

**Making
maps
popular
again.**

Lisa
Charlotte
Rost



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It is a well-known problem: Because the US population is not distributed evenly, states with large areas will feature disproportionately on geographical maps, even though they are sparsely populated and have few electoral votes. Montana's area is 15 times that of Vermont's, but they have the same number of electoral votes. The effect is a political bias: Since large rural areas tend to vote Republican, the map shows a far greater proportion of red than the election results warrant.

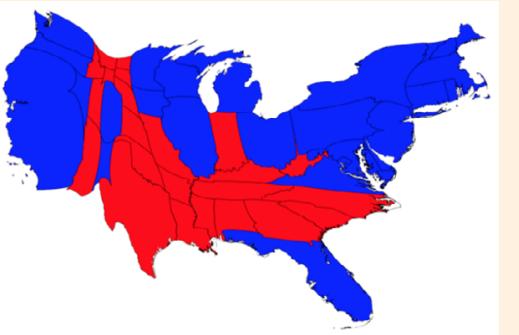
The map, critics argue, is therefore politically [misleading](#) and so "wildly distorted" that it is simply [not useful](#).

The cartogram alternative

A more truthful representation of the data could be achieved using a cartogram, a type of map that adjusts the area of states for their number of electoral votes.

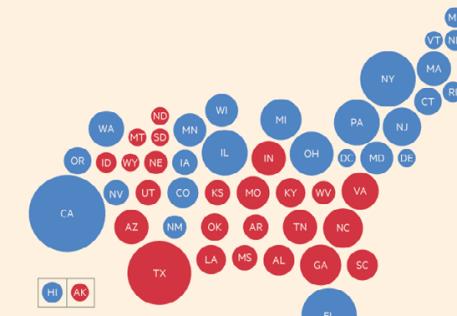
Making a cartogram inevitably means distorting either the states' shape or their position relative to each other, so cartograms trade familiarity for precision.

At one extreme, contiguous cartograms preserve states' borders, but distort their shapes strongly. Mark Newman, of the University of Michigan, produced cartograms of this sort for the 2012 election.

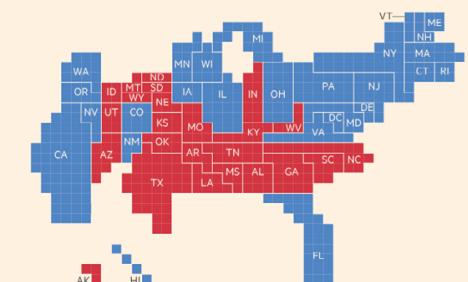


Mark Newman's cartogram showing the 2012 election result © M. E. J. Newman

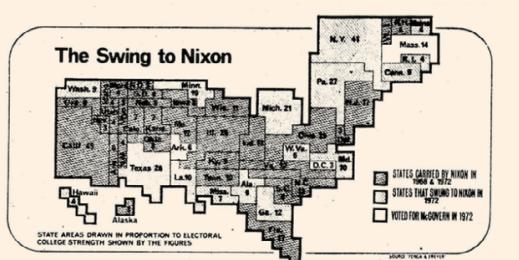
More common in news election reports is another cartogram type that represents each state as a circle or square, resized so the shapes' area is proportional to the state's clout in the electoral college.



The one shown here was published by the Financial Times in 2012, and similar forms have been used this year by [National Public Radio](#) among others.



The tile grid cartogram shows each state as a number of shapes equal to their votes in the electoral college. This allows the states to approximate their shape and borders, and makes it easier to compare states' sizes.

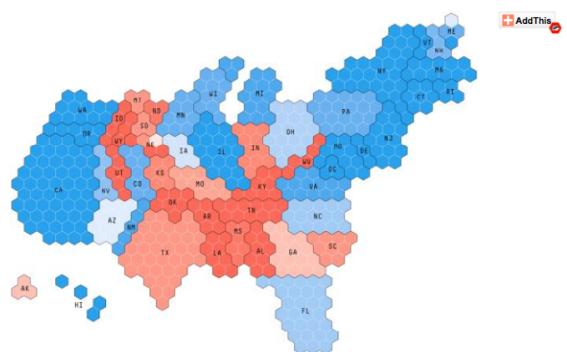


The FT used a tiled grid cartogram as early as 1972, but the format's popularity has grown only recently. It is being used this year, with a variety of tile shapes by FiveThirtyEight, the Wall Street Journal and the Washington Post.

The compromise

Election Maps Can Be Misleading—Here's a Solution

There are better ways to map voting results. So why do we stick with the same old red and blue?



Cartograms adjust the sizes of states to reflect the number of votes they have in the electoral college. Each hexagon on this cartogram from FiveThirtyEight represents an electoral vote.

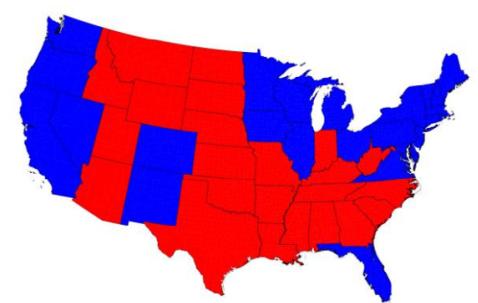
MAP COURTESY ELLA KOEZE, FIVETHIRTYEIGHT

By Greg Miller

PUBLISHED OCTOBER 12, 2016

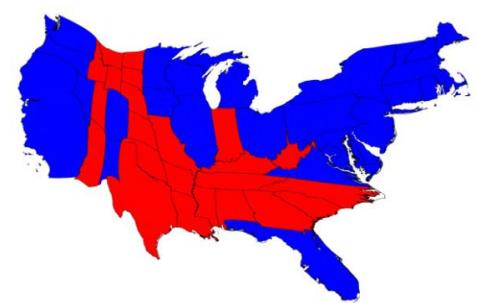
It's hard to look at the news this year without seeing a red and blue map of the United States. These maps are a national obsession, and they have a long history, but they're also deeply flawed.

You can see why in the map below, which shows the results from the 2012 election. The vast sea of red in the middle of the country might lead you to believe Mitt Romney won. But land masses don't decide elections, the electoral college does. Montana may be big, but it has fewer electoral votes than tiny Rhode Island.



This traditional map of the 2012 election makes no adjustments for electoral college votes.

Cartographers have been experimenting with ways to better illustrate election results and polling data. One representation that seems to be getting traction this election is the cartogram, which distorts the shapes of the states so their size corresponds to the number of electoral votes they have. In the cartogram version of the 2012 election map below, you can see more clearly how coastal states and states in the upper Midwest carried the election for Obama.



This map shows the same results as the one above, but with adjustments for electoral college votes. Barack Obama won the states in blue, and the election.

The advantages of the cartogram have led some media outlets to include them in their coverage of this year's election. Both the *Washington Post* and FiveThirtyEight developed cartograms this year to represent presidential polling data.

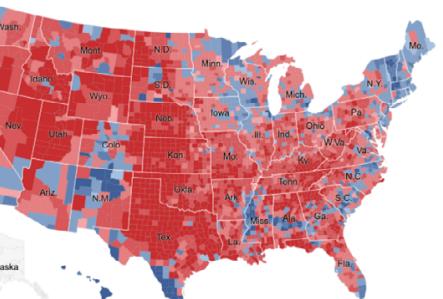
Cartograms have drawbacks, though. They mess with geography and make the states look strangely bloated, blocky, or pixelated, depending on the method used. Some people think they're downright ugly. And for most people they're not as familiar and intuitive to read as an old-fashioned

Tuesday's print edition of *The New York Times* has the most detailed election map we've ever produced: ZIP-code level results for the presidential race spread across four pages, using data from Catalist.

The map is part of a special election section that aims to help explain the political geography of the United States — identifying where people who are conservative and liberal live and pointing out how physical boundaries, like the Rio Grande and the Cascade Mountains, often align with political ones.

This level of detail reveals patterns otherwise masked in a state or county-level map, like the presence of small, Democratic urban areas in even the reddest states, and the stripes of red, yellow and blue along Long Island in New York. When I look at my hometown of Rockford in northern Illinois, the map reveals the delineation created by the Rock River, with the majority-minority ZIP codes west of the river voting more Democratic, and the majority-white ones on the east side voting more Republican.

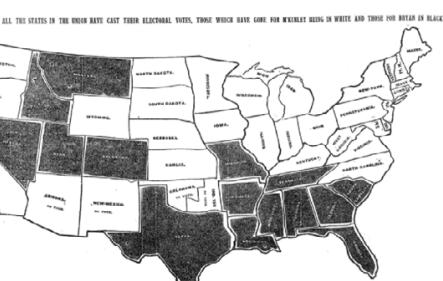
Just like the county-level map below, the bulk of the map is covered in red. Less-populated areas that cover the center of the country tend to vote Republican, while smaller, densely populated places along the coasts and in large cities lean Democratic. This provokes a common complaint about shaded-area "choropleth" maps like this: They are misleading because they seem to suggest that the vast majority of America votes Republican.



The observation is not wrong — a shaded-area map of the United States does not accurately represent population. But the goal of the printed map is not to reveal who won the 2012 election — a simple bar chart would do that much better. The goal is to reveal intricately detailed geographic patterns, like the political striping of Long Island. At the same time, it is extremely accessible (it takes very little effort to locate your hometown).

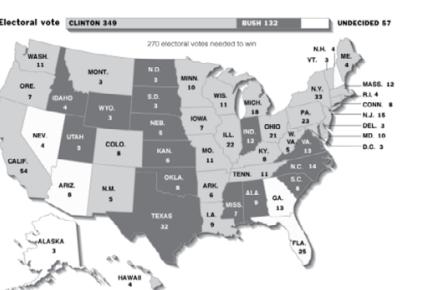
This isn't the only way we represent results on election night. There is no perfect form for showing results in a nuanced way that is at once fair, accessible and revealing. Different types of maps, and charts for that matter, are better at each of these things than others.

Since at least 1896, *The New York Times* has published what is now the most iconic type of election map — a shaded choropleth. If you know your geography, you can quickly identify who won which state. They are also really good at revealing regional patterns, like how the South voted together in 1896.

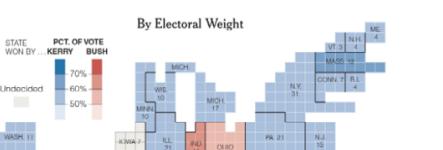


But like the ZIP-code map in Tuesday's print edition, this kind of map isn't ideal for showing who won the election. Elections in the United States are ultimately won with electoral votes, allocated to the states based on their population. As time went on, *The Times* labeled the states with the number of votes they got, but in most cases it would take readers entirely too long to add them up and determine a winner.

By at least 1992, *The Times'* Graphics Department started running charts alongside these maps, to give readers a quick and accurate measure of the result.

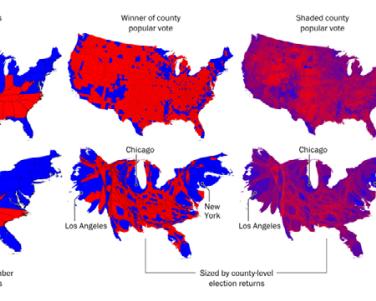


To address the incongruity between the size of the states and their electoral heft, *The Times* will frequently publish another type of map, called a cartogram, like this one from 2004.



Mark Newman, a professor of physics at the University of Michigan, has found a novel solution to this problem.

He's published cartograms of election results since 2004, using software he wrote based on a method he co-invented. His maps distort state and county geography by population, so small states and urban counties that were outweighed by a sea of red now bulge and hold their own against the more sparsely populated parts of the country.

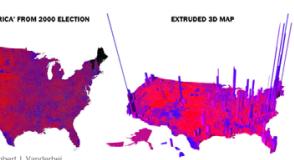


"Once people saw the map rescaled, they realized that it was a better representation of the outcome of the election," Newman said. He's made cartograms of this sort with other data sets, but the first set of election cartograms he published in 2004 were viewed more than a million times. "They caught people's imaginations the most," he said.

Robert J. Vanderbei, a professor at Princeton, has also tried different methods to show results. When he saw a county results map in USA Today the morning after the 2000 election, he noticed the county he lived in was shaded red. Puzzled, he looked up the original data and found that his county broke 51-49 toward Bush.

[Latest results from the Post-ABC presidential tracking poll]

"Why not make it purple?" he said. A week after the election, he published a map called "Purple America," which shows each county in a continuous scale from blue to red. He's also taken his maps into the third dimension, extruding the counties by margin of victory.



Maps courtesy of Robert J. Vanderbei

Approaches like these provide a greater level of nuance that is lost in more binary approaches.

I Most of Trump's charts skew the data. And not always in his favor.

For example, nearly 900,000 people in Los Angeles County voted for Mitt Romney. That enormous number of votes amounts to just under 28 percent of vote there, and it's a detail that's glossed over when that county and the rest of the state are painted blue.

So, why don't we see more maps that accurately portray this nuance in popular media?

Things take time

Our national tradition of election maps has a rich history, dating at least to the late 1800s.

"We think we've invented the election map, but it's been done before," said Susan Schulten, chair of the history department at the University of Denver. She discovered what may be the earliest example of a county-level map showing election results, published in 1883.

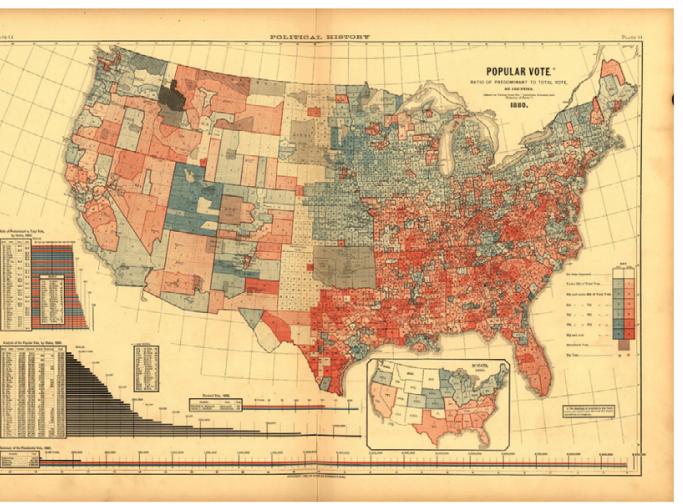
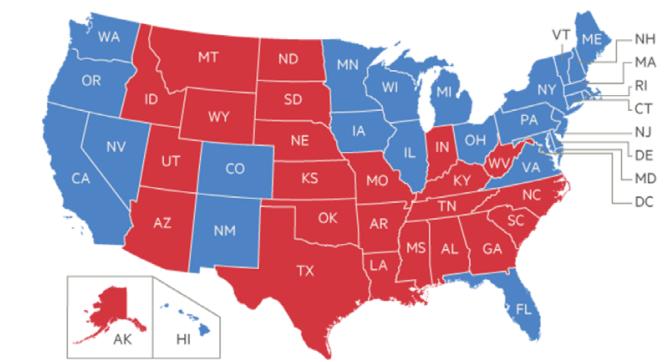
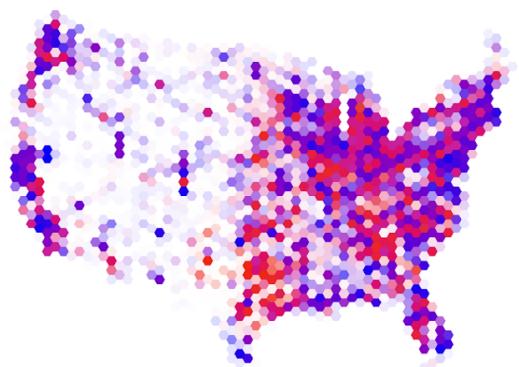
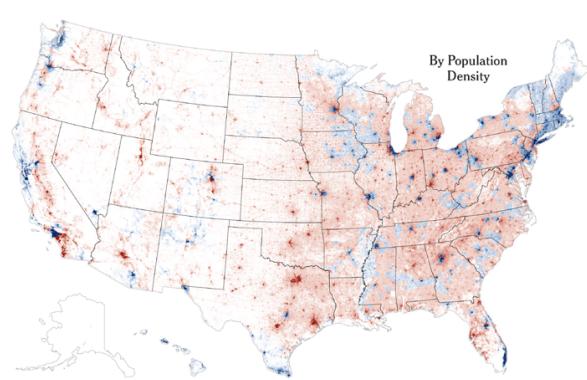
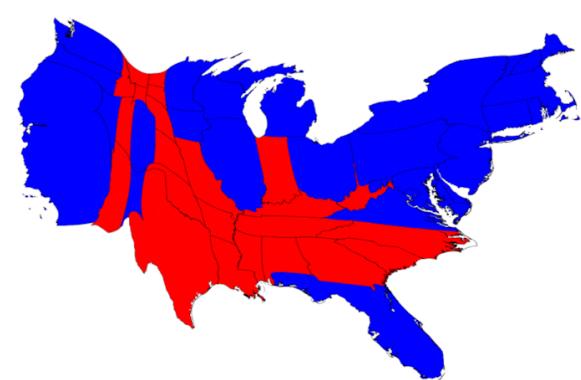
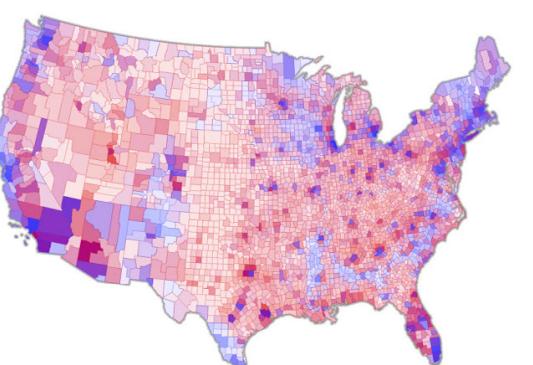
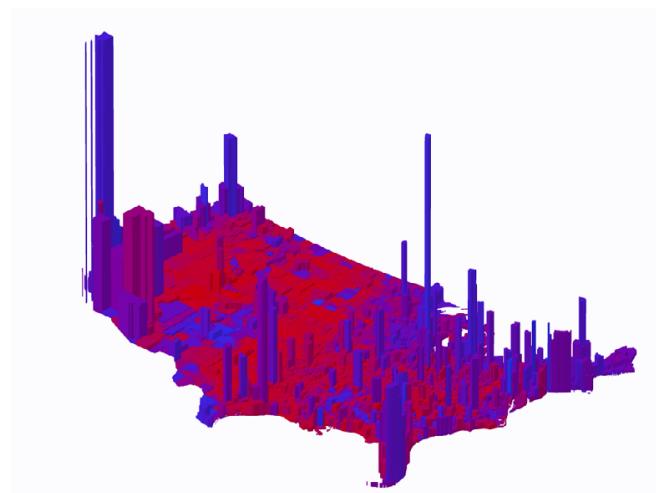
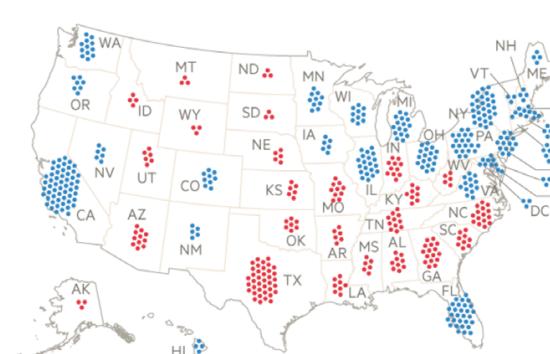
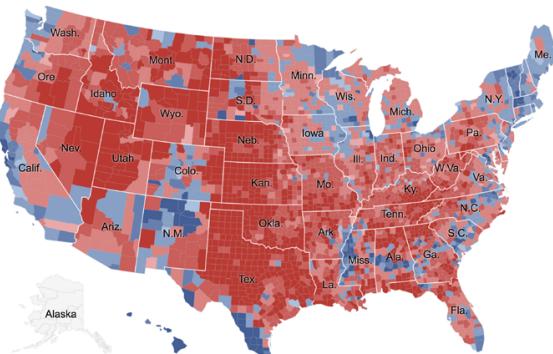
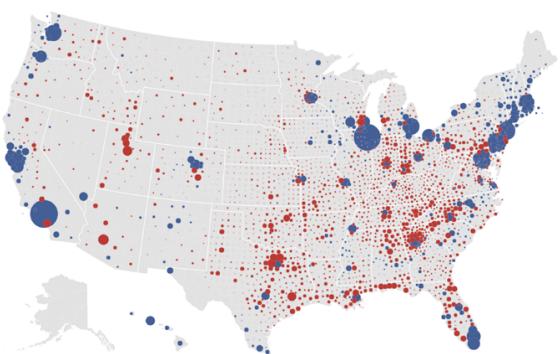
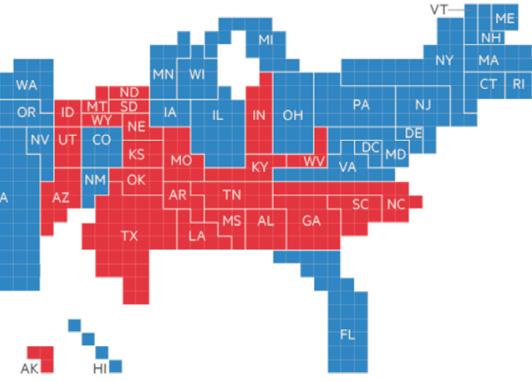
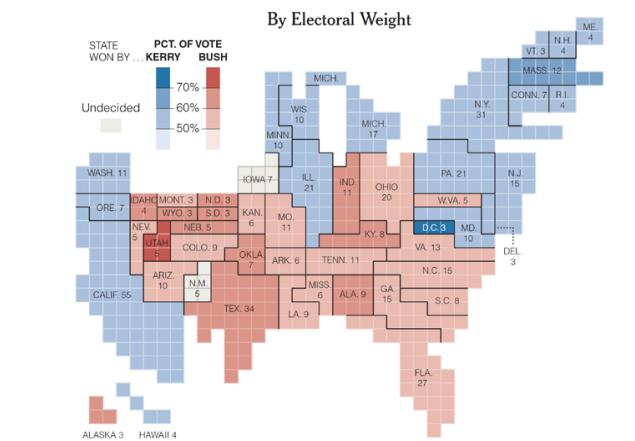
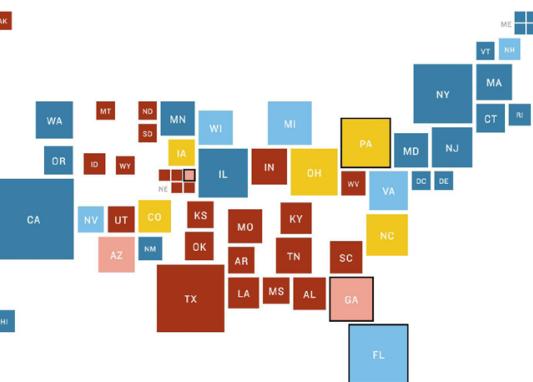
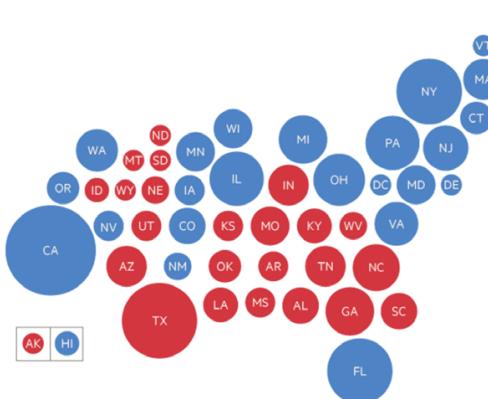


Plate 11 from Scribner's statistical atlas of the United States, published in 1883.

This example comes from a statistical atlas and shows the result of the 1880 election using the familiar red and blue color scheme with different shades for margin of victory. One thing you will notice: The colors are flipped. Republicans are in blue and Democrats are in red.

The color convention we know today began to be worked out in the mid-19th century. The increasing prevalence of color



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**electoral
college votes**

How to show?

**Geographical
map**

Cartogram

What to show?

electoral
college votes

chance
of winning

popular
votes

...

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Why show popular votes?

- 1. Explain.**
- 2. How we see them.**
- 3. How we see us.**
- 4. Less surprises.**

Why show popular votes?

- 1. Explain.**
2. How we see them.
3. How we see us.
4. Less surprises.

(embarrassing confession.)



Presidential Forecast Update: Clinton 84%, Trump 16%



The New York Times

Presidential Forecast

Friday, November 4, 2016

Hillary Clinton has an 84% chance
to win →



84%

Hillary Clinton

16%

Donald J. Trump

Good morning on this, the fourth day before Election Day.
Just under 100 hours until the first polls close. Heading



Reply





Presidential Forecast Update: Clinton 84%, Trump 16%



Here are the [latest national polls](#) from the past week:

Polls	Dates	Clinton	Trump	Johnson
Rasmussen	11/1 - 11/3	44	44	4
IBD/TIPP	10/30 - 11/3	44	44	4
Lucid/The Times-Picayune	10/31 - 11/2	44	39	6
ABC News/Washington Post	10/30 - 11/2	47	44	3
Ipsos/Reuters	10/29 - 11/2	45	37	5
UPI/CVoter	10/27 - 11/2	49	48	—
YouGov/Economist	10/30 - 11/1	46	43	4
New York Times/CBS News	10/28 - 11/1	47	44	—
Rasmussen	10/27 - 10/31	44	44	5
Politico/Morning Consult	10/29 - 10/30	42	39	7
Lucid/The Times-Picayune	10/28 - 10/30	42	41	5
Politico/Morning Consult	10/27 - 10/30	52	47	—
ABC News/Washington Post	10/26 - 10/29	46	45	4

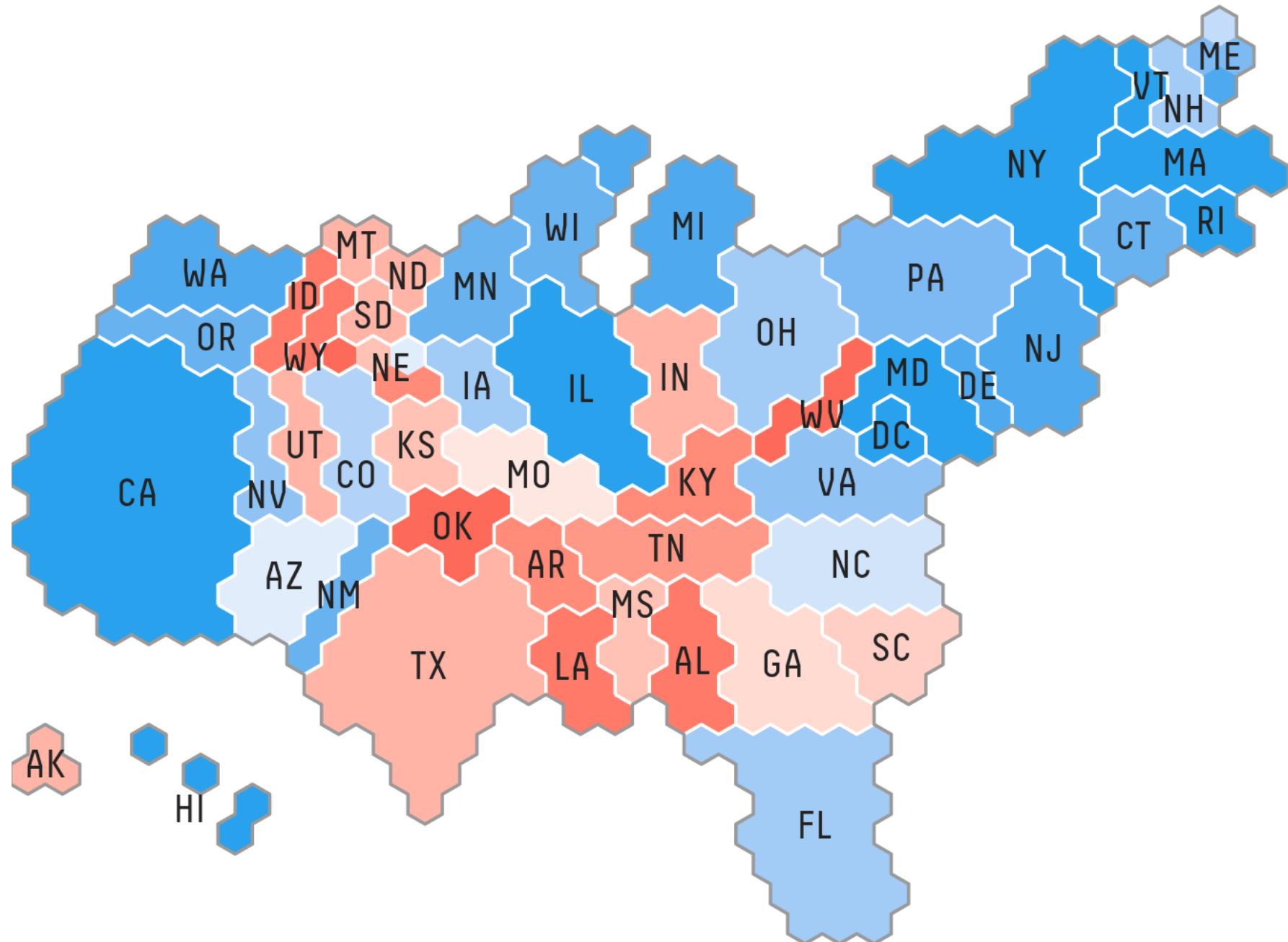
[The Upshot Forecast](#) | [State Forecasts](#) | [Latest Polls](#) | [Senate Forecast](#)

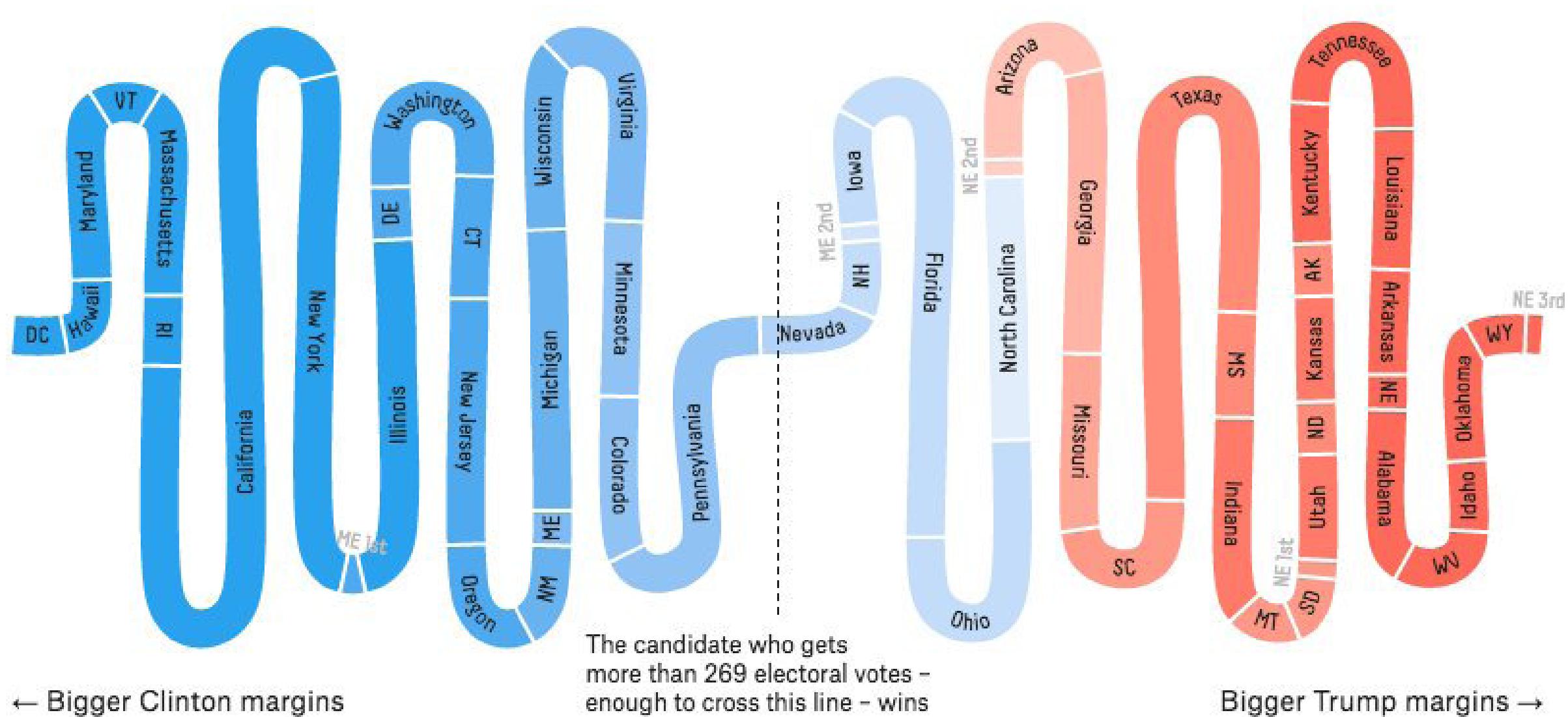
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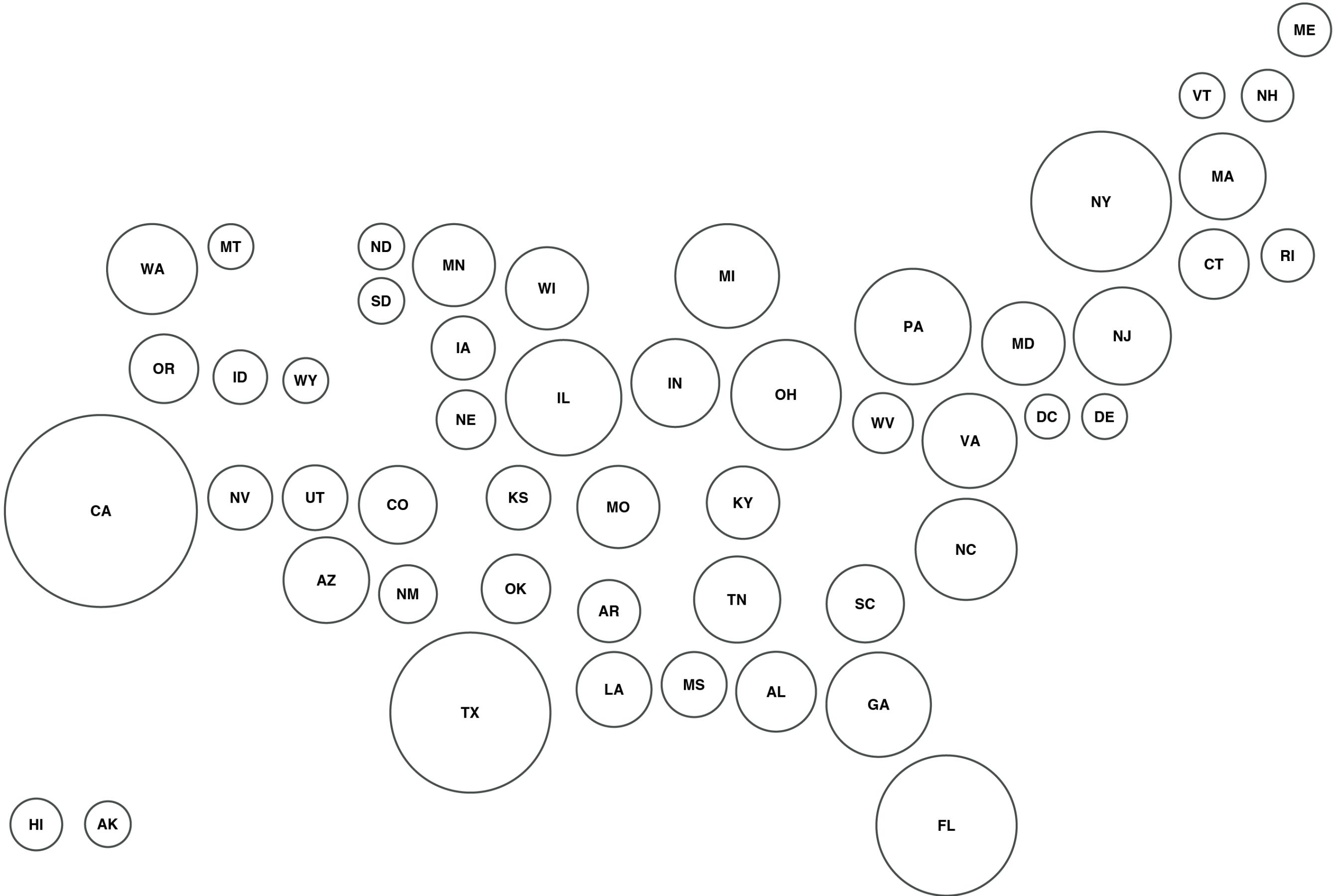
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Popular vote

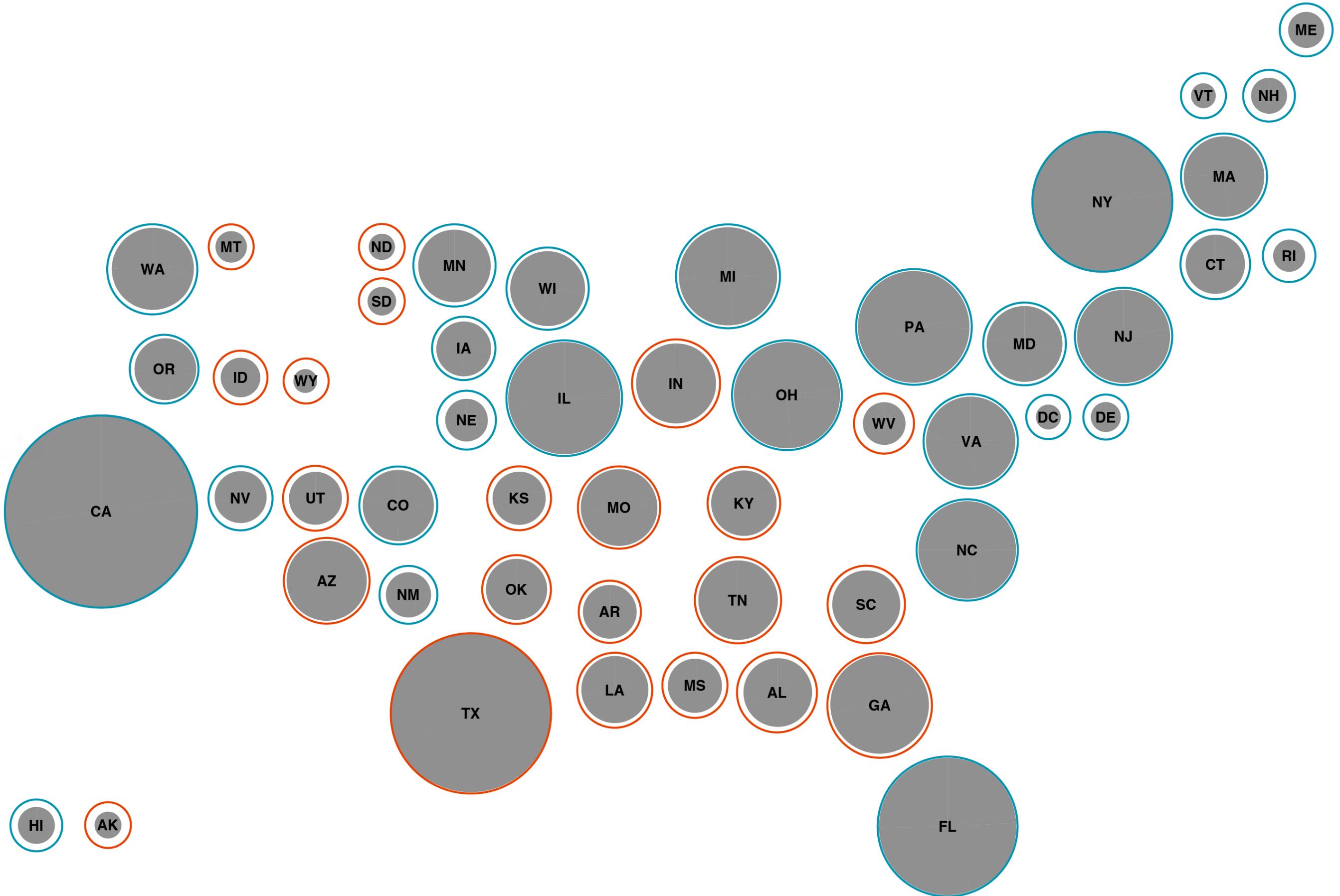
■ Hillary Clinton	49 . 2%
■ Donald Trump	42 . 9%
■ Gary Johnson	6 . 4%
■ Other	1 . 5%



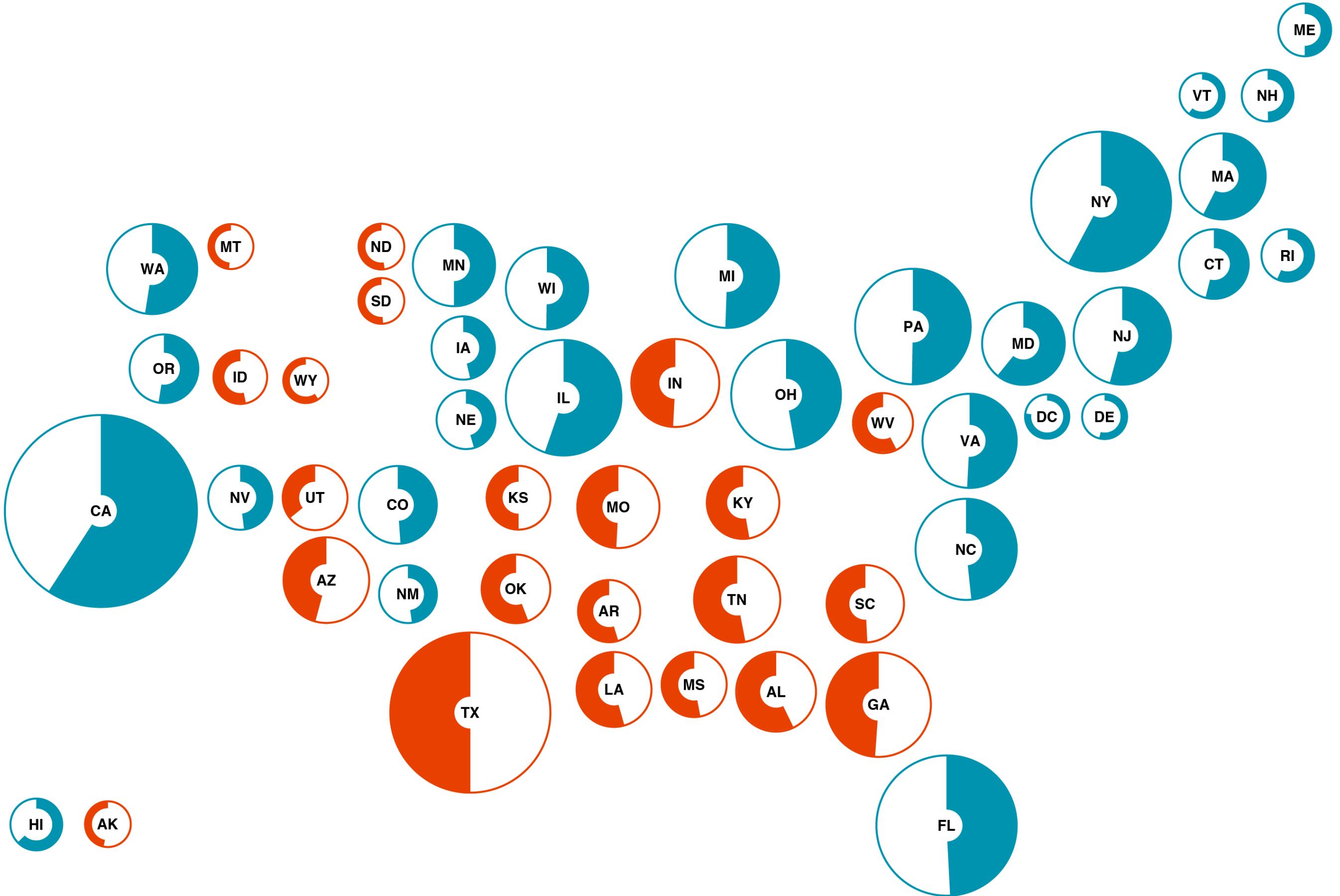
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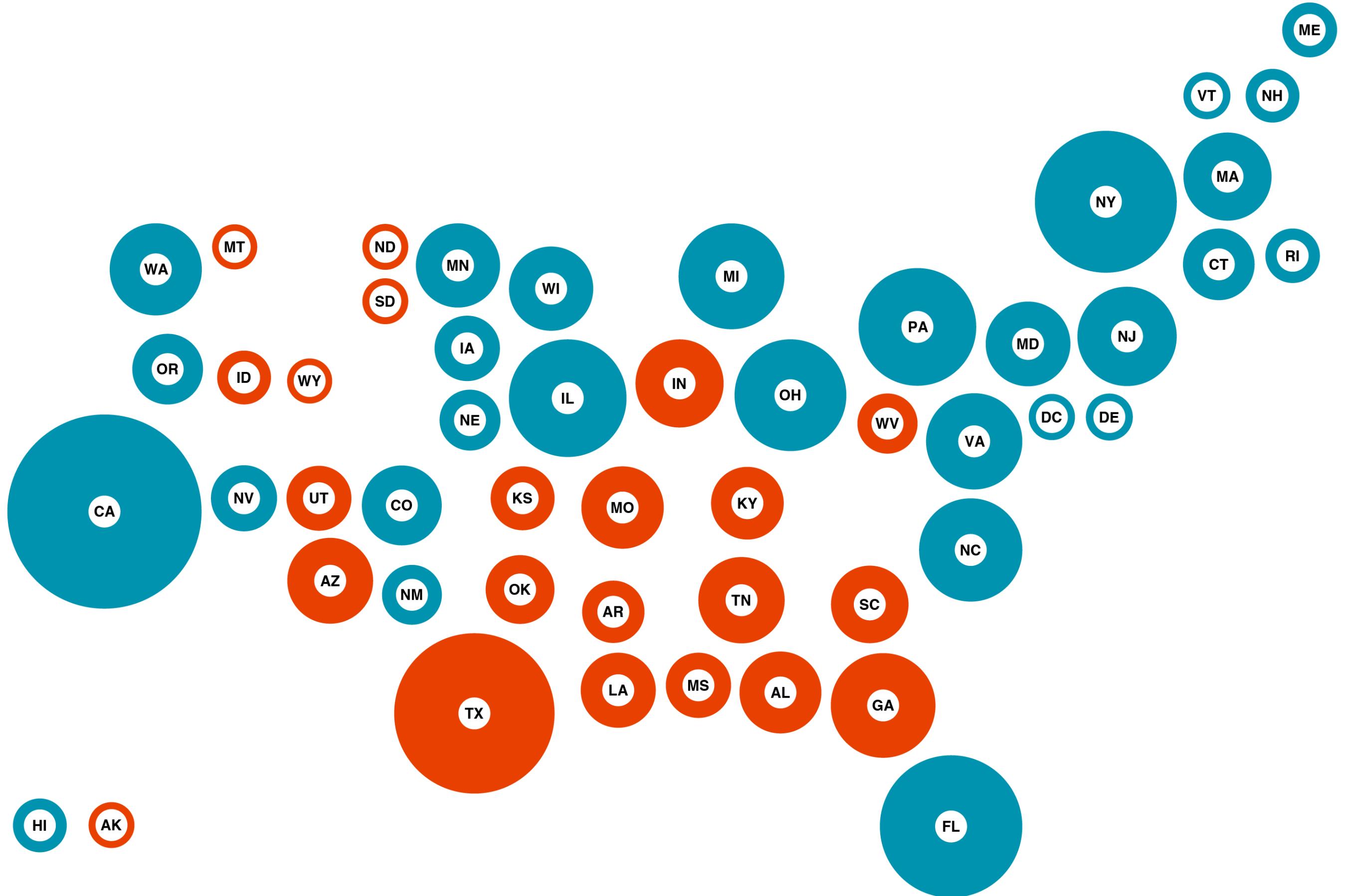
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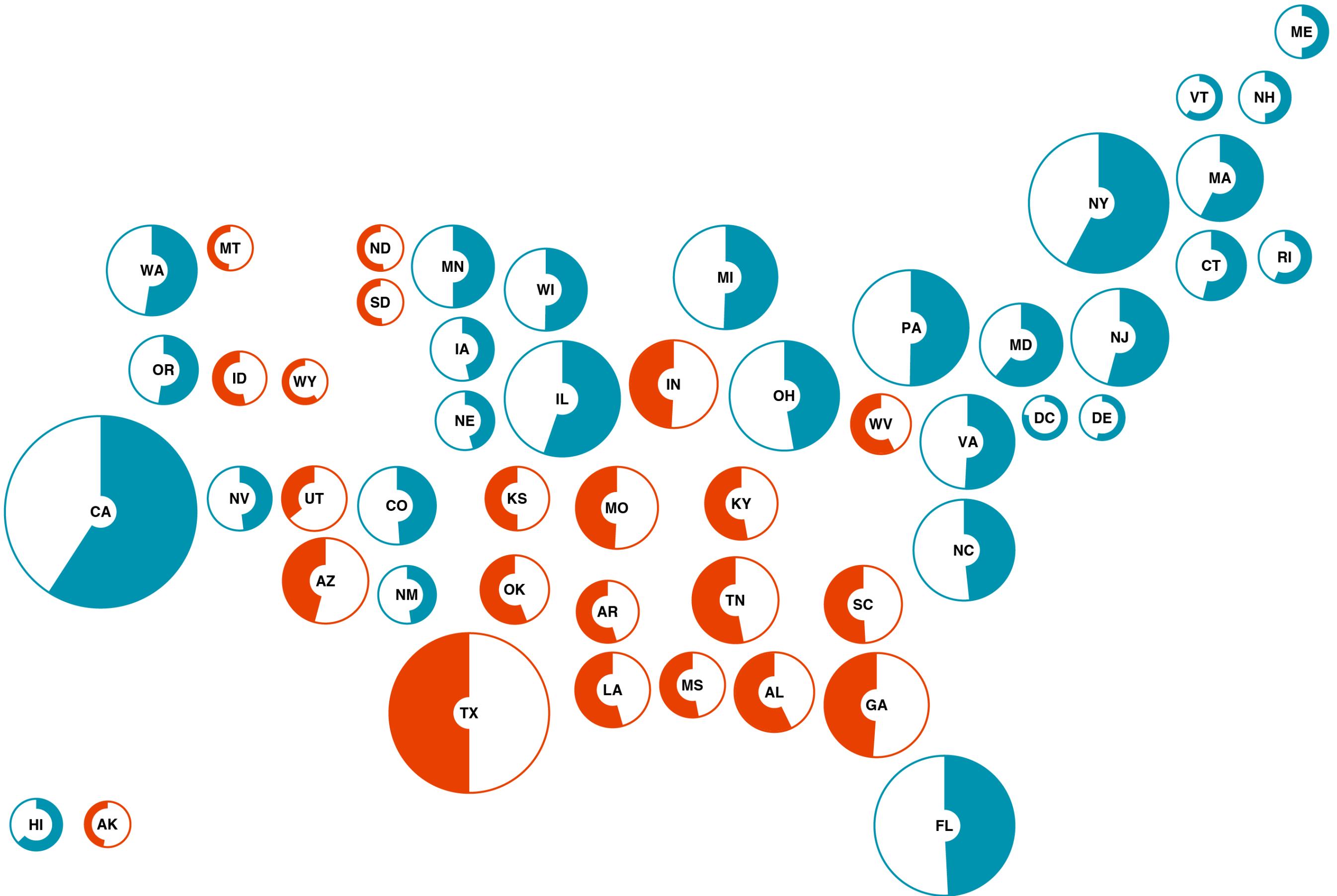
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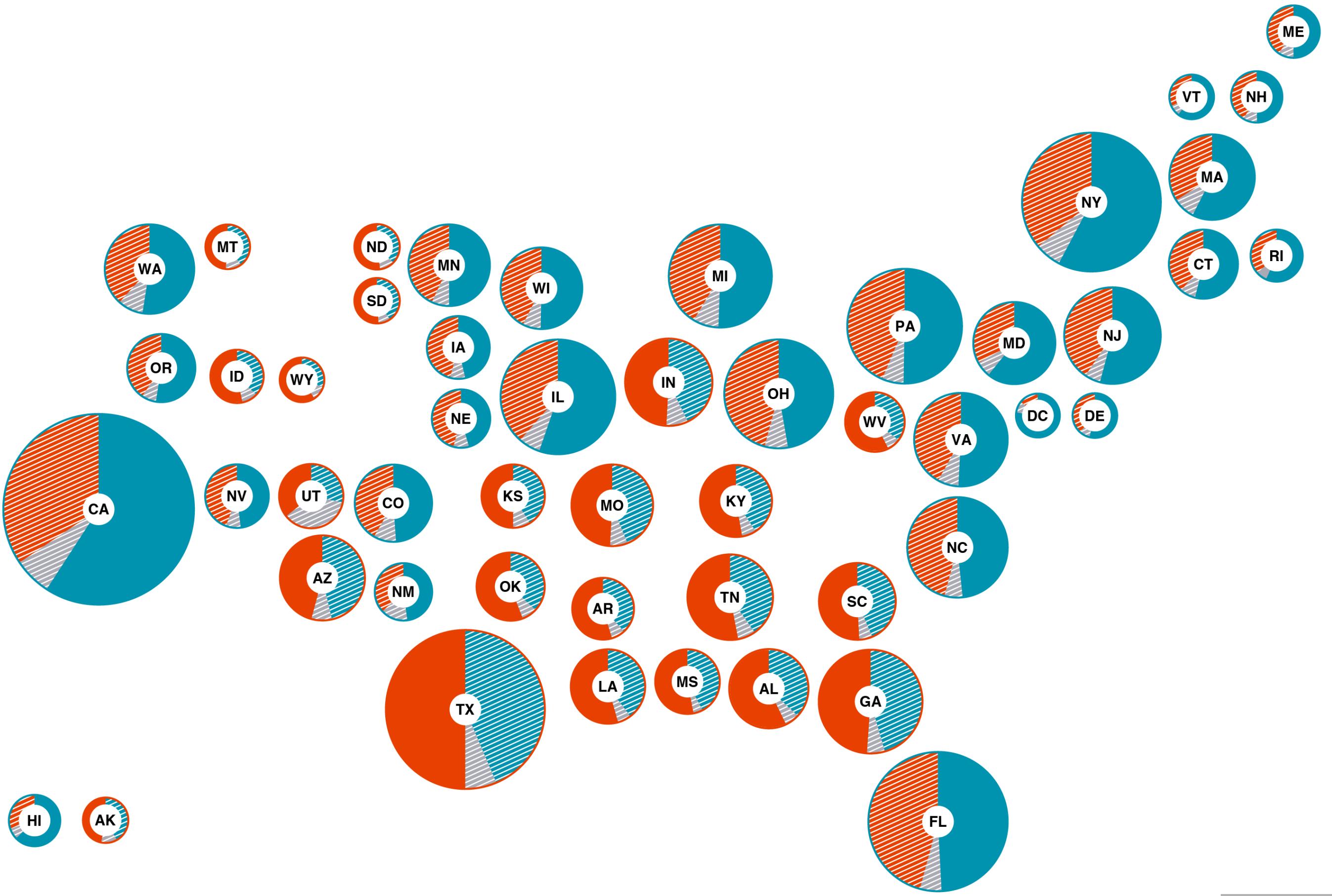
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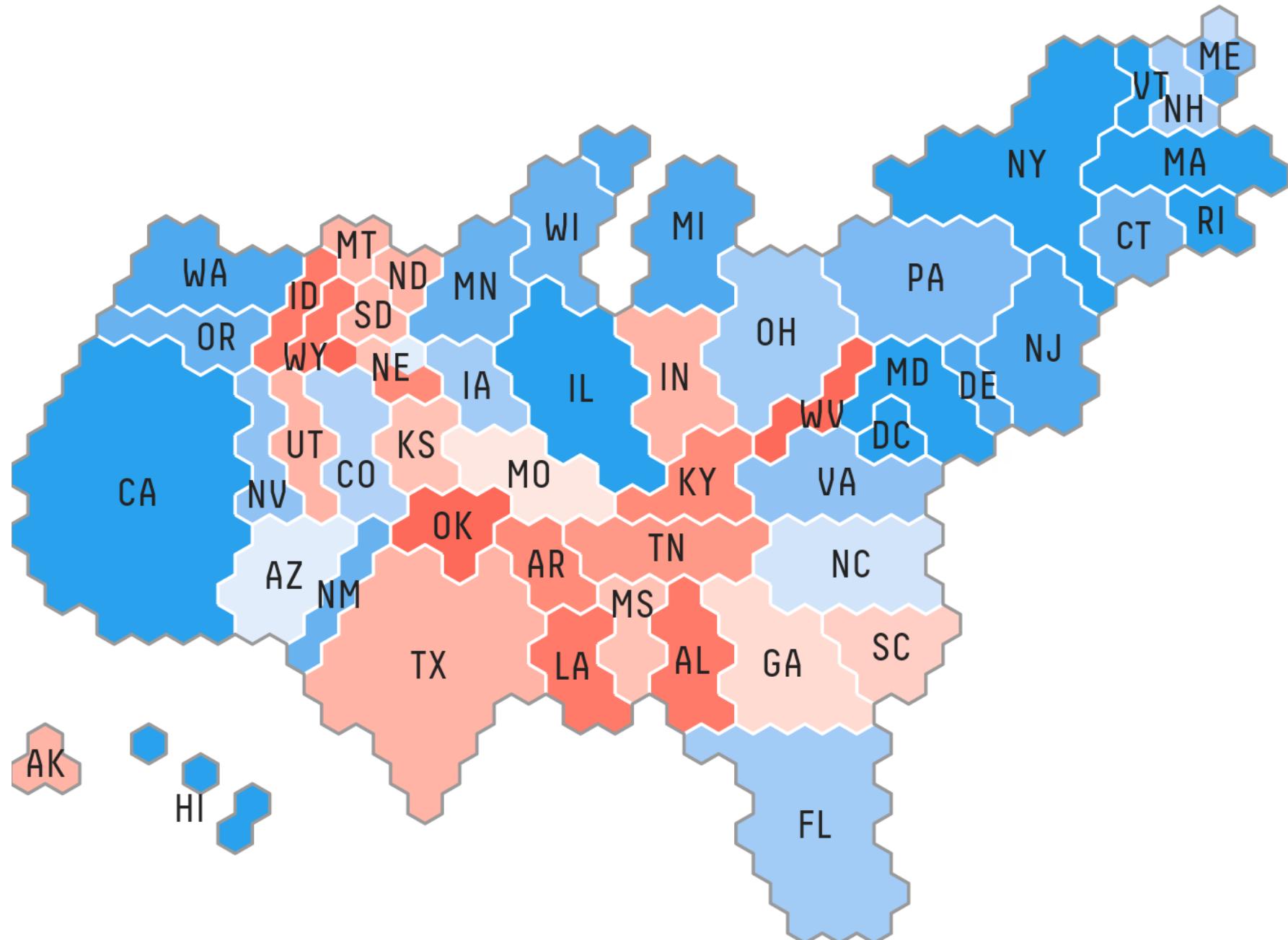
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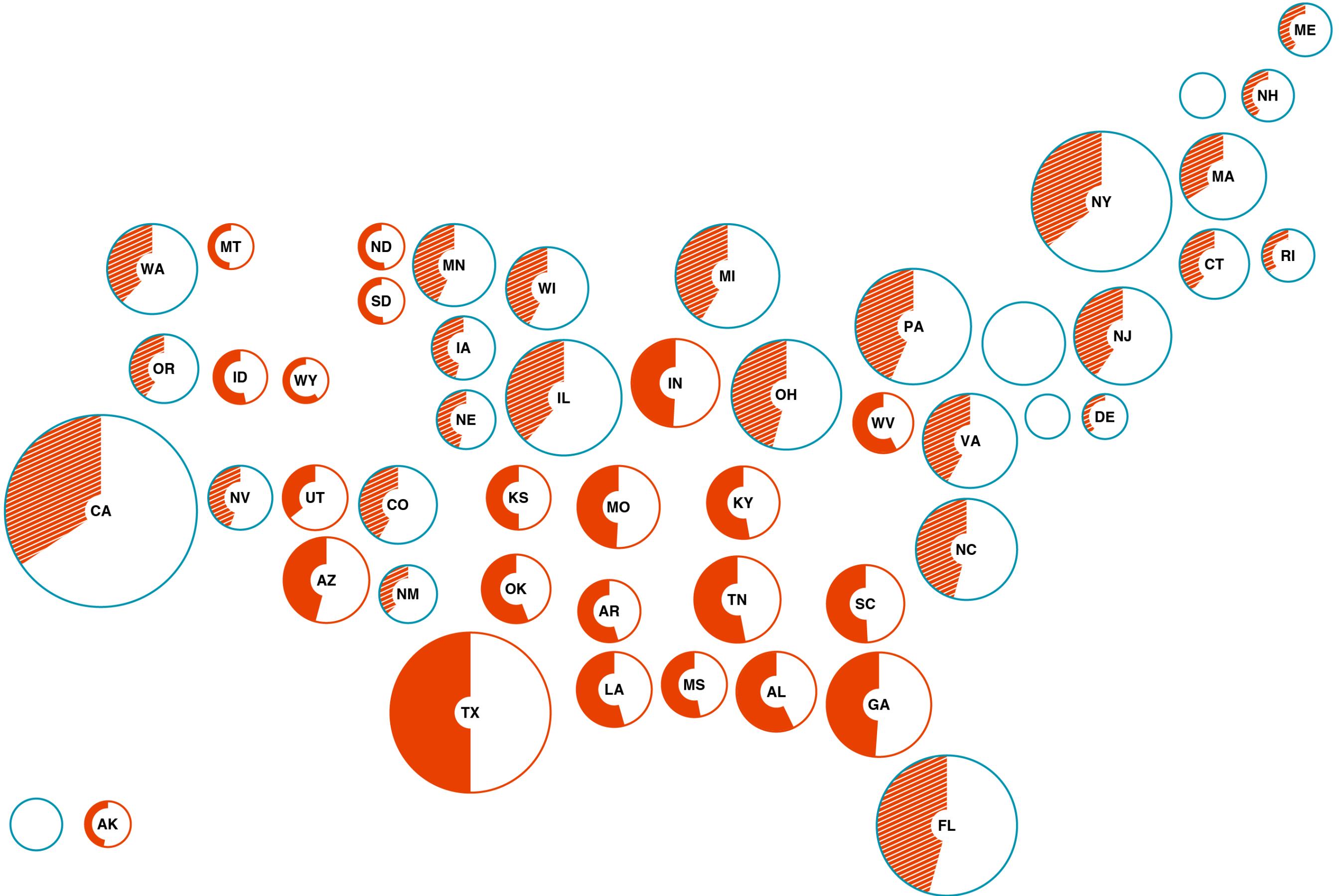
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1. Explain.
2. How we see them.
3. How we see us.
4. Less surprises.

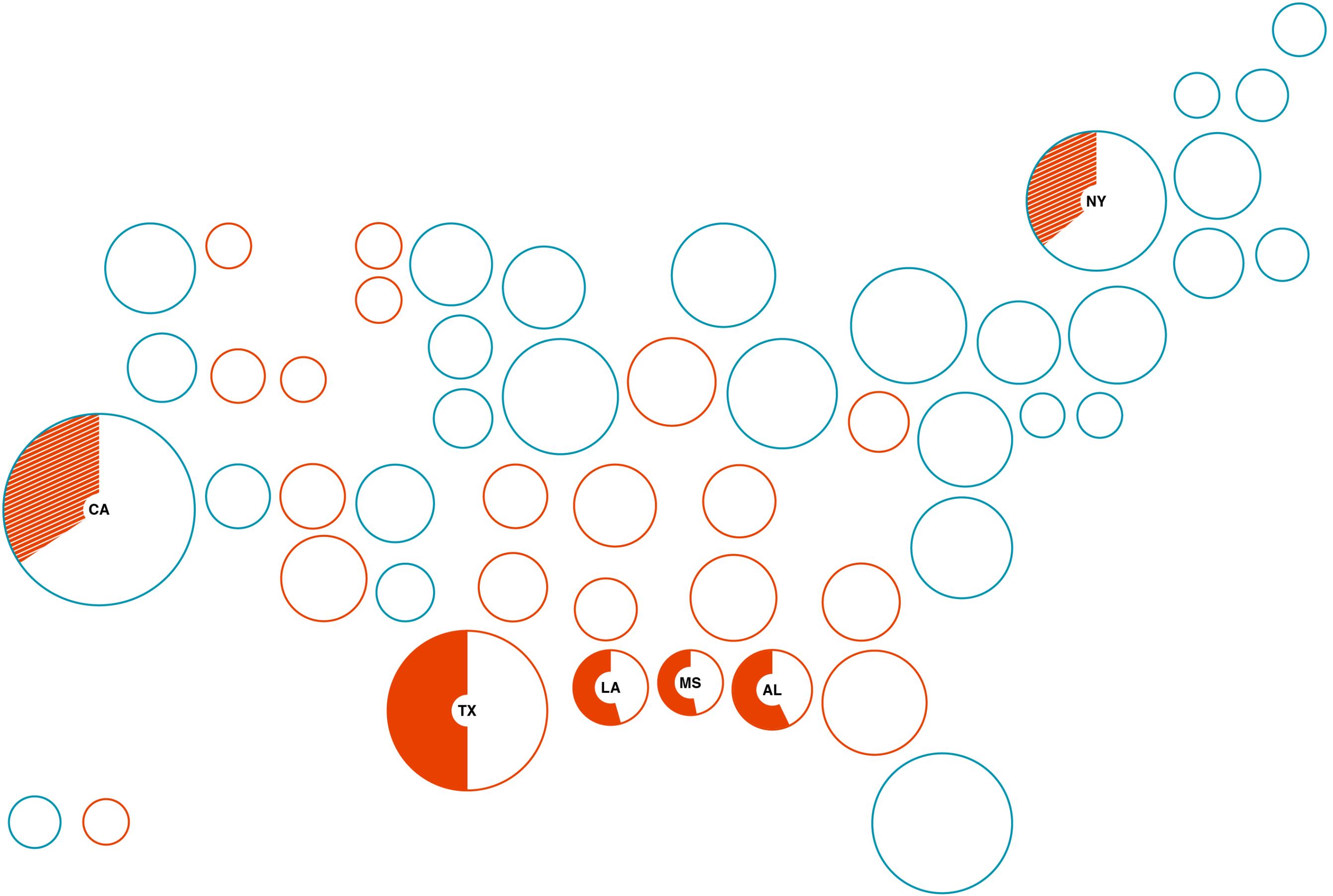




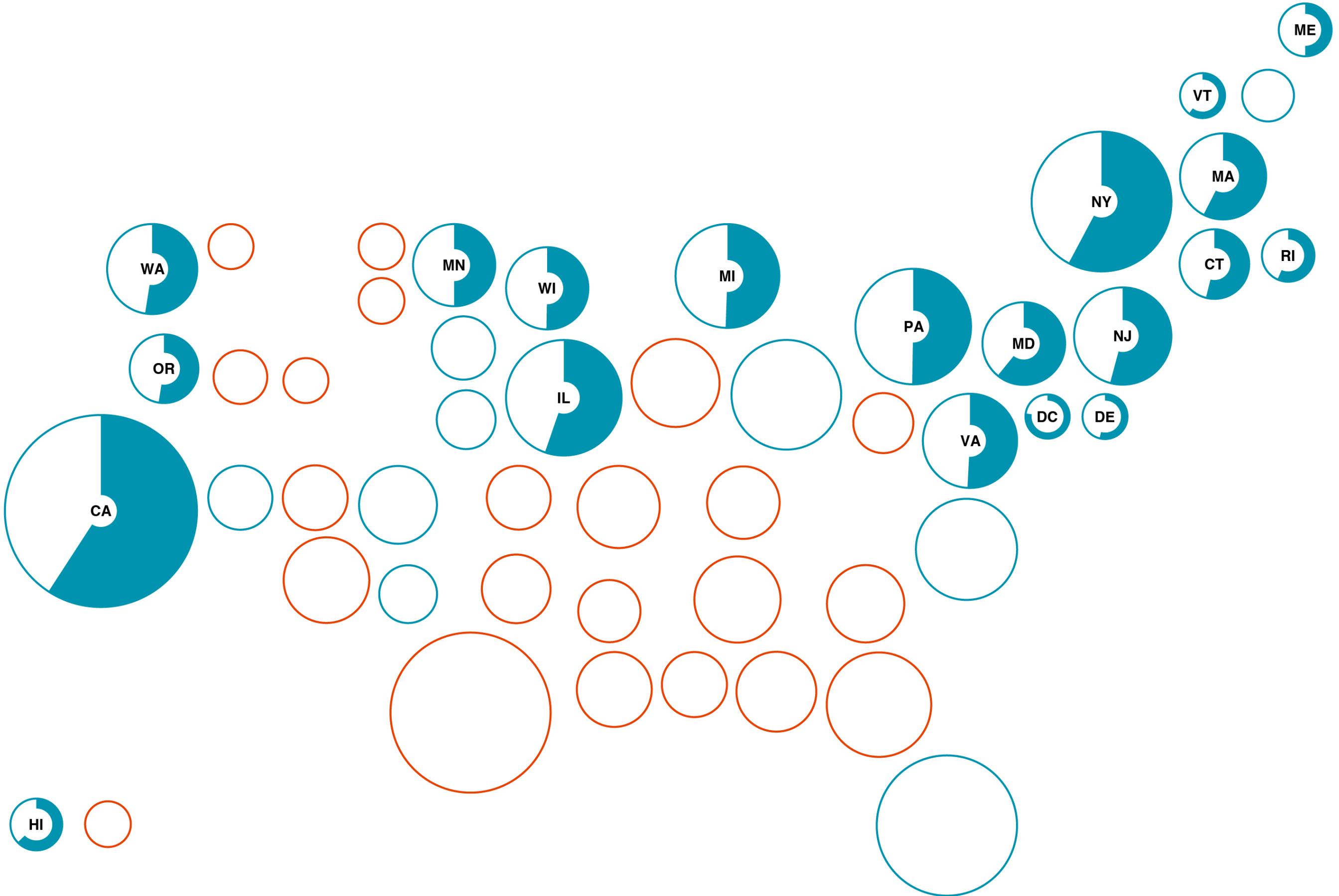
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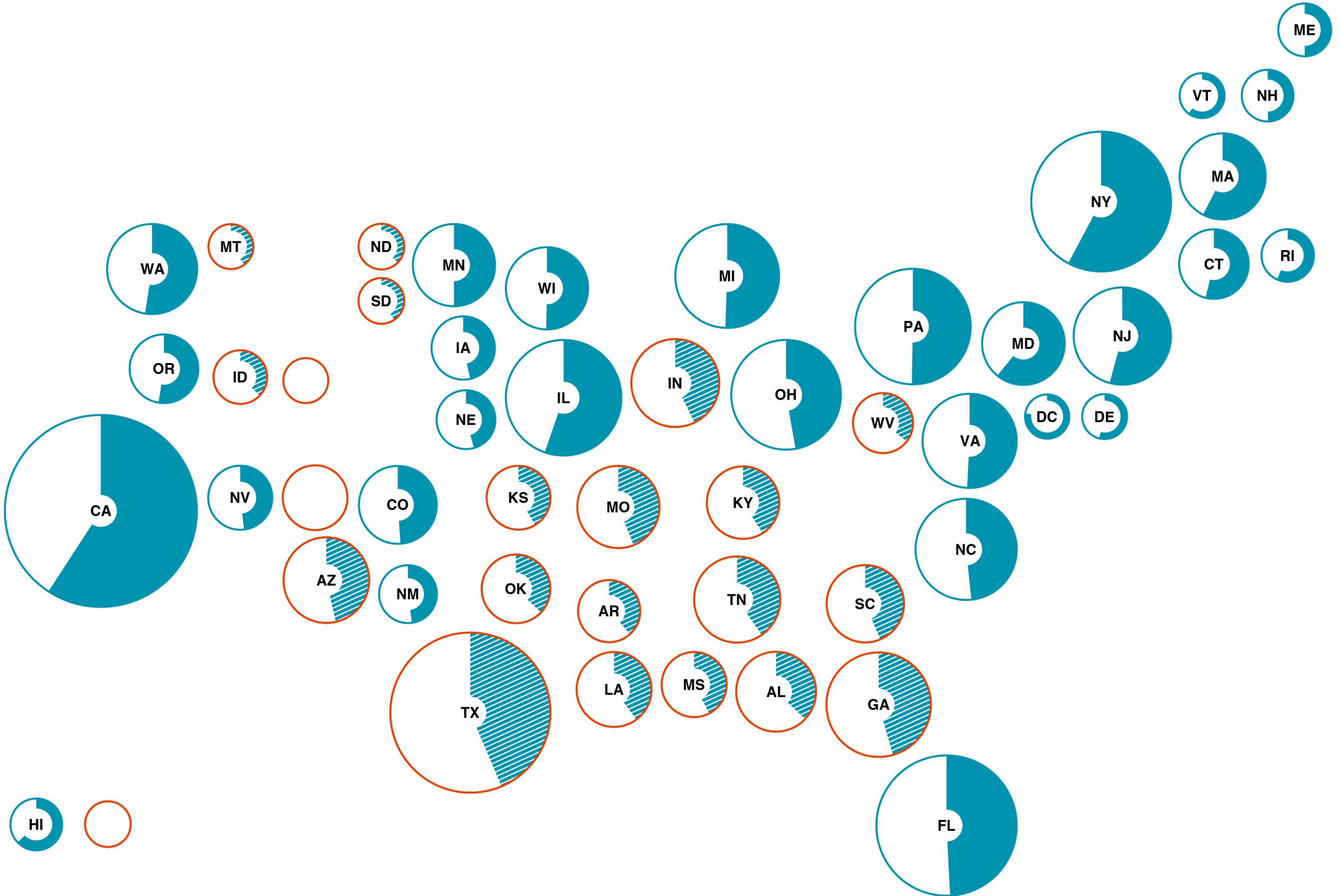
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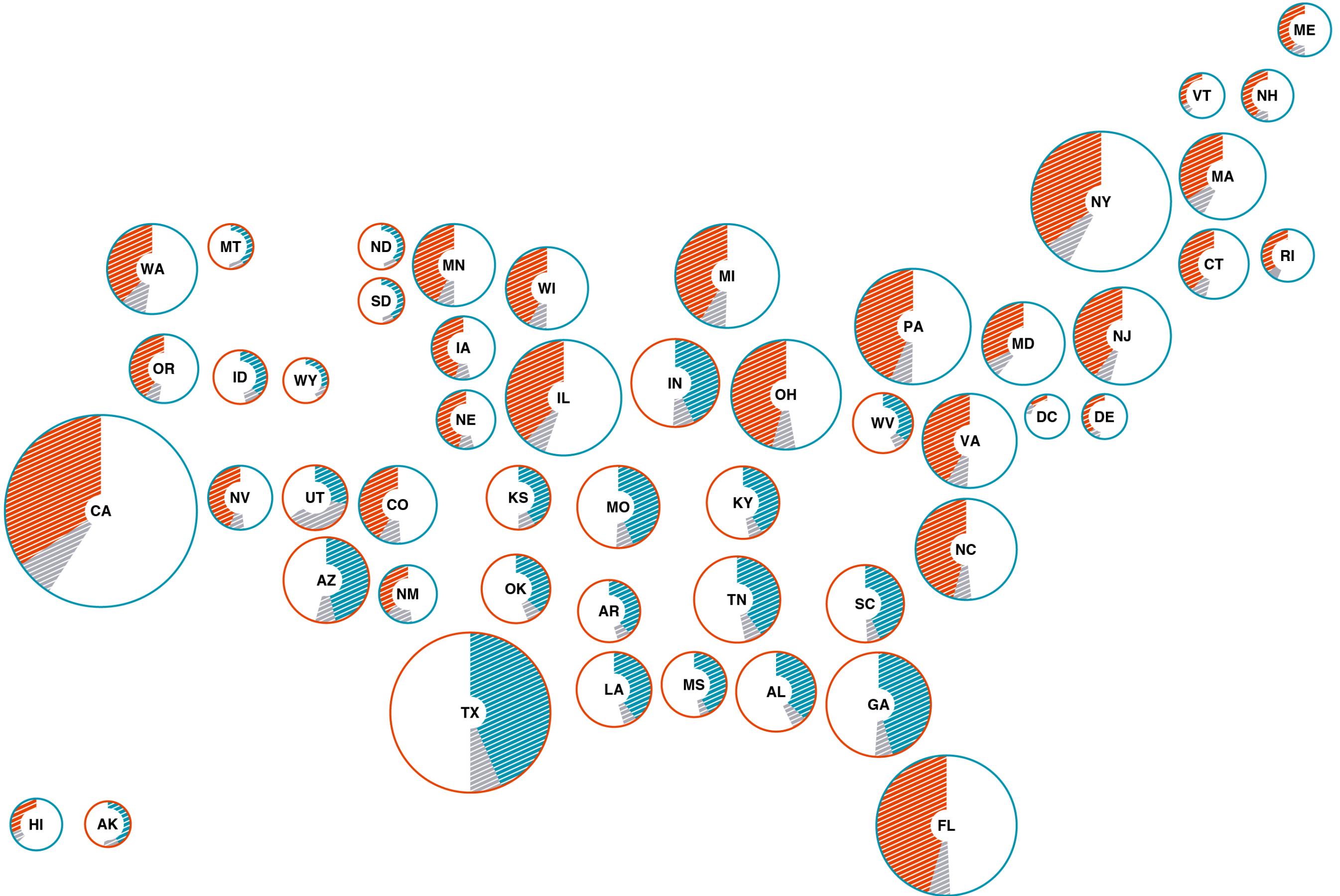
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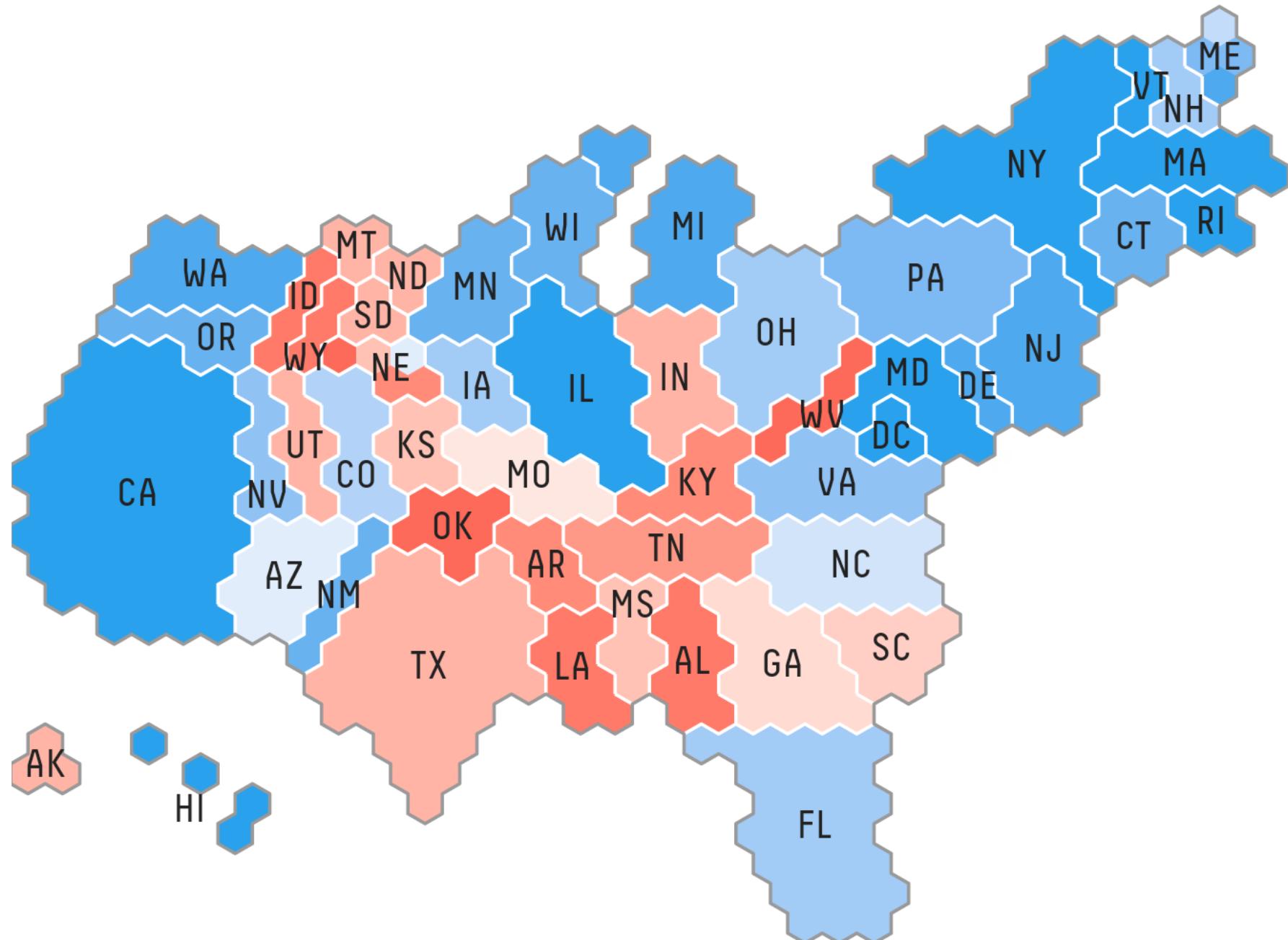
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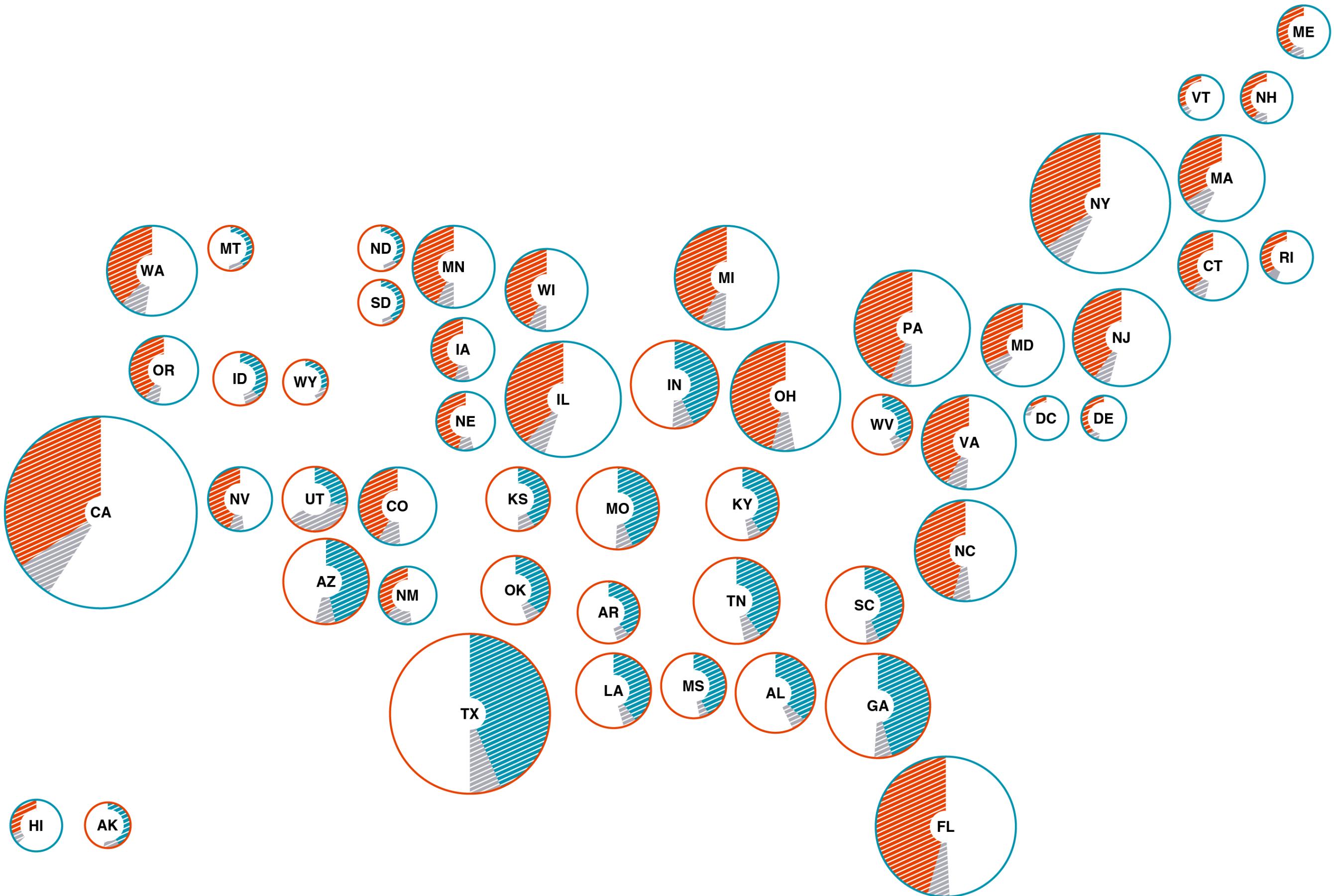
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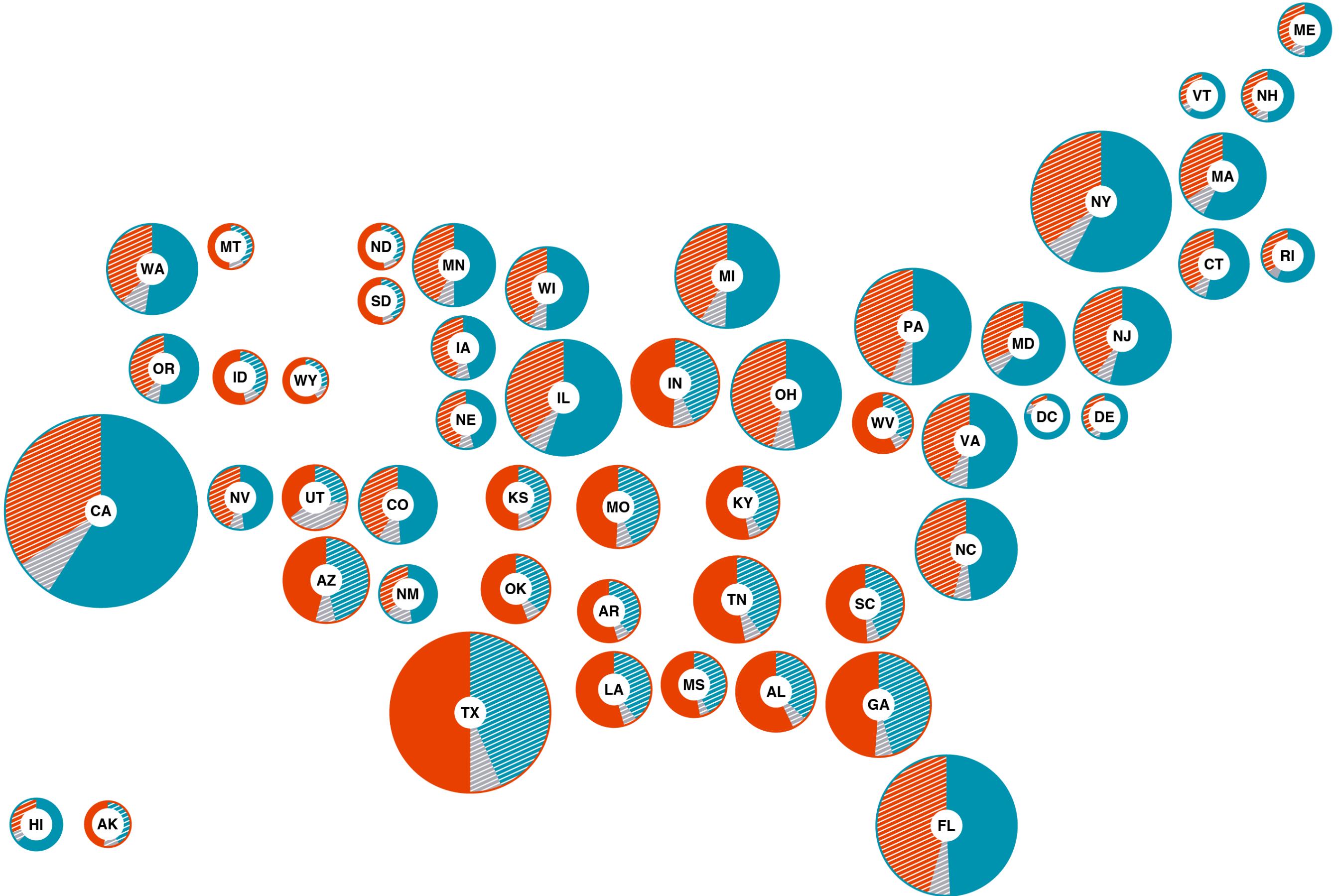


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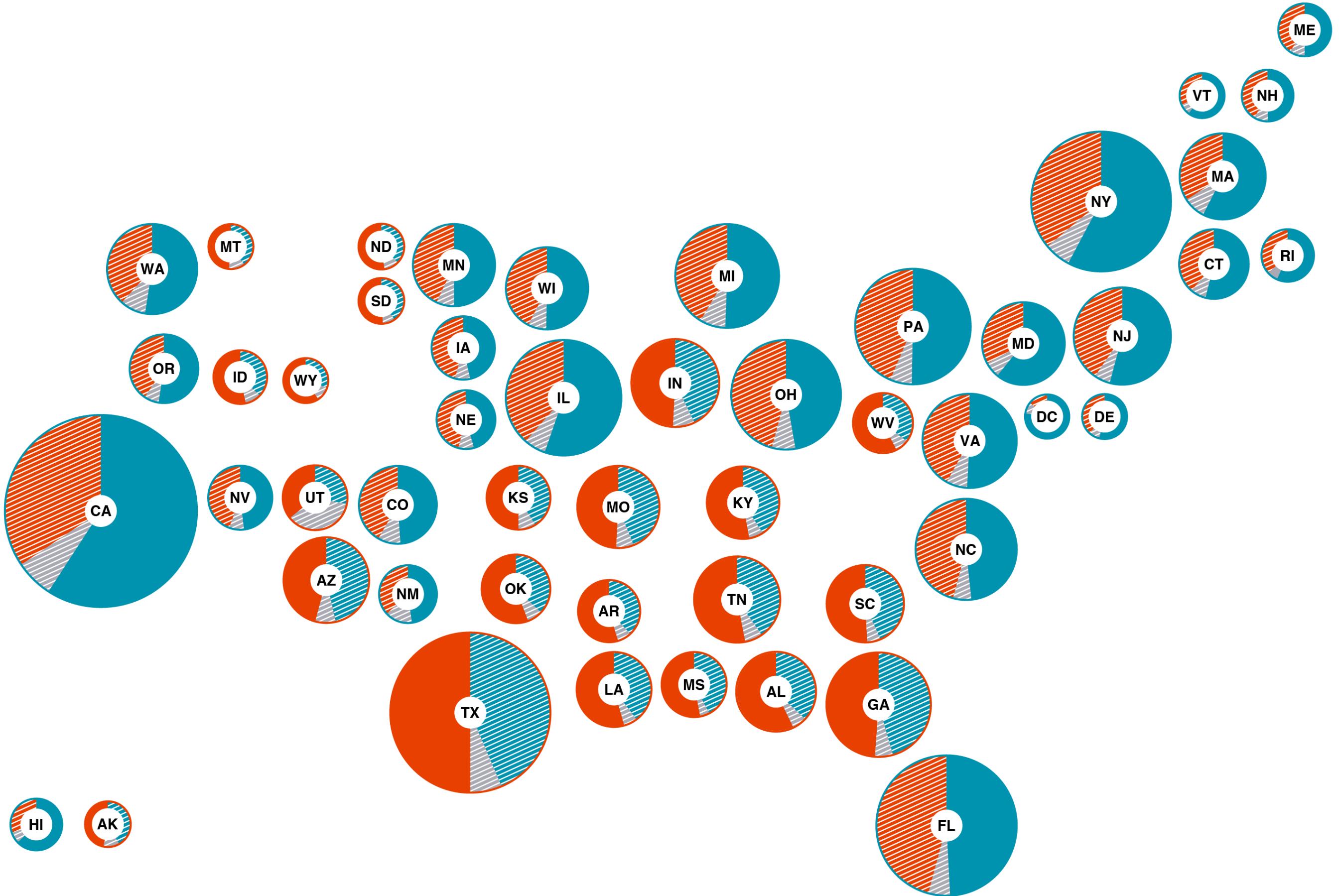
Finding ourselves on the map.



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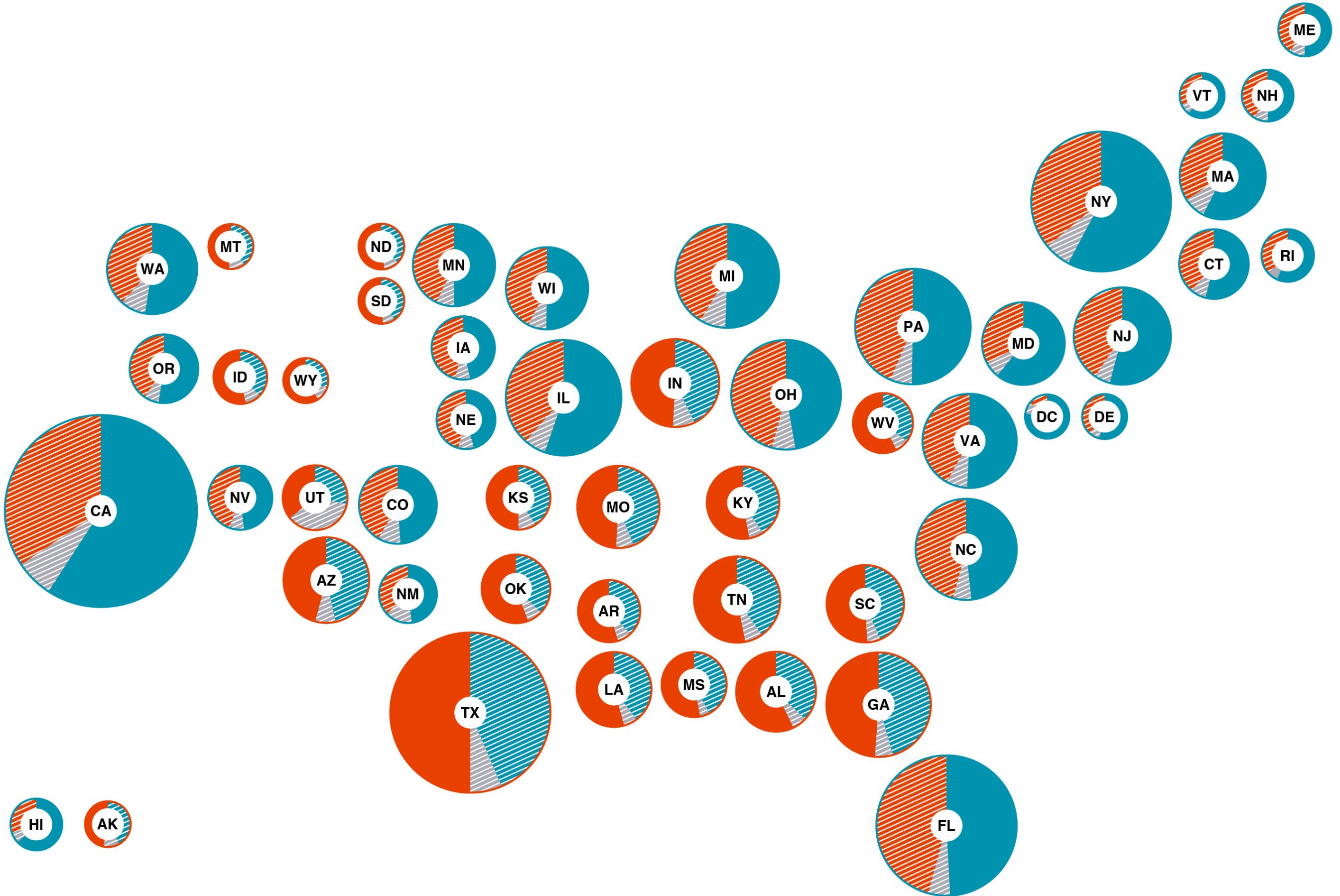
Why show popular votes?

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“That doesn’t really show me anything.”



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Why show popular votes?

1. Explain.
2. How we see them.
3. How we see us.
4. Less surprises.

Why show popular votes?

1. **Electoral votes ≠ popular votes
≠ chance of winning**
2. How we see them.
3. How we see us.
4. Less surprises.

Why show popular votes?

1. **Electoral votes ≠ popular votes
≠ chance of winning**
2. **Red states are not as red as we think.
Blue states are not as blue as we think.**
3. **How we see us.**
4. **Less surprises.**

Why show popular votes?

- 1.

**Electoral votes ≠ popular votes
≠ chance of winning**

- 2.

**Red states are not as red as we think.
Blue states are not as blue as we think.**

- 3.

**It's motivating and empowering
to find ourselves on the map.**

- 4.

Less surprises.

Why show popular votes?

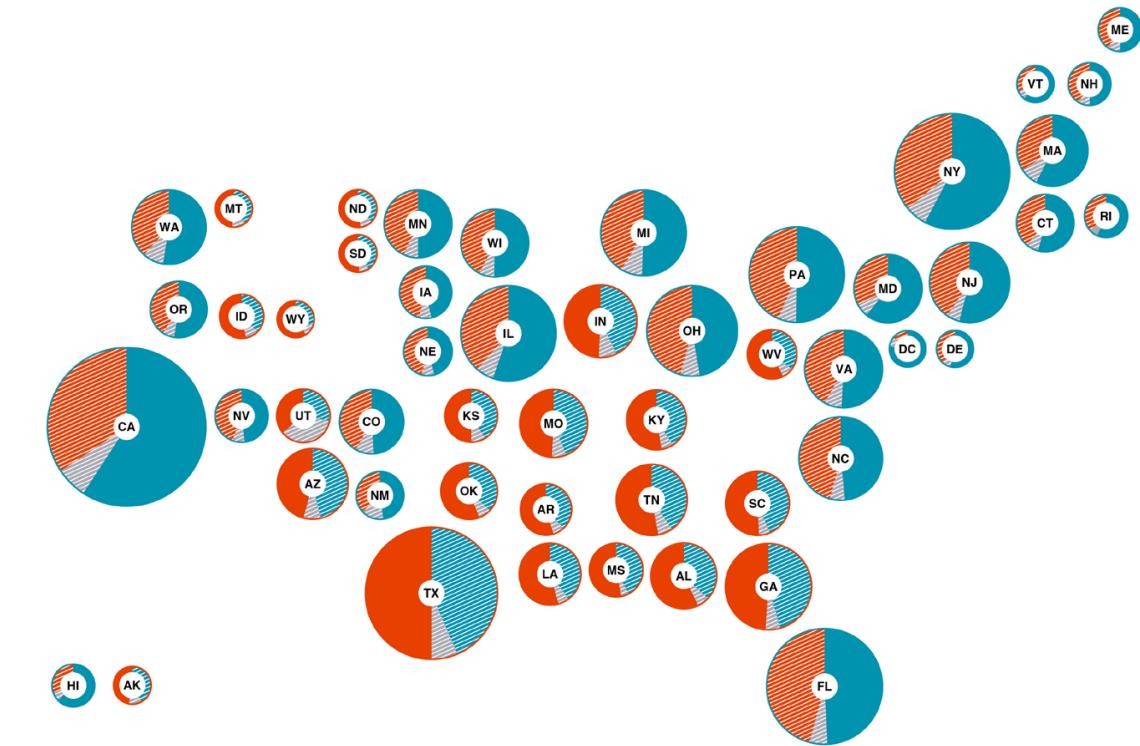
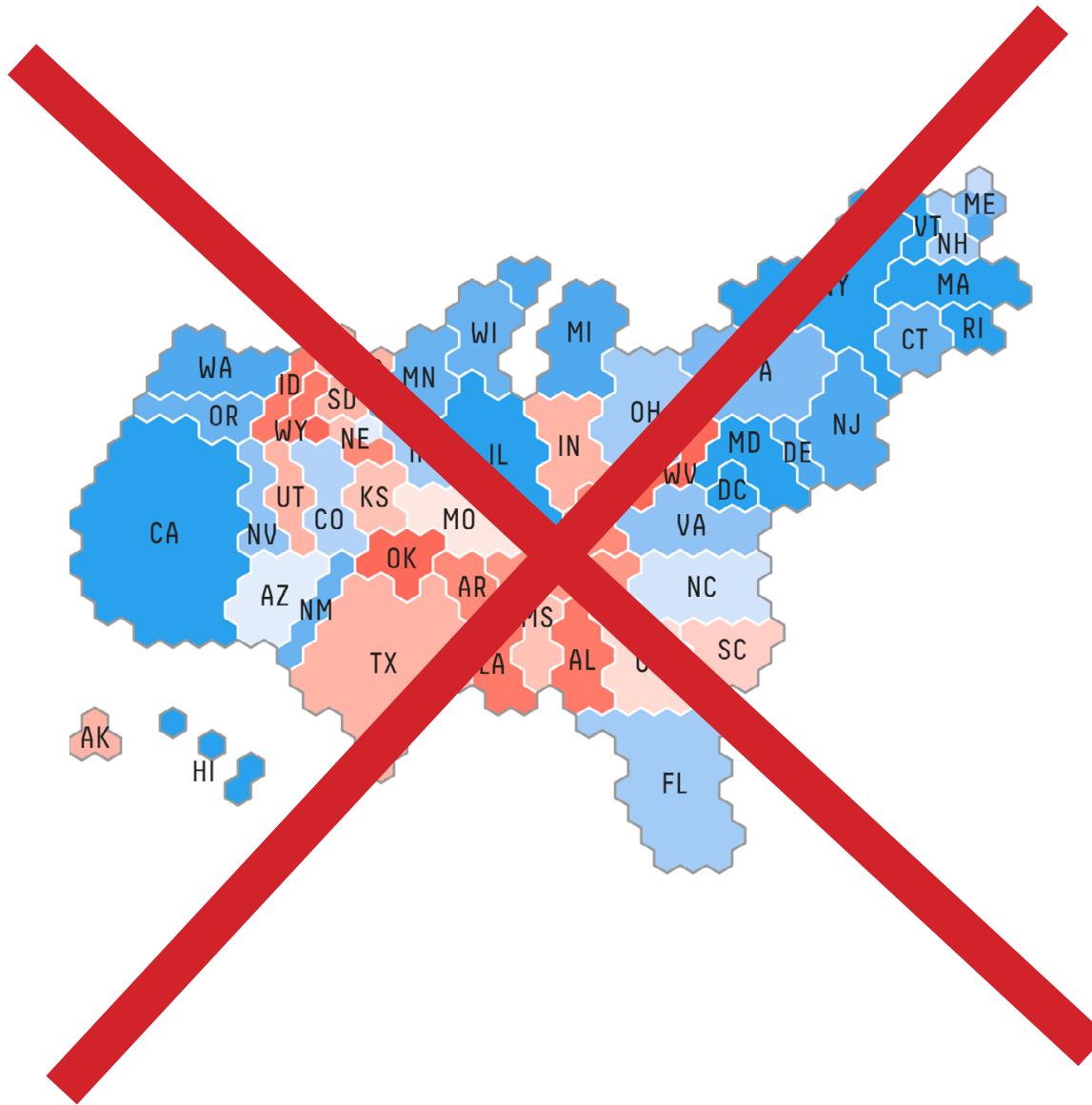
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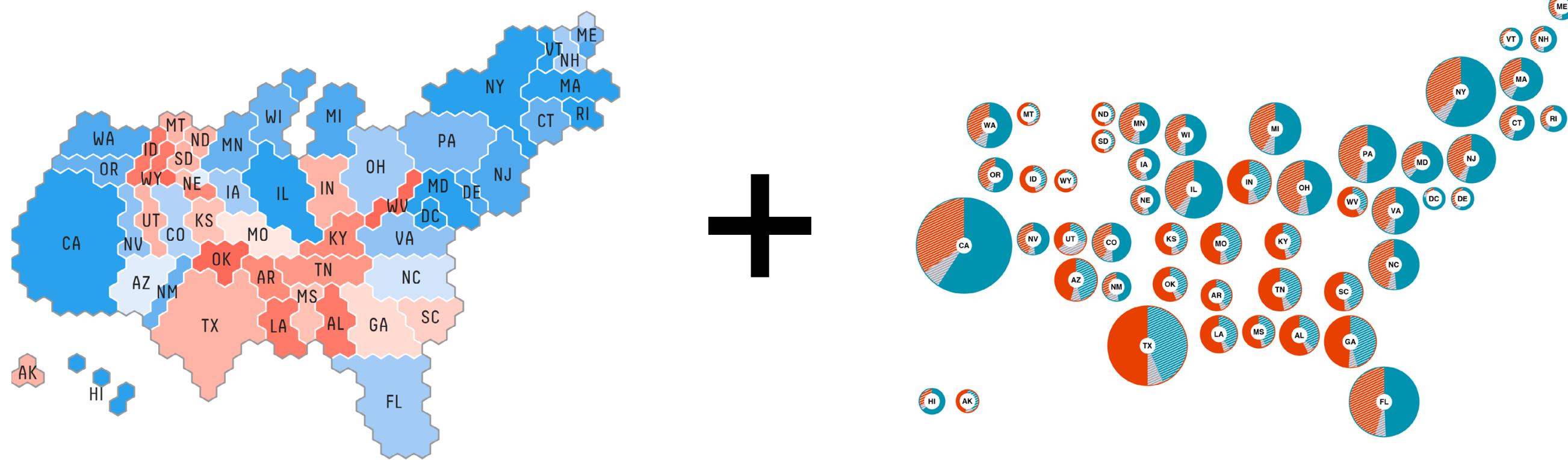
3. **It's motivating and empowering
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4. **It's close.
It's really close.**

Conclusion:



Conclusion:



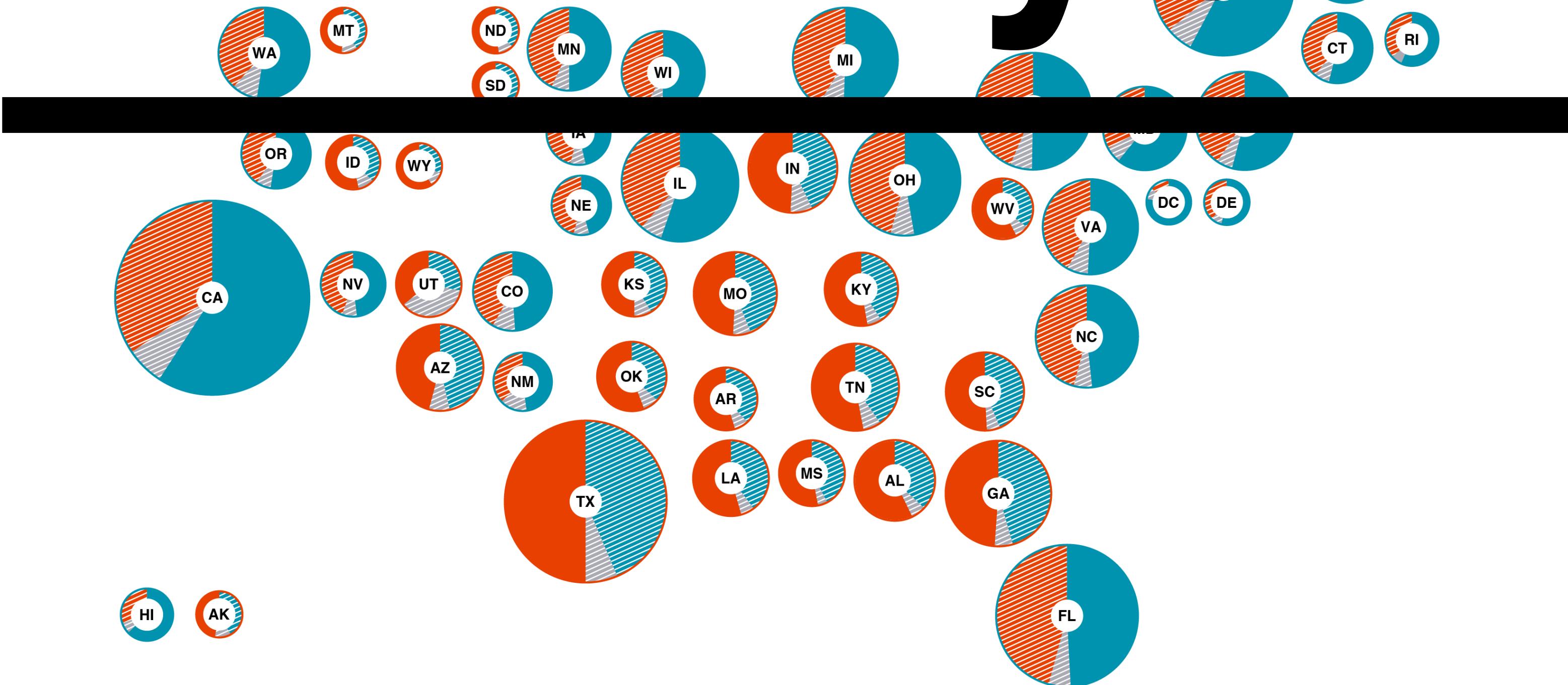
Disclaimer:



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**Doesn't
know
stuff.**

Thank you!



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