

Intro to Mapping and GIS: Module 4, part 1 What are maps bad at?

Hi, this is module 4 part 1. We're going to talk about what maps are bad at. So right now you're probably thinking that maps are pretty great, and they are, but there's one significant shortcoming that we'll talk about today. I'm about to show you seven actual maps of the US, think about the ways that they look alike. This is inequality in cities, public radio stations, gun deaths, racist tweets, noise levels, McDonald's, and mass shootings.

And this is population, but I would argue that those maps I showed earlier are also just population maps. This is the XKCD comic artist pet peeve and it's mine, too. This is reverse population density. There's more than 5 million census blocks in the US where no one lives, these areas can create a serious problem if we don't normalize our choropleths. I think this accidental population map problem is one of the biggest challenges in mapping, the patterns may be different in other countries, but the main issue is the same.

In 2016 The Washington Post wrote a story that illustrated this problem, it was one of our readings this week. The same number of voters live in all of these states as live in New Jersey. Another of our readings addressed a slightly different version of this maps looks the same problem. A propublica, Illinois reporter talked about how many detailed maps of Chicago are really all about the same thing, it's segregation and inequality. So how do we address these problems? One solution is 3D maps, like this one from Time Out Hong Kong. It's an elegant and clear example partly thanks to this nice negative space from the shape of the water.

But 3D just doesn't scale up to country size very well, such as this 3D map of the 2012 Presidential election results. It's pretty hard to interact within read, Phoenix cast Las Vegas into shadow and the reds all blend together. Another solution that journalists like to use is cartograms where we try to arrange squares representing population into rough approximations of states.

This is often done with us house districts, which are the same as electoral votes. In this map can you identify Texas? What about Florida? For a while every news outlet had a variation on a cartogram some try Texas others tried diamonds. These shapes are so random that it's kind of difficult to compare them to each other. If we want to know the population of a state, are we supposed to count up all the little diamonds? I hope not.

I think that all these kind of divorce the geography from the picture a little bit too much. We all know what Texas looks like, let's use that to our advantage. A better way is using a consistent shape like a square and making the cartograms non-contiguous, so the states don't touch each other. Having one square size for each state can be a little easier to read. Adding a strong narrative to this method can make it great.

I love this example from Bloomberg, which shows you how only 10 million Americans had to say in the 2014 US senate race. If you're comparing data across states, 50 kind of geographic

squares in a cartogram can work well too. The Washington Post did a fun series of these. This one shows how much the Electoral College over or under represents population smaller states have a greater say in presidential elections, and this brilliant cartogram shows which states have driver's licenses that are compliant with new federal standards.

Bloomberg recently used a bunch of little squares in a kind of cartogram pixel mashup to show how land is used across the US, a strong narrative also made this piece great. It's also worth noting that sometimes the density is the story and we can use that to our advantage. Like this excellent Guardian map that shows what cities will be most affected by sea level rise.

I don't think the journalists making maps have come up with a perfect solution to this population density problem, but we are trying some creative solutions, and now that, you know, some of the rules of mapping you're more able to break them when you need to try out stuff like this. Thanks.