Lecture 24
Choropleths

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DATASCI / STATS 112

March 13, 2023

1. Review
2. Choropleths
3. Storytelling with Choropleths
4. Making Choropleths in Python
5. What's Wrong with Choropleths
6. Reminders

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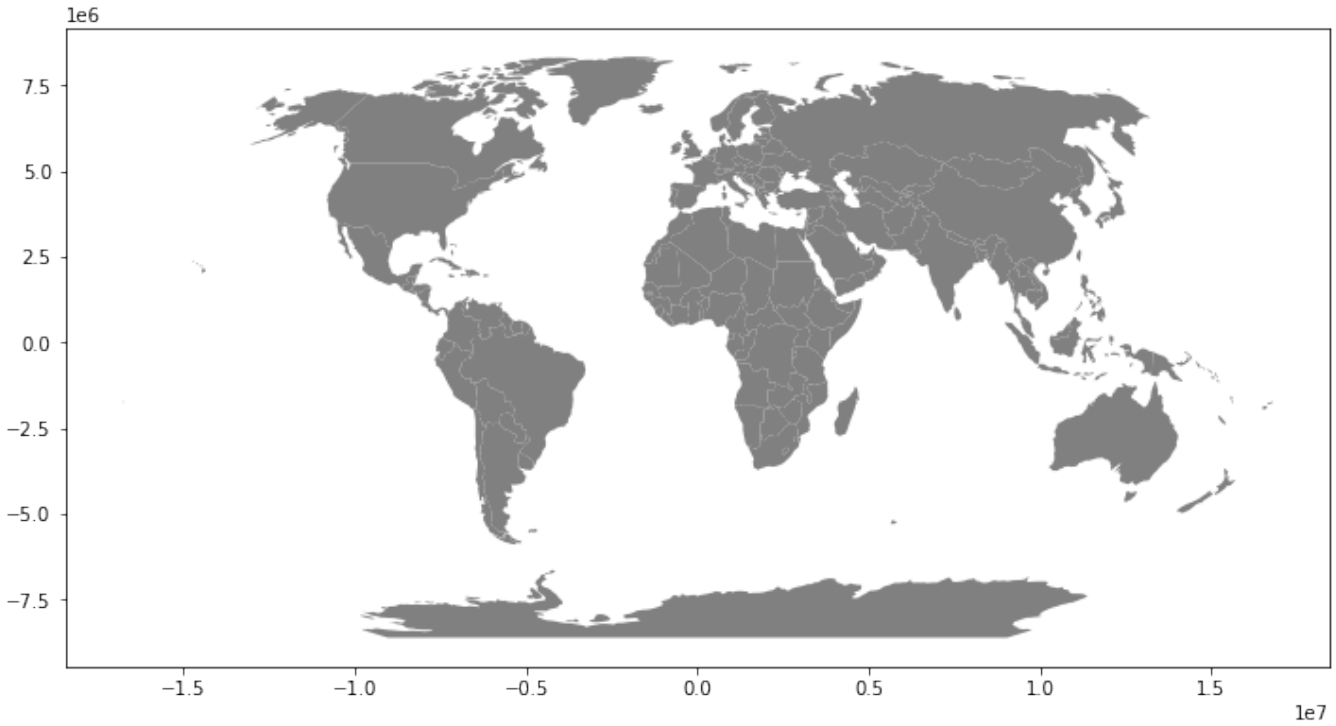
Shapefiles

We've seen how geographic data is stored in shapefiles.

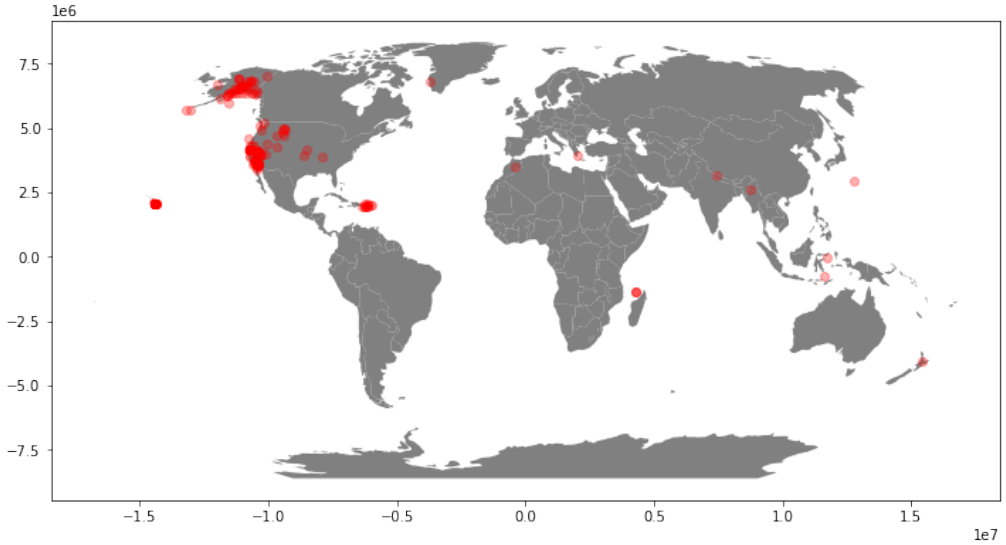
```
import geopandas as gpd
gdf_countries = gpd.read_file(
    "/usr/local/lib/python3.9/dist-packages/geopandas/datasets/"
    "naturalearth_lowres/")
gdf_countries.to_crs("ESRI:53030").plot(
    facecolor="gray", figsize=(12, 12))
```



Dot Maps

Last class, we made one type of map showing data: a **dot map**.

```
import pandas as pd
df_quakes = pd.read_csv(
    "https://dlsun.github.io/pods/data/earthquakes.csv")
gdf_quakes = gpd.GeoDataFrame(
    df_quakes,
    geometry=gpd.points_from_xy(df_quakes["longitude"],
                                df_quakes["latitude"])
).set_crs(gdf_countries.crs)
ax = gdf_countries.to_crs("ESRI:53030").plot(
    facecolor="gray", figsize=(12, 12))
gdf_quakes.to_crs("ESRI:53030").plot(ax=ax, color="red", alpha=.3)
```



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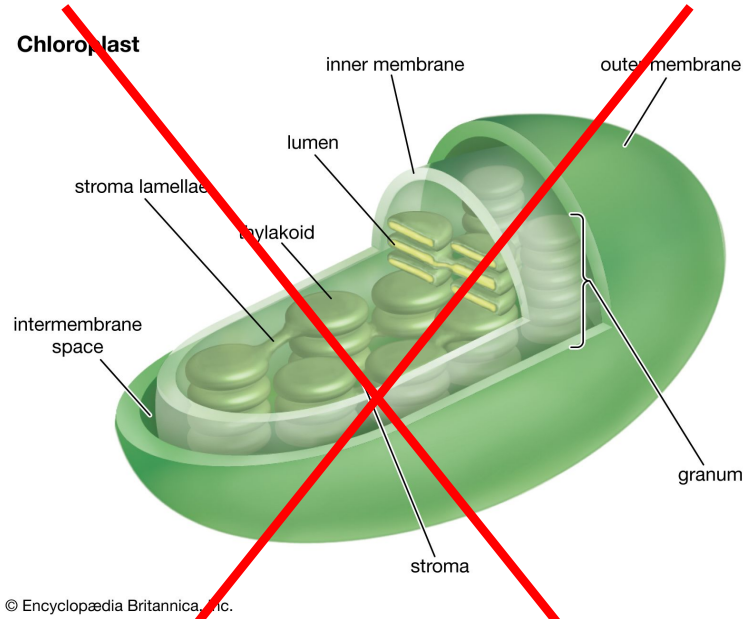
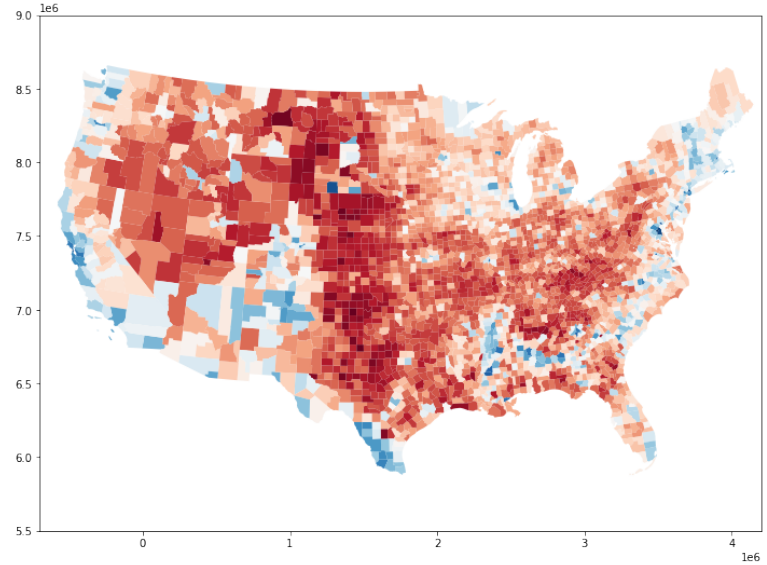
What is a Choropleth?

A **choropleth** is a map where each region is colored according to some statistic.



chloroplast



choro + pleth
"region" + "many"

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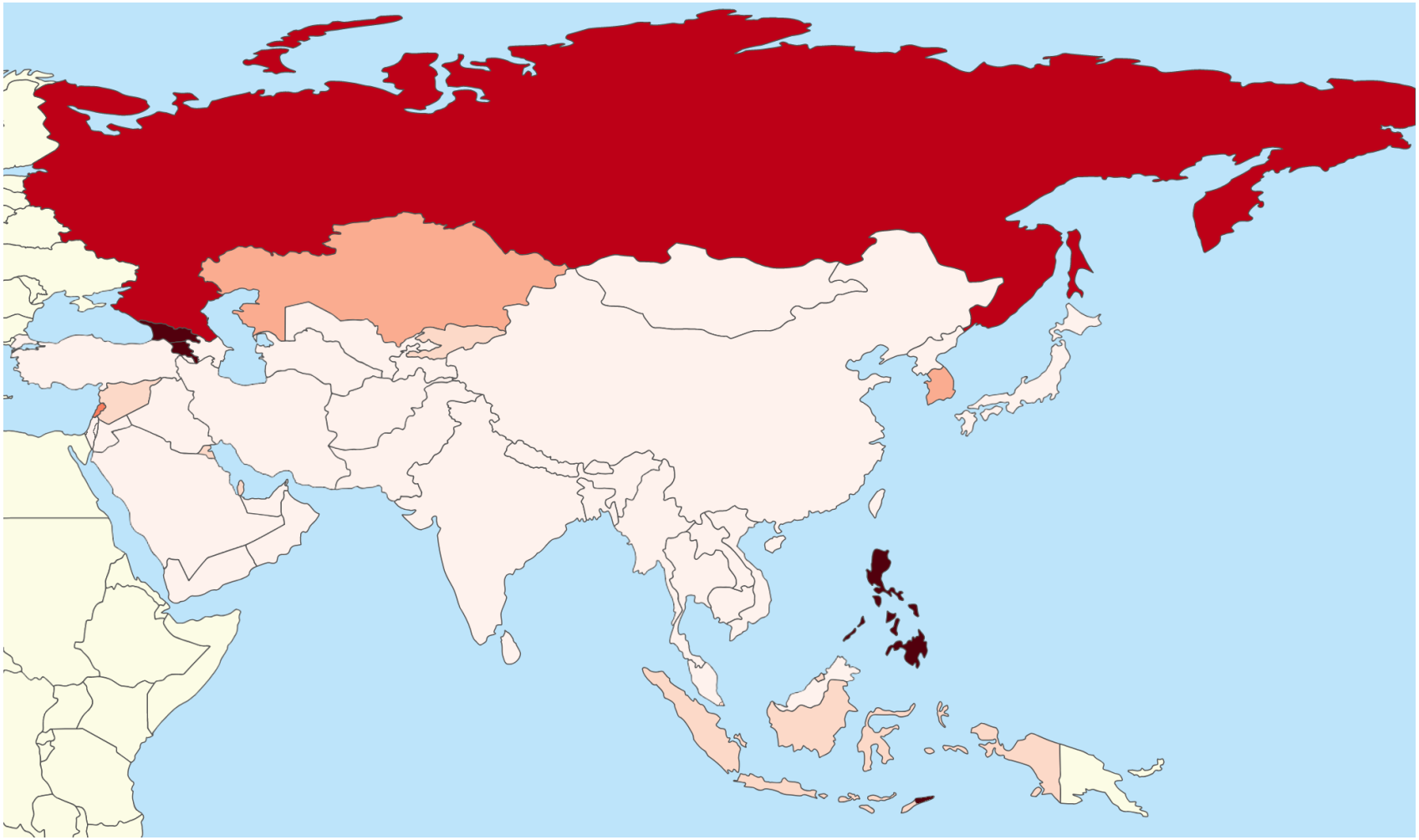
What data is being plotted here?



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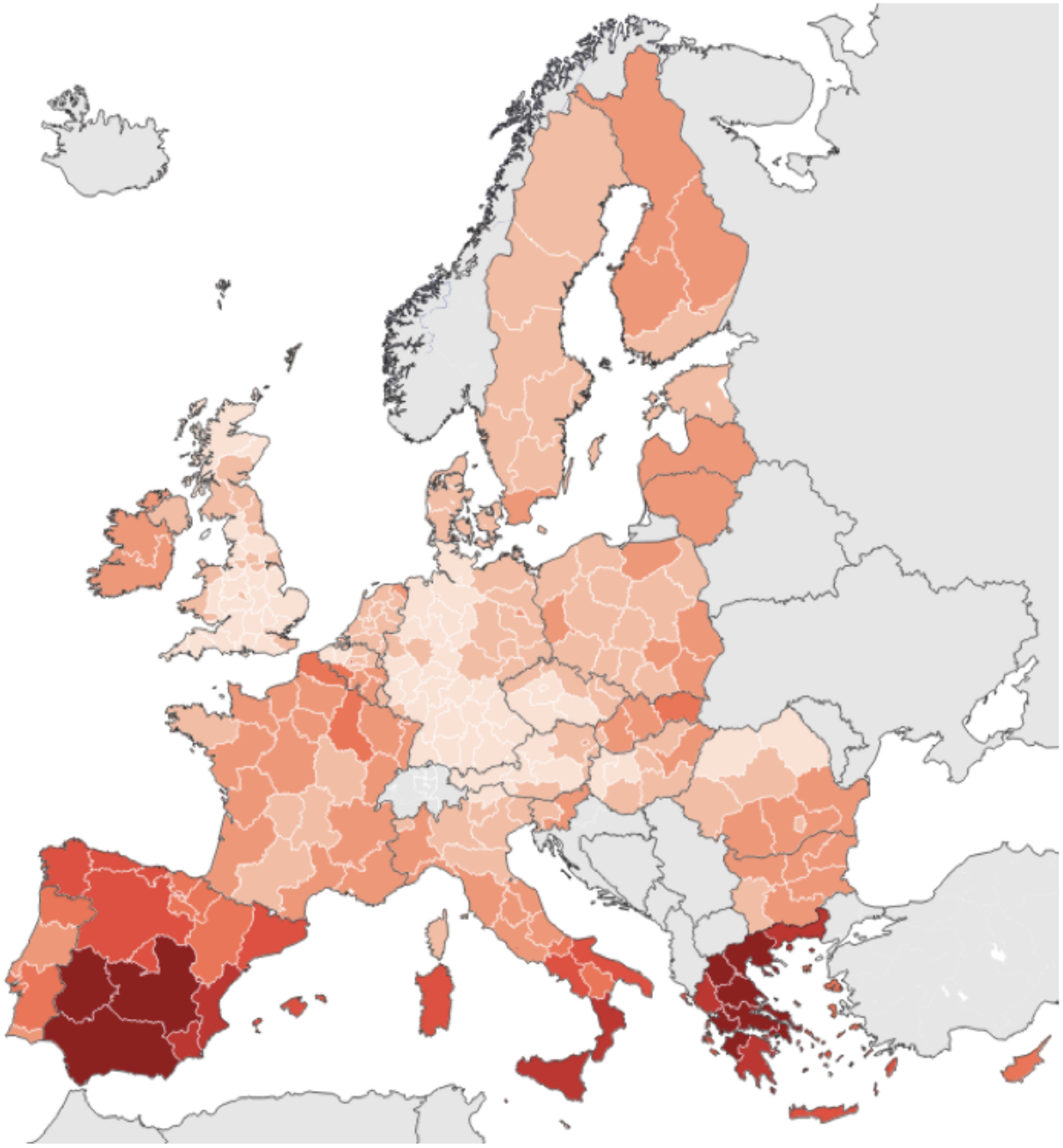

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Click on the logo below to go to the Colab.

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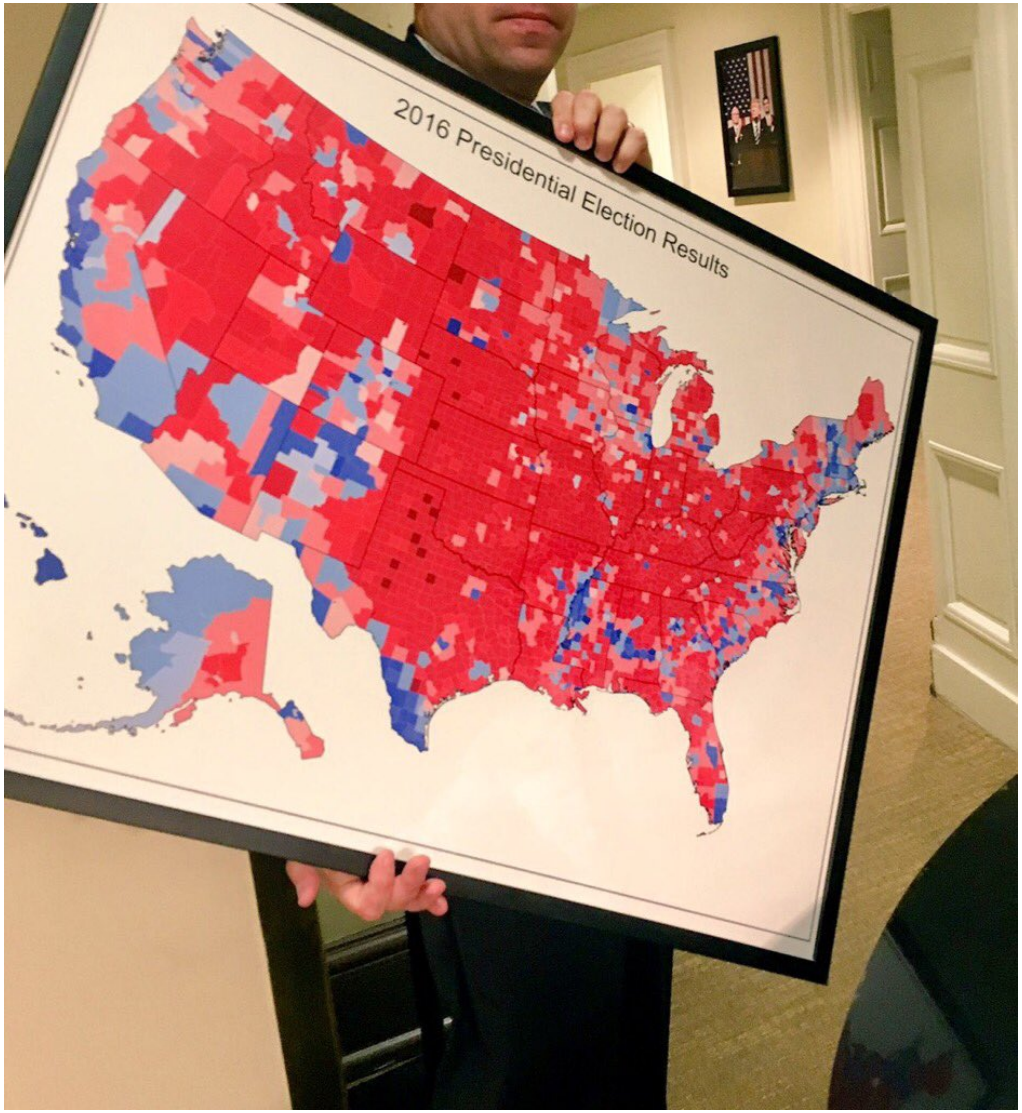
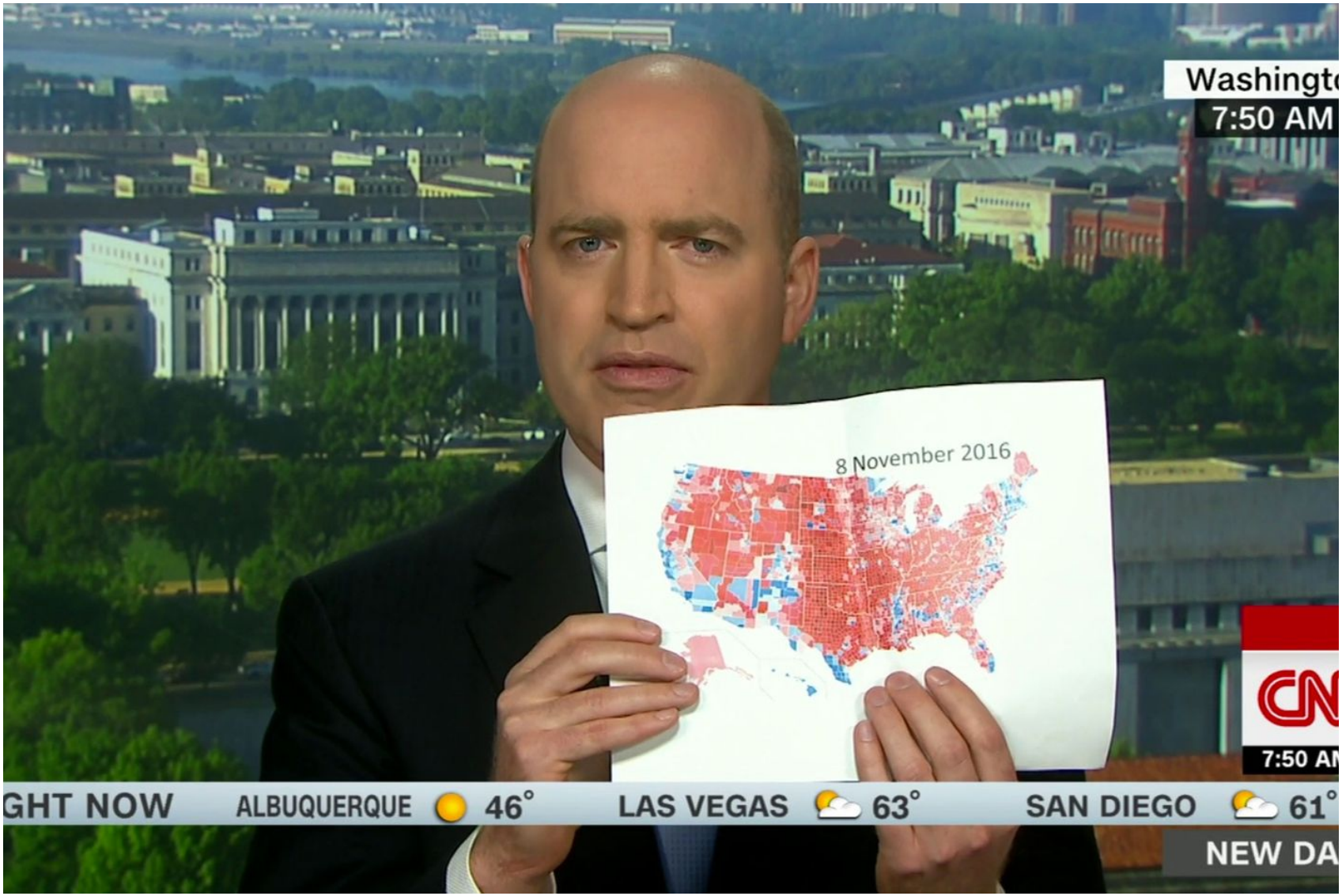


"Oh I love those beautiful red areas, that middle of the map. There's just a little blue here, and a little blue, everything else is bright red."

—Donald Trump



"[Trump] interrupted himself and handed out this map of the electoral college and said that these were the latest figures of the areas of the country that he had won in 2016."

“There were three of us in the interview…and he had a copy for each of us.”

The Problem with Choropleths

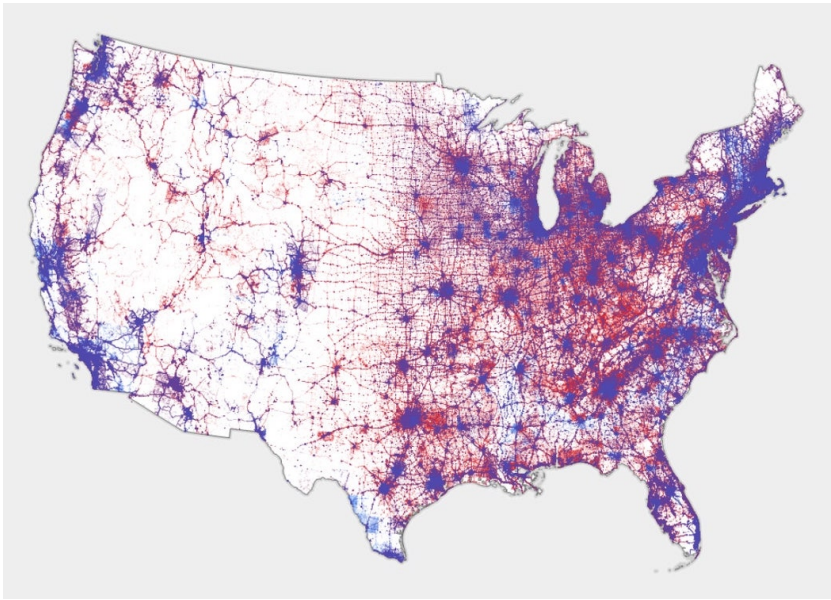
The election choropleth violates one of Tufte's principles of data visualization:

> *The representation of numbers, as physically measured on the surface of the graph itself, should be directly proportional to the numerical quantities represented.*

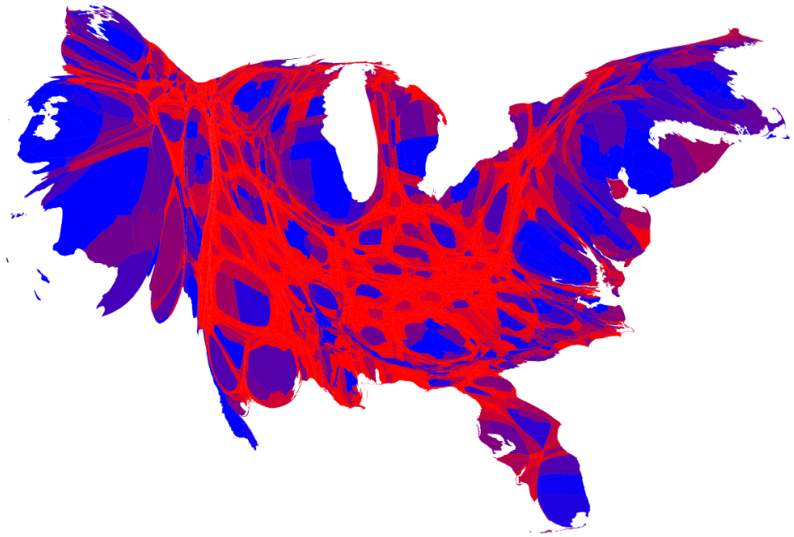
Trump mistakes the red area on the map as representing the number of people who voted for him.

Alternatives to Choropleths

dot map



cartogram



These maps are highly custom and are difficult to make on your own.

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Reminders

- Last chance to sign up for a final project presentation time here: [link to form]. I will confirm your presentation time by Wednesday.
- Optional Assignment 8 due on Friday. It replaces your lowest assignment grade.
- A look at the rest of this week…