



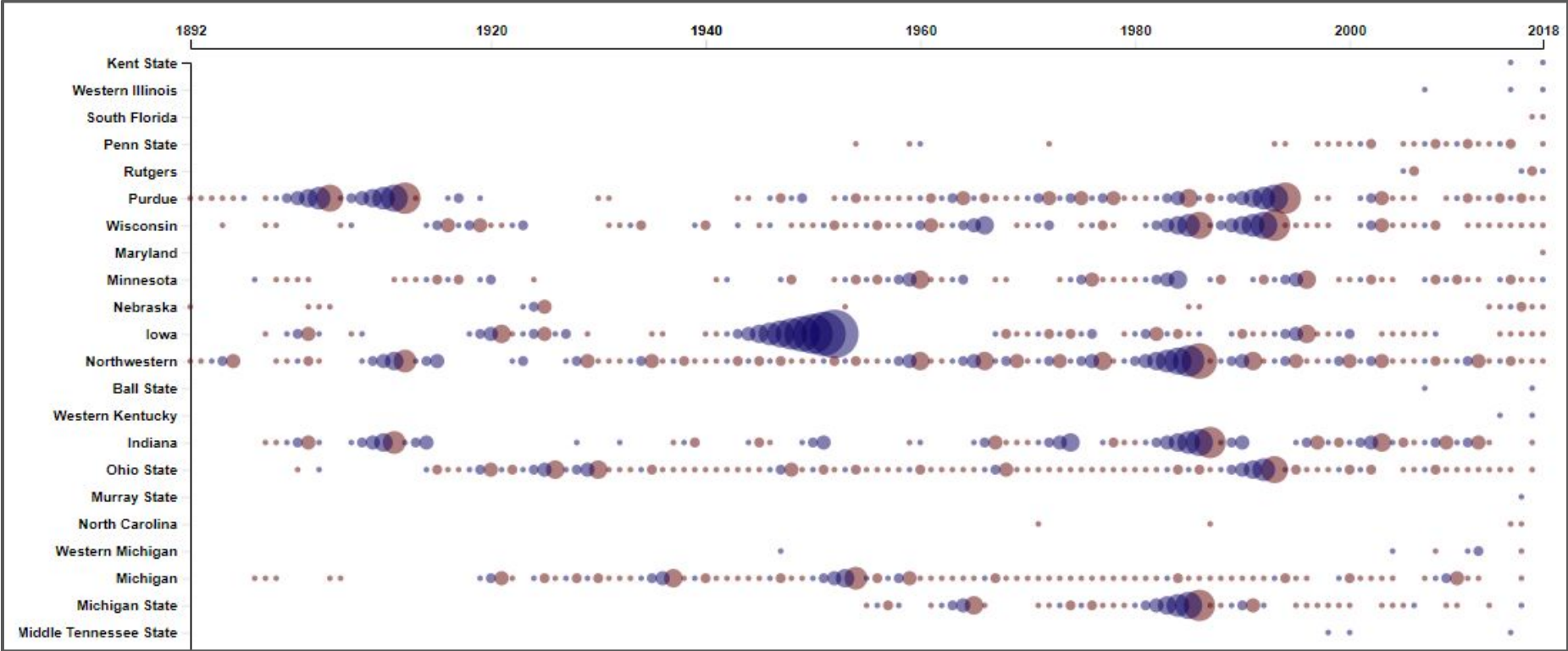
CS 296-25

Data Structures Honors

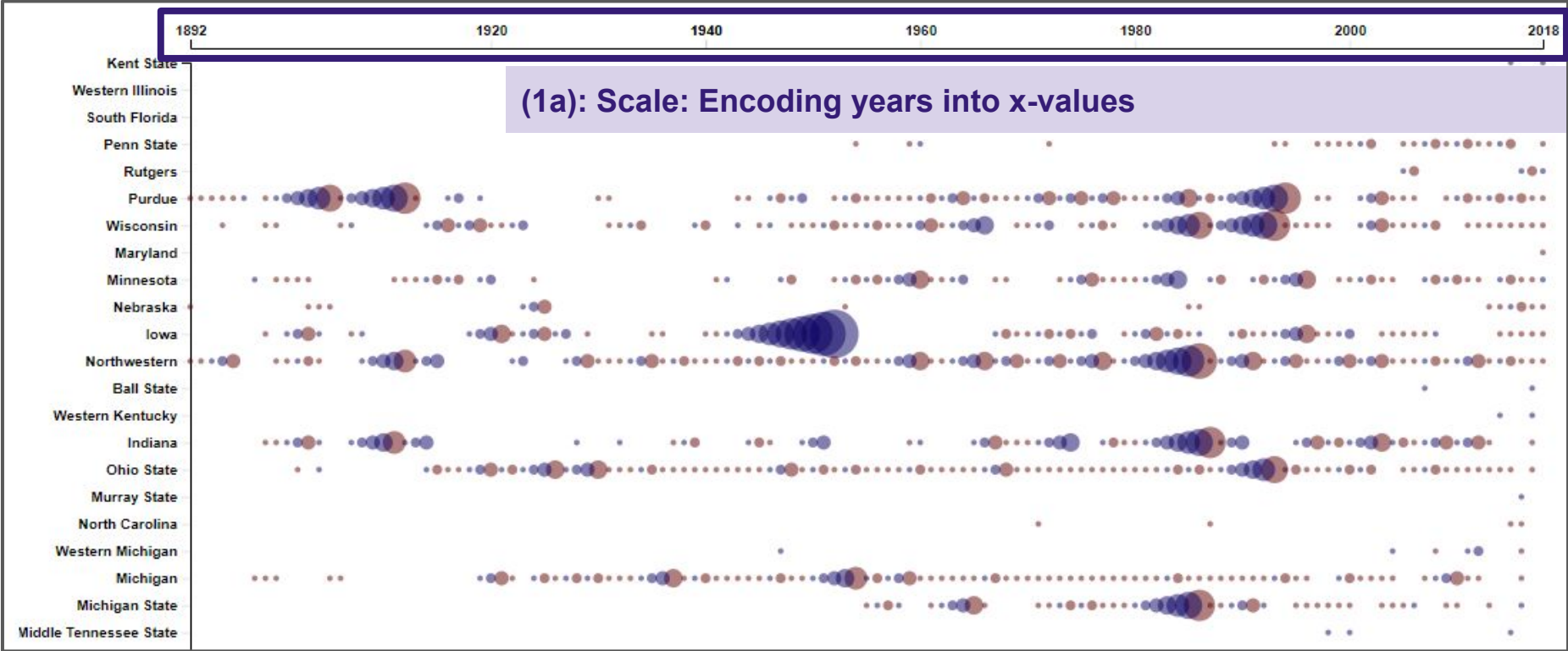
A Data-centric Dive into Data Science

Wade Fagen-Ulmschneider

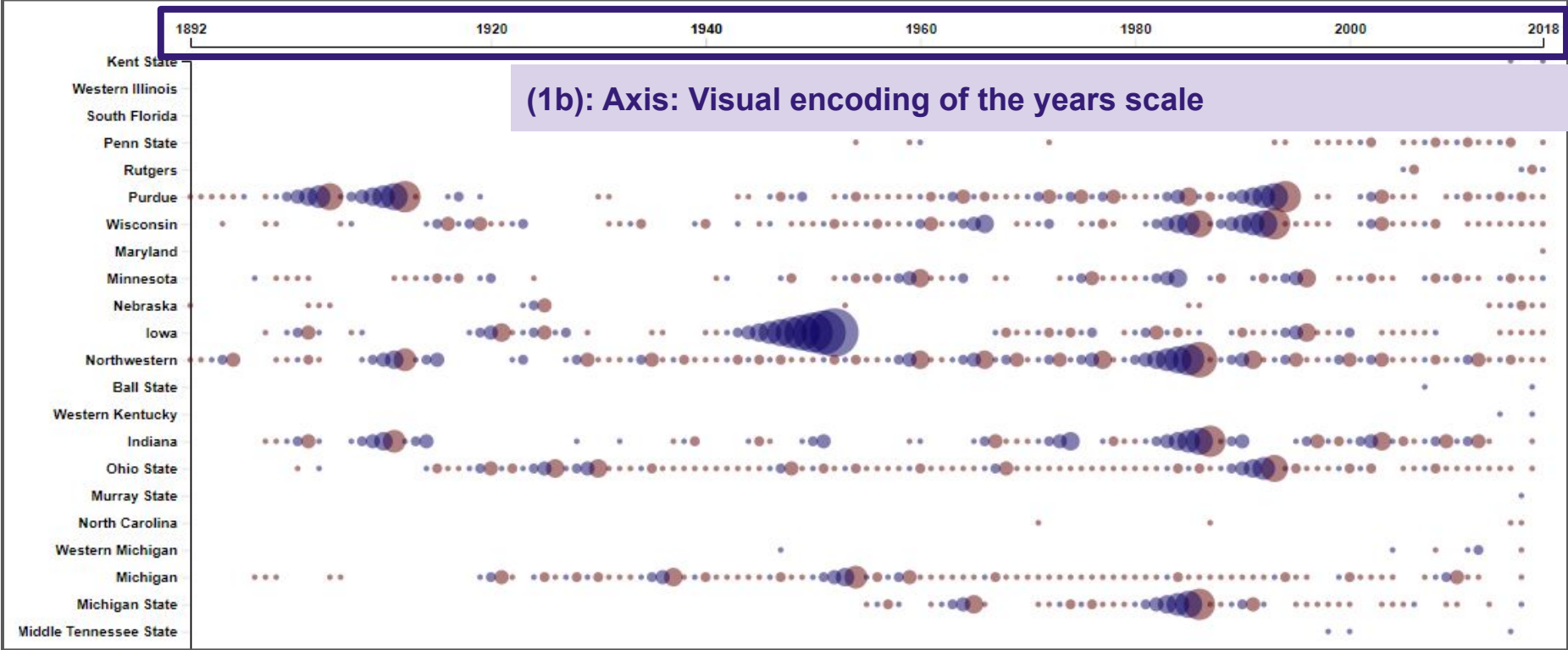
Review: Homework #4 with d3.js



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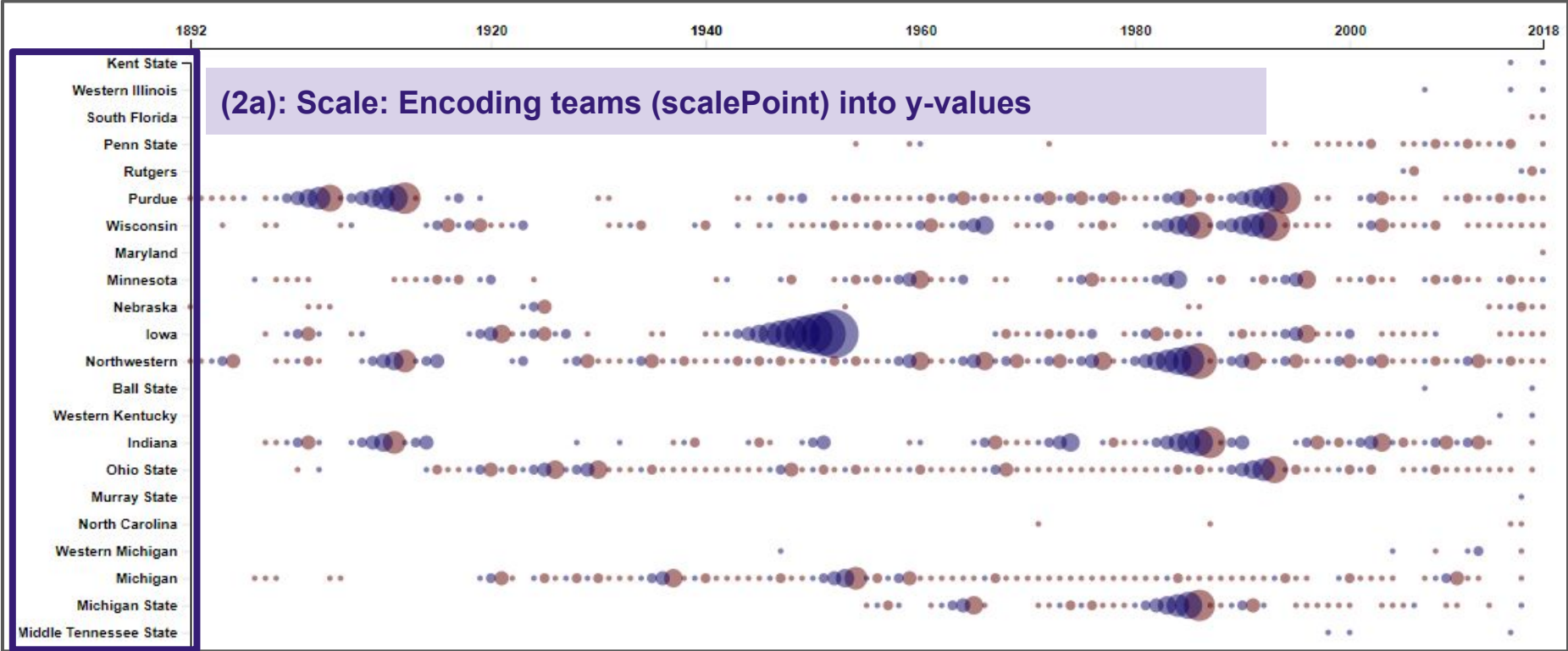
My Solution, Part 1: Year Scale + Axis

```
var years = __.map(data, "Season");
years = __.uniq(years);
years = __.reverse(years);

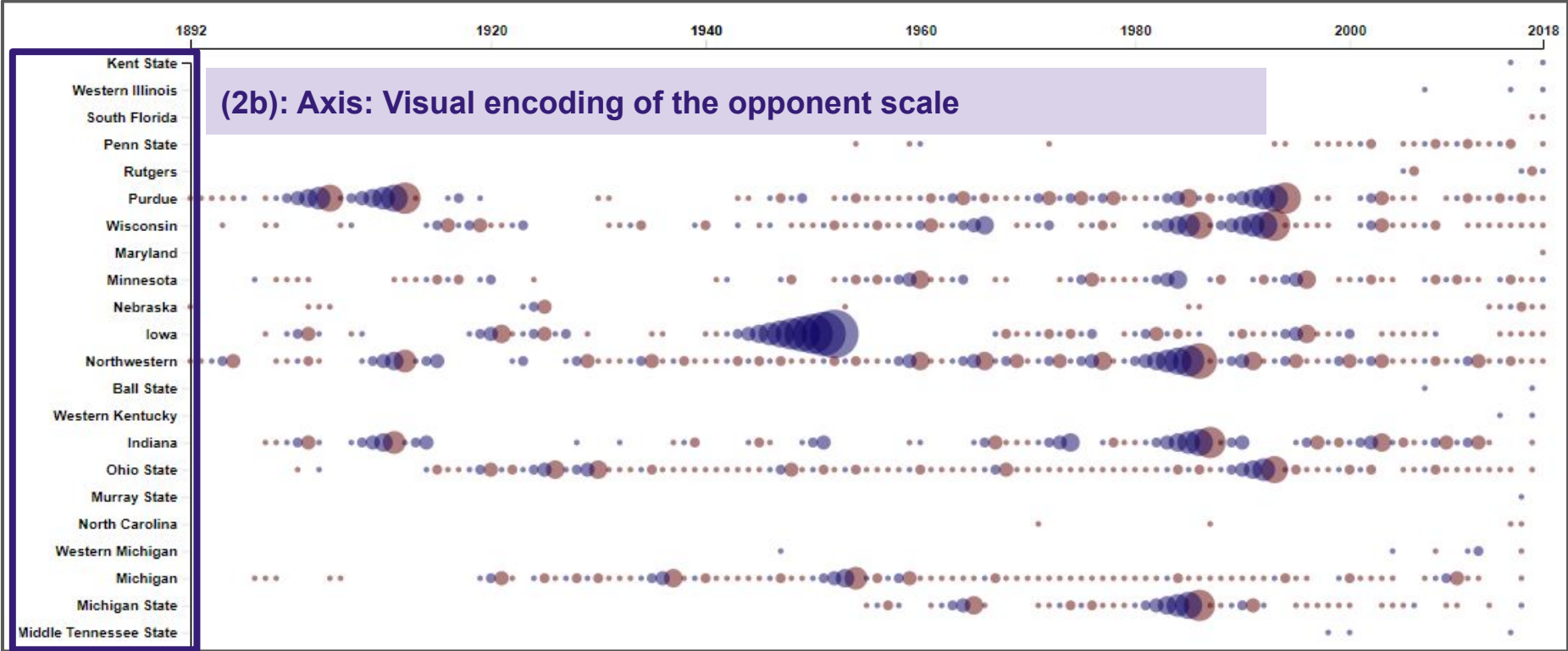
var yearScale = d3.scalePoint()
  .domain( years )
  .range( [0, width] );

var xAxis = d3.axisTop()
  .scale(yearScale)
  .tickValues( [1892,1920,1940,1940,1960,1980,2000,2018] );
```

Review: Homework #4 with d3.js



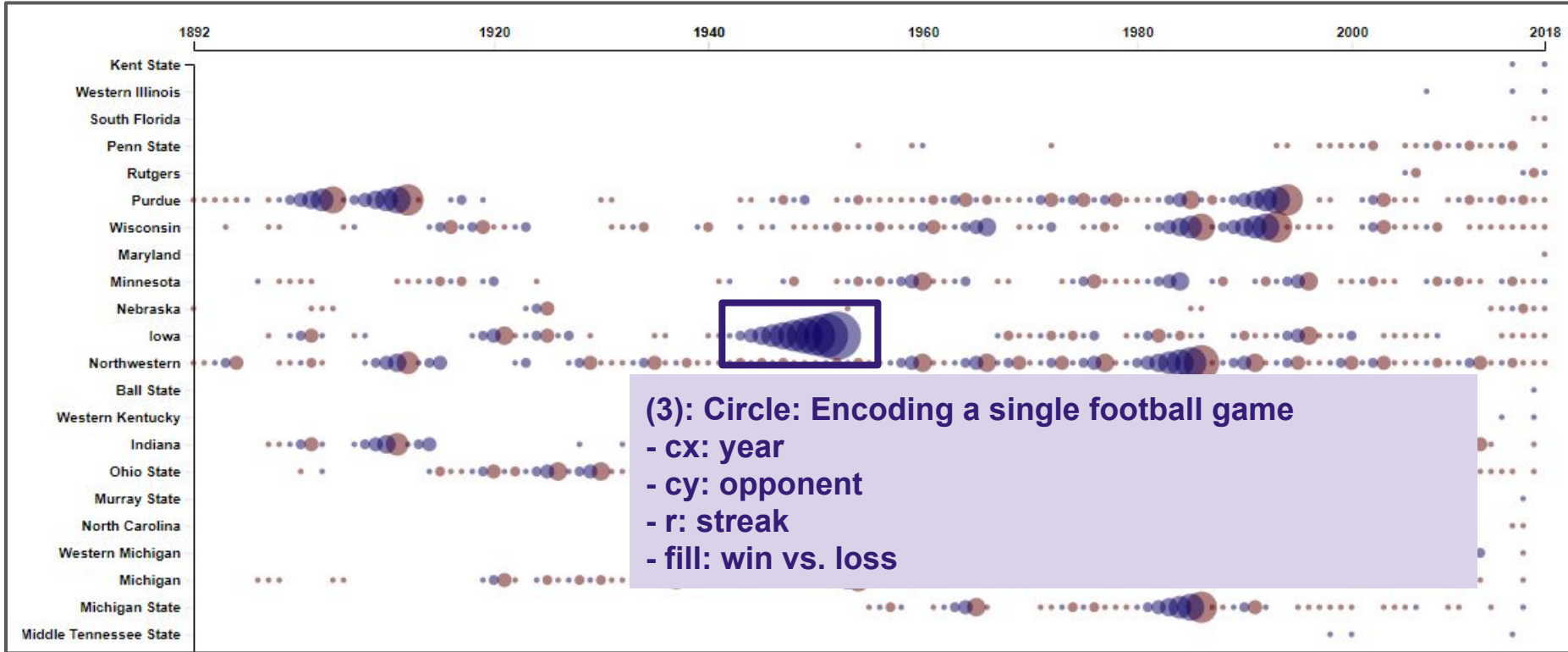
Review: Homework #4 with d3.js



My Solution, Part 2: Opponent Scale + Axis

```
var opponents = _.map(data, "Opponent");  
opponents = _.uniq(opponents);  
  
var opponentScale = d3.scalePoint()  
  .domain ( opponents )  
  .range ( [0, height] );  
  
var yAxis = d3.axisLeft().scale(opponentScale);
```


Review: Homework #4 with d3.js



My Solution, Part 3: Games (Circles)

```
svg.selectAll("circles")
  .data(data)
  .enter()
  .append("circle")
  .attr("r", function (d) { return streakScale(d.Streak); })
  .attr("cx", function (d) { return yearScale(d.Season); })
  .attr("cy", function (d) { return opponentScale(d.Opponent) + 10; })
  .attr("fill", function (d) {
    if (d.Result == "W") { return "#080061"; }
    else { return "#610000"; }
  })
  .attr('fill-opacity', 0.5)
```

Interactive Data Visualizations

Three pieces:

(1): Create a `tip` object, defining the mouseover effect

(2): Associate the `tip` and the `svg`

(3): Add two events to everything you want a mouseover:

```
.on("mouseover", tip.show)
```

```
.on("mouseout", tip.hide)
```

Step 1: Define a d3.tip()

```
var tip = d3.tip()  
  .attr('class', 'd3-tip')  
  .html(function (d, i) {  
    return "Illinois " + d["Location"] + " " + d["Opponent"] + ": " +  
      d["IlliniScore"] + "-" + d["OpponentScore"] + " (" + d["Result"] + ")";  
  });
```

Step 2: Associate tip w/ svg

```
svg.call (tip) ;
```

Step 3: Add 'mouseover' and 'mouseout'

```
svg.selectAll("circles")
  .data(data)
  .enter()
  .append("circle")
  .attr("r", function (d) { return streakScale(d.Streak); })
  .attr("cx", function (d) { return yearScale(d.Season); })
  .attr("cy", function (d) { return opponentScale(d.Opponent) + 10; })
  .attr("fill", function (d) {
    if (d.Result == "W") { return "#080061"; }
    else { return "#610000"; }
  })
  .attr('fill-opacity', 0.5)
  .on('mouseover', tip.show)
  .on('mouseout', tip.hide)
```

My Solution

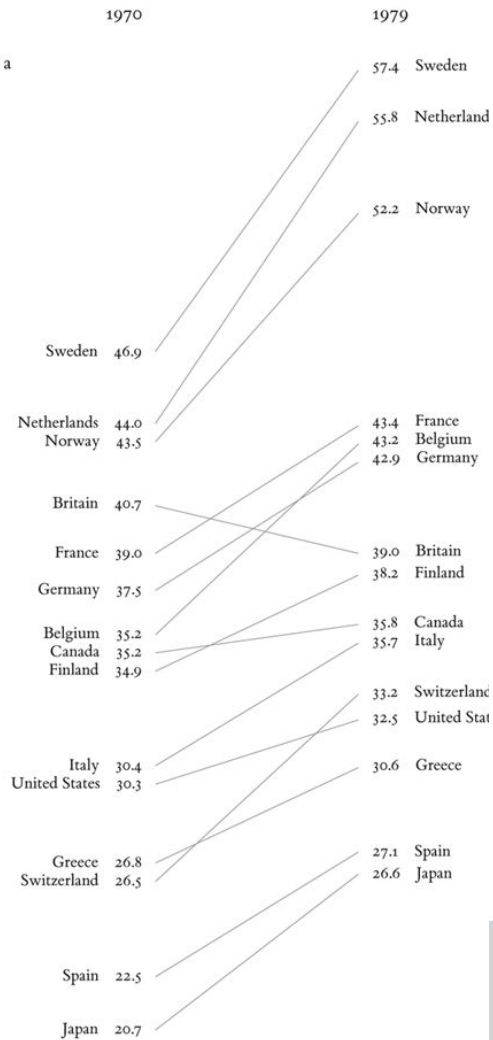
“Win Streaks In Illini Football”

<http://waf.cs.illinois.edu/discovery/Win-Streaks-In-Illini-Football/>

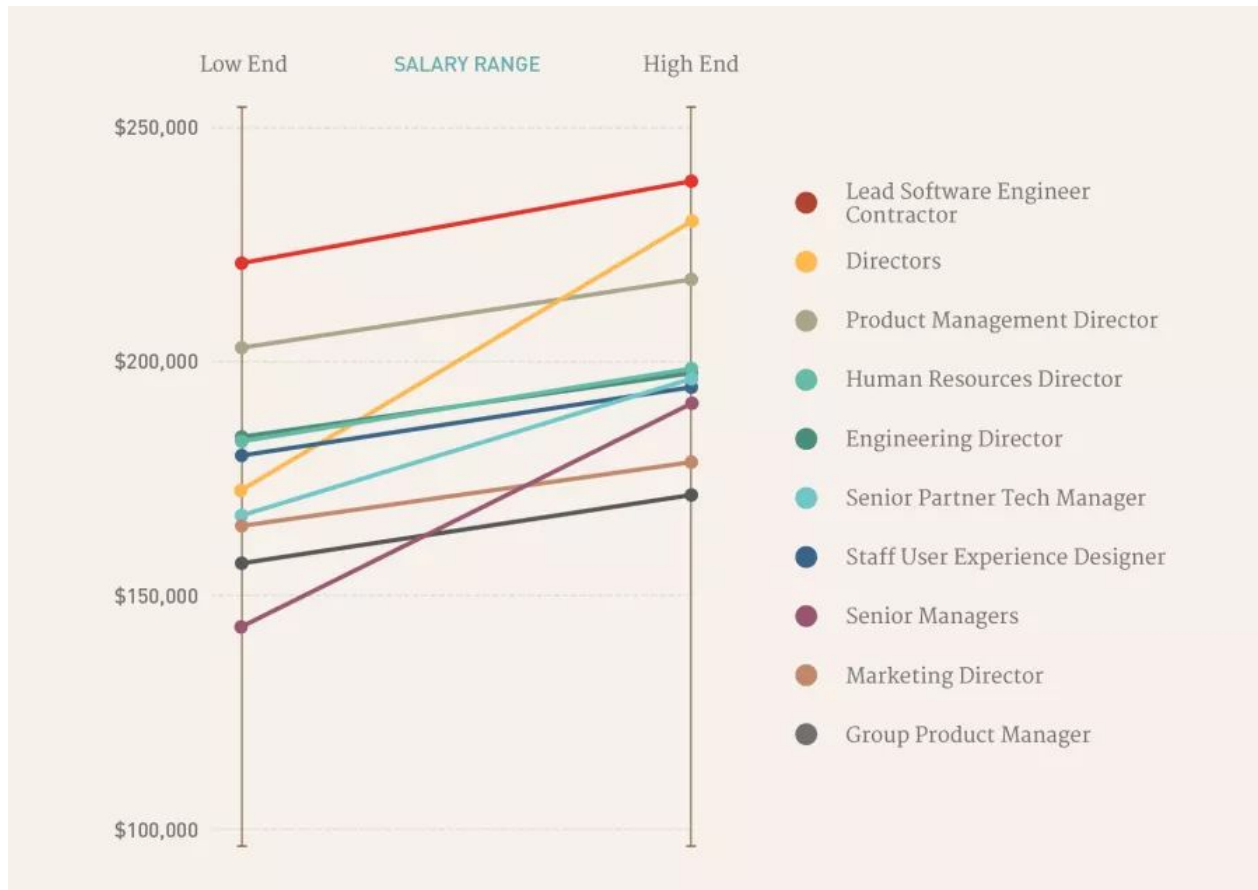
Slopegraphs

Slopegraphs

Current Receipts of Government as a Percentage of Gross Domestic Product, 1970 and 1979



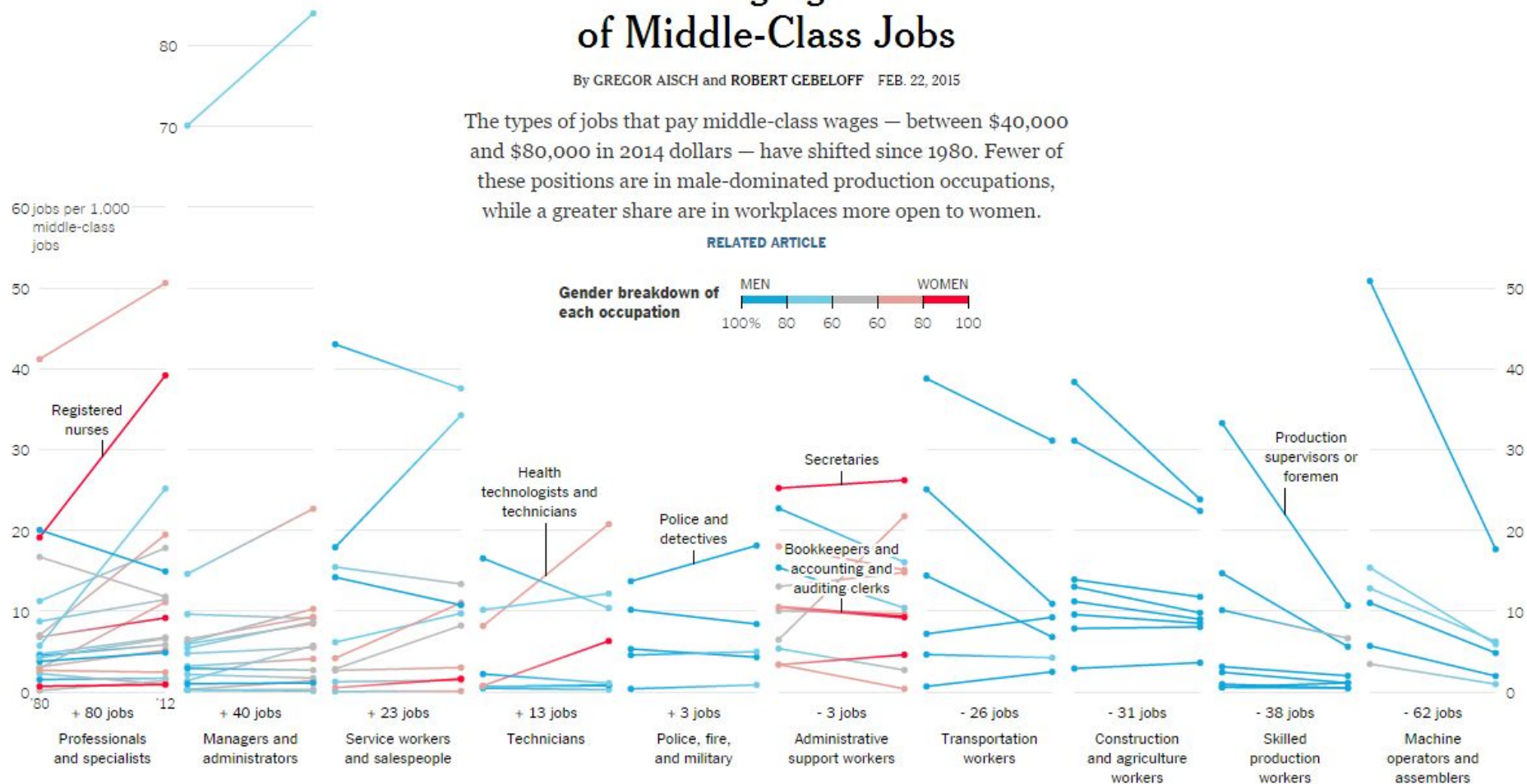
Slopegraphs



The Changing Nature of Middle-Class Jobs

By GREGOR AISCH and ROBERT GEBELOFF FEB. 22, 2015

The types of jobs that pay middle-class wages — between \$40,000 and \$80,000 in 2014 dollars — have shifted since 1980. Fewer of these positions are in male-dominated production occupations, while a greater share are in workplaces more open to women.



The Changing Nature of Middle-Class Jobs

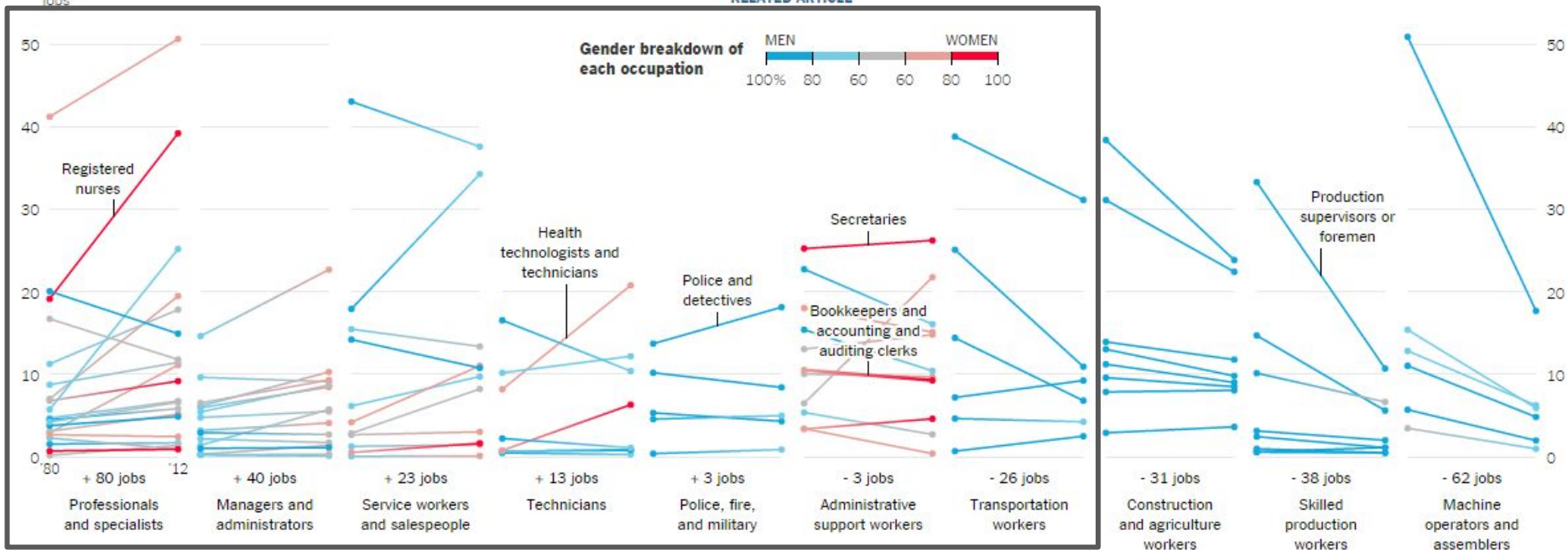
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60 jobs per 1,000 middle-class jobs

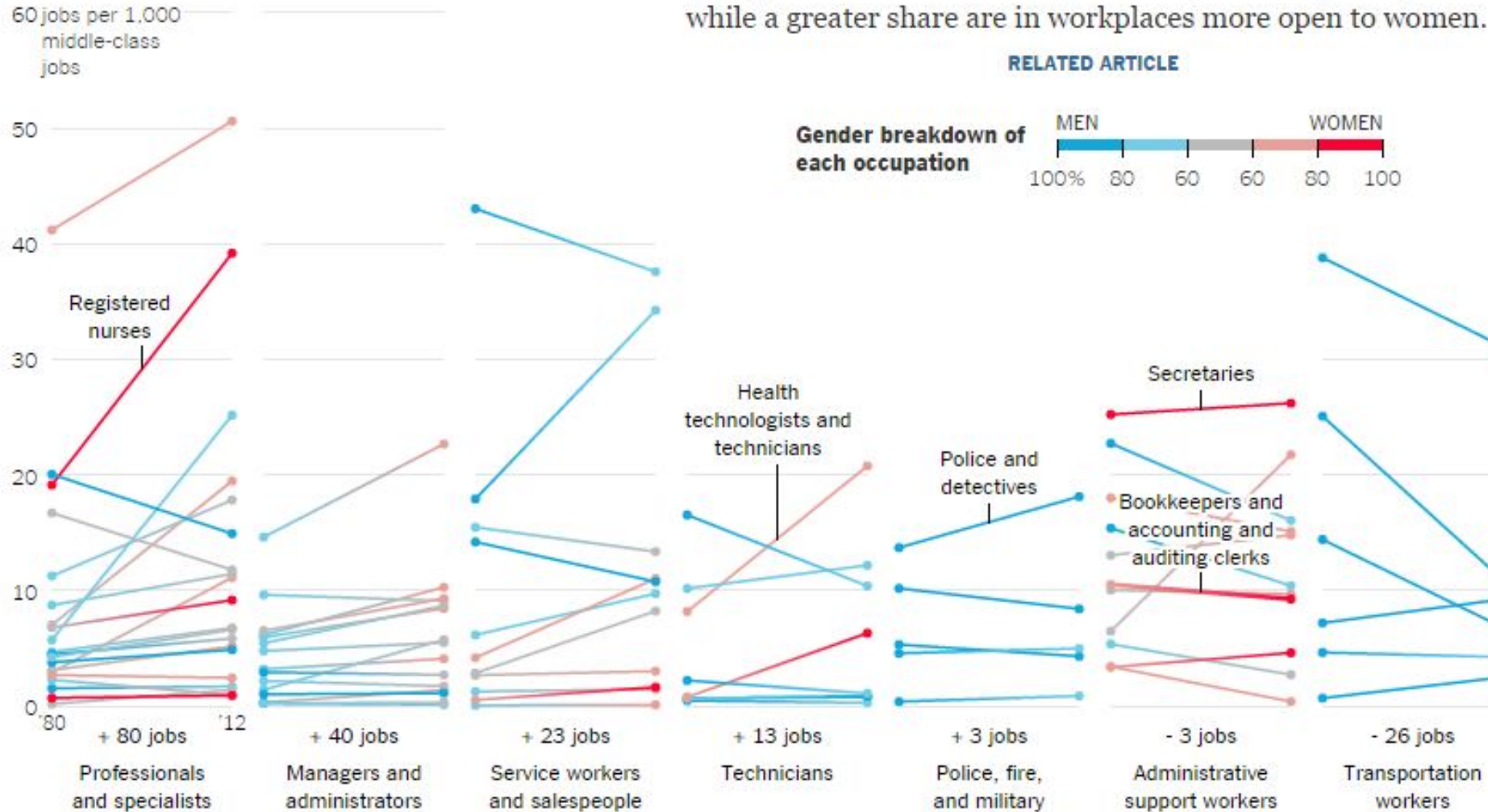


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RELATED ARTICLE



Can We Do This?

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Data on **every major at UIUC** from 1991 to 2018 -- over 25 years!

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...what major has seen the largest growth over these 25 years?

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Data on **every major at UIUC** from 1991 to 2018 -- over 25 years!

...what major has seen the largest growth over these 25 years?

...what about **adjusted for the growth** of Illinois?

(ex: “# of majors /100 Illinois students” instead of “# of majors”)

Project #1: Let's Visualize This!

My Thesis: A slopegraph visualization may be interesting to show trends simplified down to a single line.

....there may be far better ways!

Project #1: Let's Visualize This!

Complete this in a team of [2, 5] total people! :)

...and have three weeks to work on it, but come back ready to present!

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NO 296 THE WEEK AFTER BREAK (Mar. 28)
(Project Work Week)