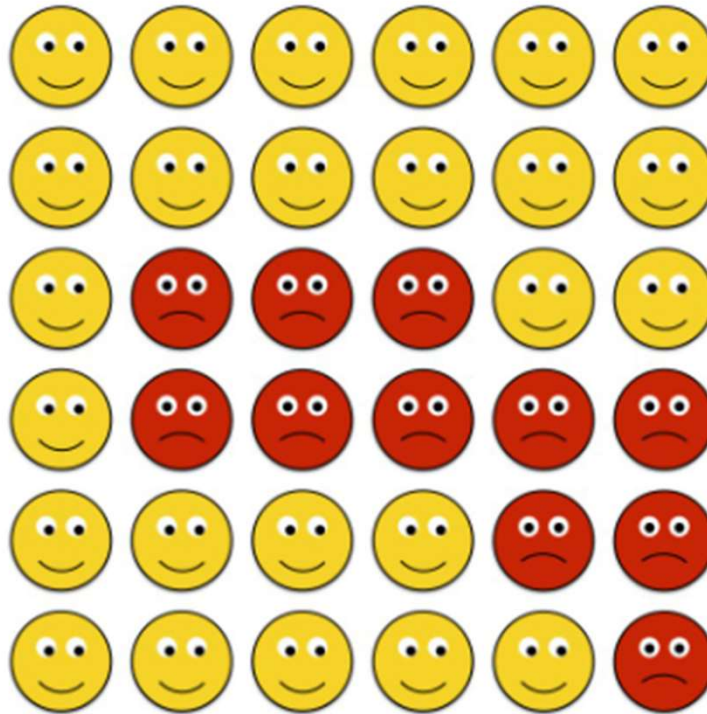
# What if we remove one evil wizard?

- Can we still win?

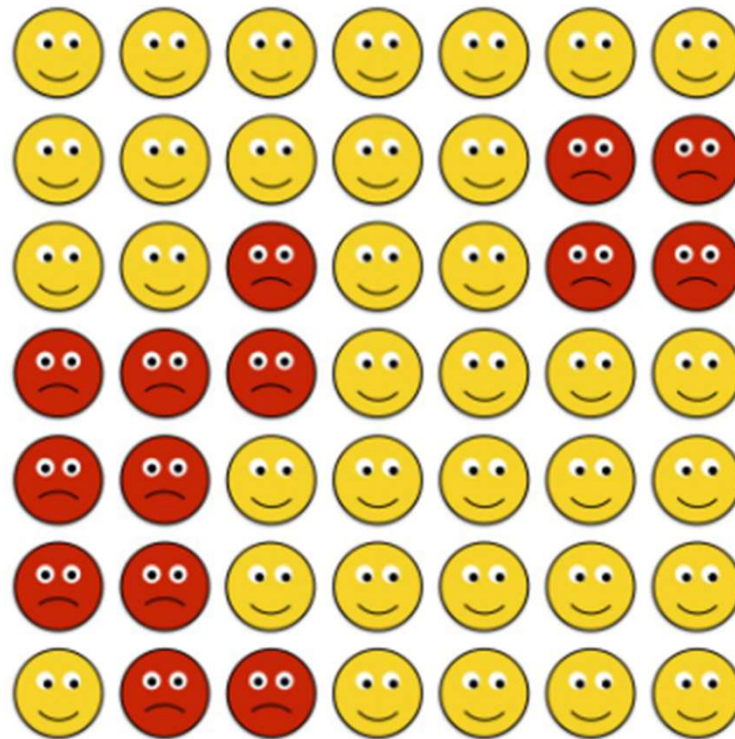


# Can we win with even fewer wizards?

- 11 evil wizards and 25 good wizards

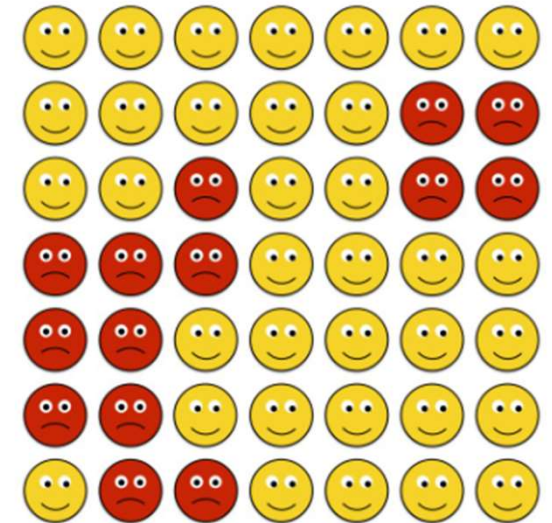
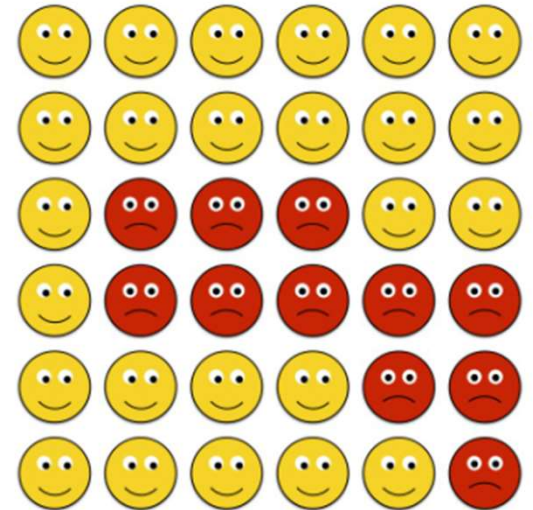
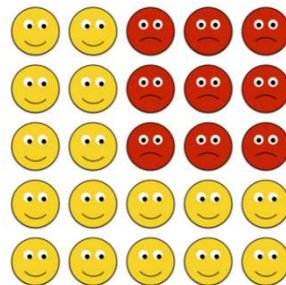
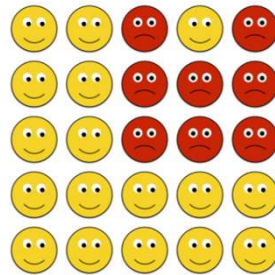
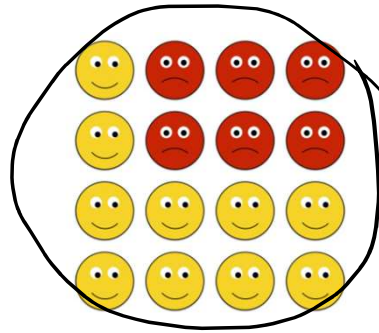


Let's break this bigger election



# Percentage recap:

Let's go back and  
see what is  
happening to the  
percentage of  
evil wizards in  
each election

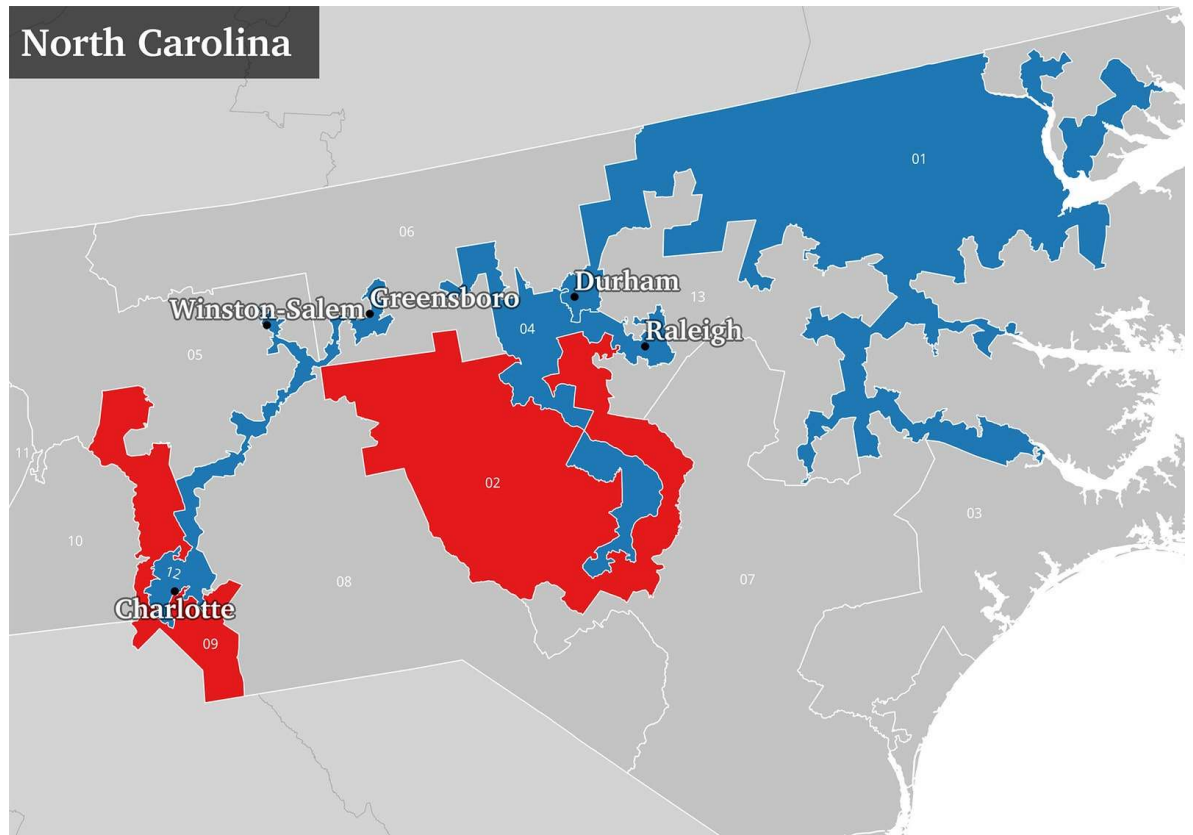


# Why is it called gerrymandering?

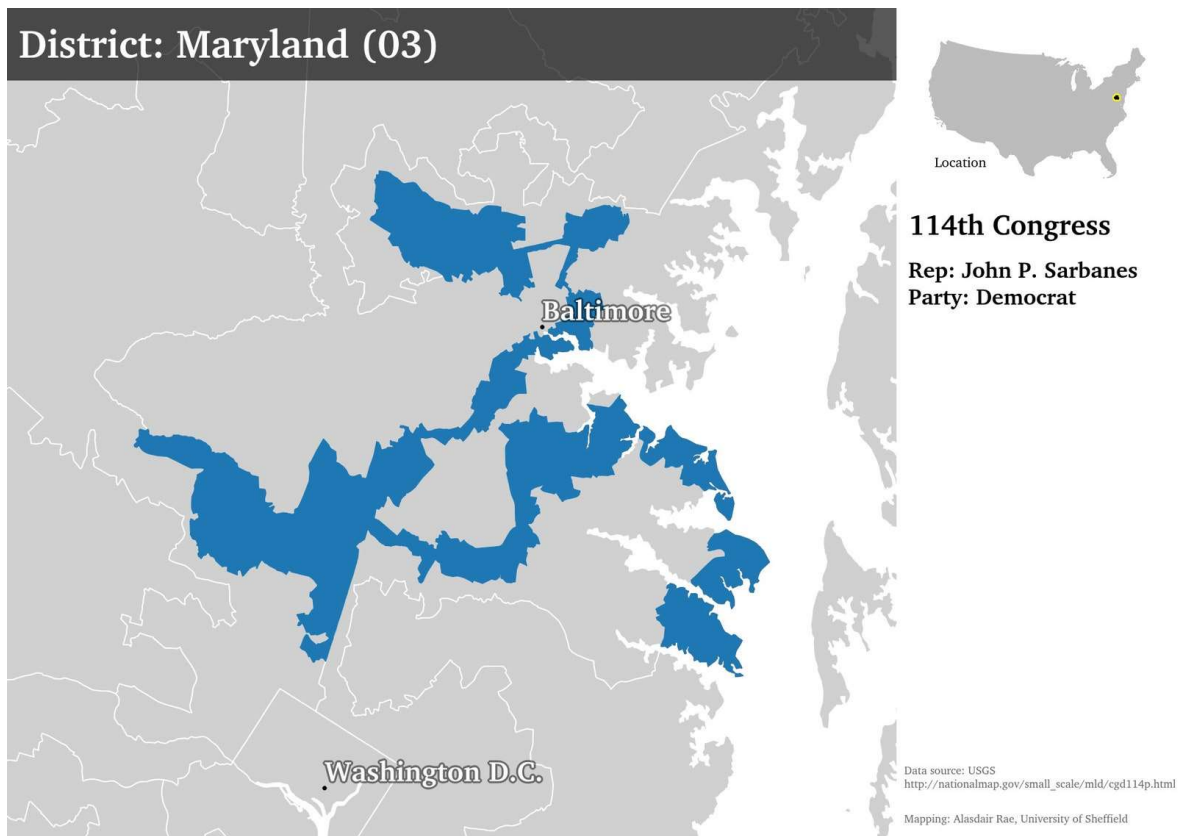
- Elbridge Gerry invented it in the 1700s
- He was one of the founding fathers



Real world  
gerrymandering

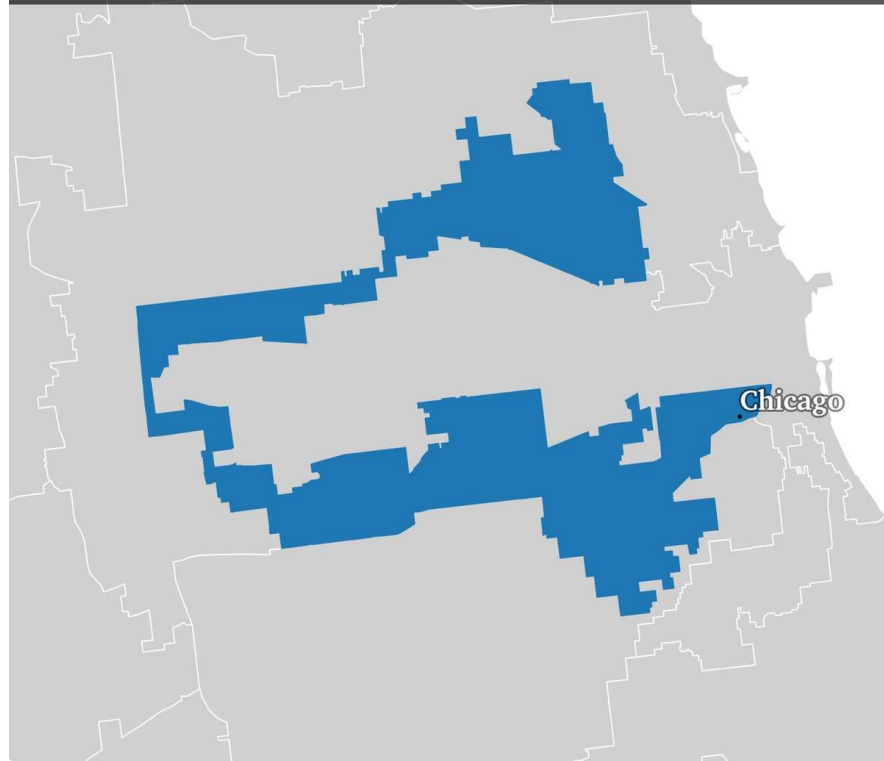


Real world  
gerrymandering



Real world  
gerrymandering

District: Illinois (04)



Location

**114th Congress**

**Rep: Luis V. Gutierrez**  
**Party: Democrat**

Data source: USGS  
[http://nationalmap.gov/small\\_scale/mld/cgd114p.html](http://nationalmap.gov/small_scale/mld/cgd114p.html)

Mapping: Alasdair Rae, University of Sheffield

# Some statistics quotes for you

Facts are stubborn, but statistics are pliable

- Mark Twain

Statistics do not speak for themselves

- Milton Friedman (economist)

The only statistics you can trust are those you falsified yourself

- Winston Churchill