```
tt()
```

Geo data

Schedule

1. Google Maps
2. Leaflet / OpenStreetmap
3. D3
4. Summary

Schedule

1. **Google Maps**
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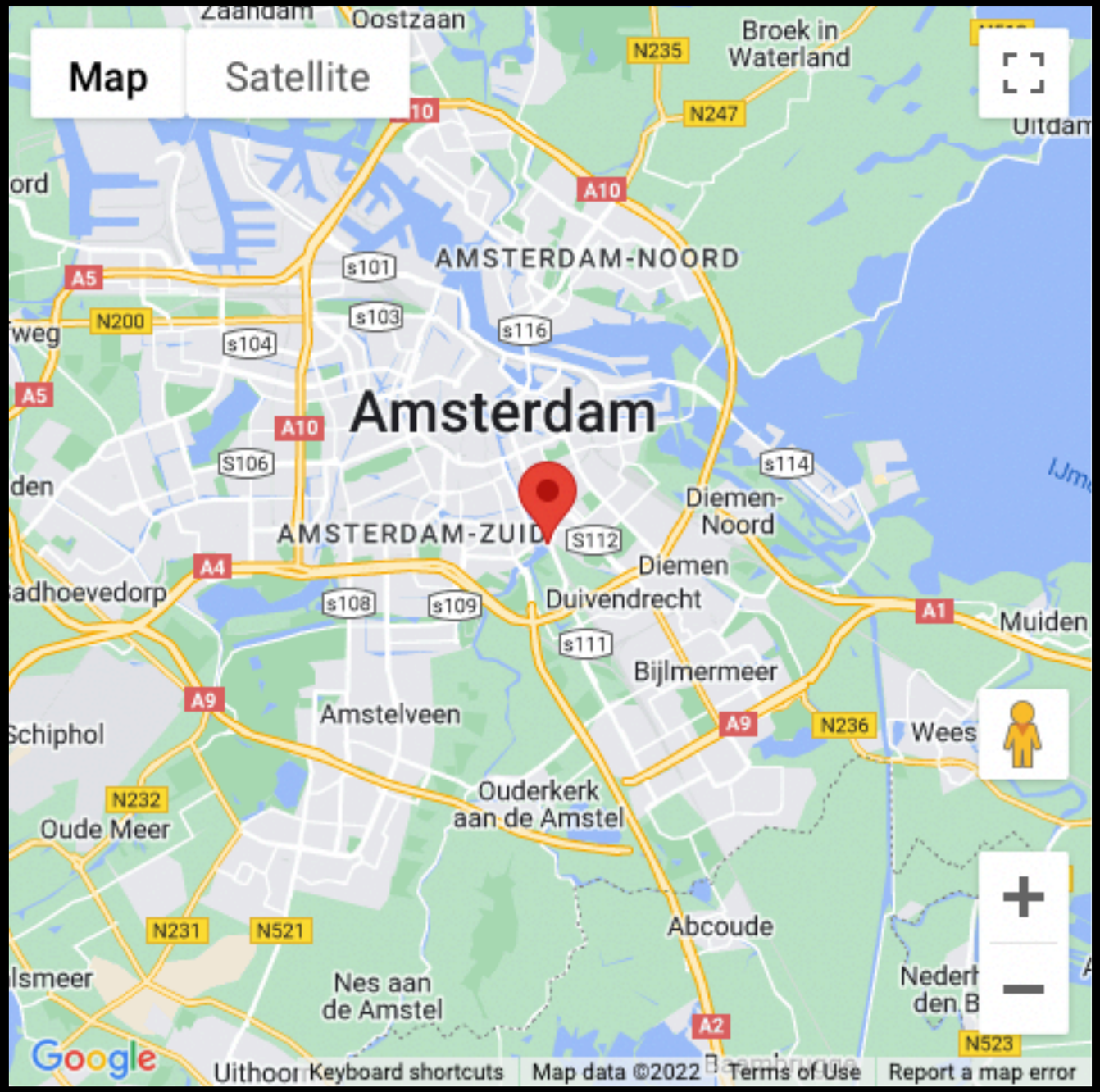
Google Maps


Map
Satellite
Zaandam
Oostzaan
Broek in Waterland
N235
N247
10
A10
AMSTERDAM-NOORD
A5
N200
s101
s103
s104
s116
Amsterdam
S106
s114
AMSTERDAM-ZUID
S112
Diemen-Noord
Diemen
A4
Duivendrecht
s108
s109
s111
A1
Muiden
Bijlmermeer
A9
Amstelveen
N236
Wees
Schiphol
N232
Oude Meer
Ouderkerk aan de Amstel
N231
N521
Abcoude
Nes aan de Amstel
A2
N523
Google
Keyboard shortcuts
Map data ©2022
Terms of Use
Report a map error

Custom Map Styles

Conditions

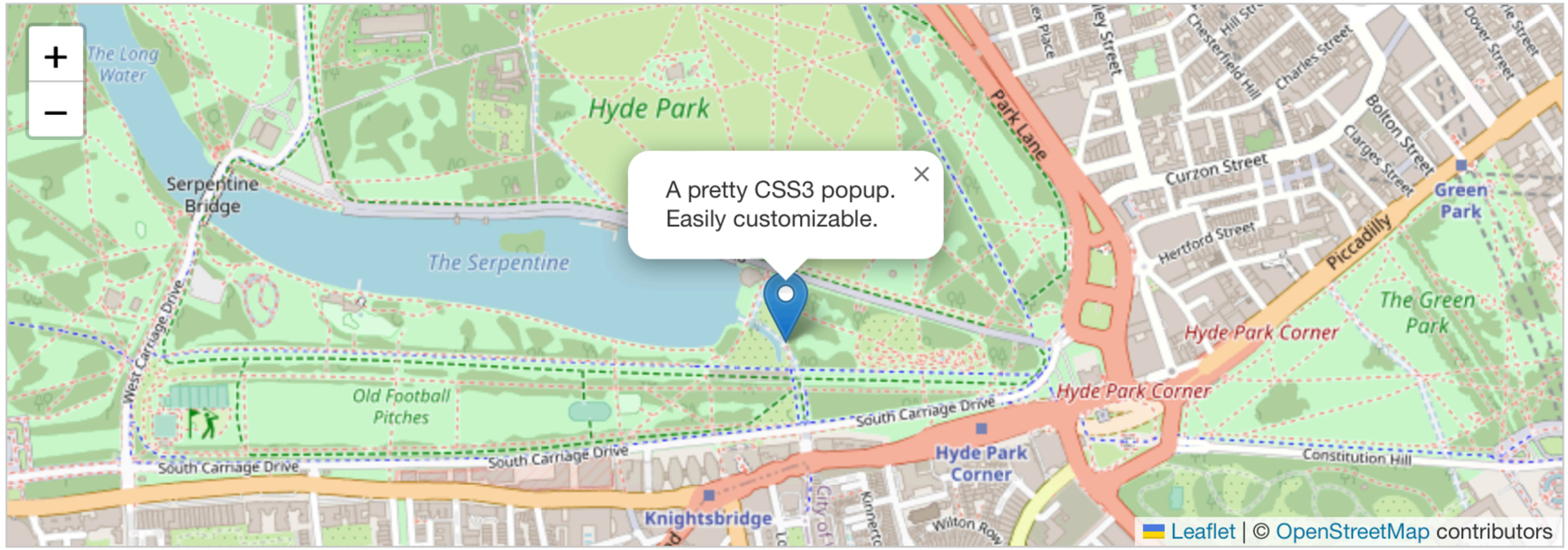
- Paid after x number of map requests
- Geocoder only in combination with Google Map
- No caching
- Can’t use for internal apps on local network
- Etc.

Schedule

1. D3
2. Google Maps
3. **Leaflet / OpenStreetmap**
4. Summary

Leaflet

leafletjs.com



Here we create a map in the `'map'` div, add tiles of our choice, and then add a marker with some text in a popup:

```
var map = L.map('map').setView([51.505, -0.09], 13);

L.tileLayer('https://tile.openstreetmap.org/{z}/{x}/{y}.png', {
    attribution: '&copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a> contribu
}).addTo(map);

L.marker([51.5, -0.09]).addTo(map)
    .bindPopup('A pretty CSS3 popup.<br> Easily customizable.')
    .openPopup();
```

Pick a tile server

- OpenStreetMap
- MapBox
- HERE
- Stamen ->
- Your own?
- NLMaps

Toner

These high-contrast B+W (black and white) maps are featured in our Dotspotting project. They are perfect for data mashups and exploring river meanders and coastal zones. Available in six flavors: standard toner, hybrid, labels, lines, background, and lite.

Available worldwide.

Terrain

Orient yourself with our terrain maps, featuring hill shading and natural vegetation colors. These maps showcase advanced labeling and linework generalization of dual-carriageway roads. Terrain was developed in collaboration with Gem Spear and Nelson Minar. Available in four flavors: standard terrain, labels, lines, and background.

Available worldwide.

Watercolor

Reminiscent of hand drawn maps, our watercolor maps apply raster effect area washes and organic edges over a paper texture to add warm pop to any map. Watercolor was inspired by the Bicycle Portraits project. Thanks to Cassidy Curtis for his early advice.

Available worldwide.

NL Maps

https://nlmaps.nl/

GeoCoder

Convert “Wibautstraat 2, Amsterdam”
To 52.359404136494 28, 4.908656298091917

Most commercial mapping providers come with their own geocoder API, but you’re only allowed to use them if you also use their map.

Photon is a free alternative without restrictions: https://photon.komoot.io/ or for NL: PDOK

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D3

https://www.d3indepth.com/geographic/

GeoJSON

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "properties": {
        "name": "Africa"
      },
      "geometry": {
        "type": "Polygon",
        "coordinates": [[[-6, 36], [33, 30], ... , [-6, 36]]]
      }
    },
    {
      "type": "Feature",
      "properties": {
        "name": "Australia"
      },
      "geometry": {
        "type": "Polygon",
        "coordinates": [[[143, -11], [153, -28], ... , [143, -11]]]
      }
    },
```

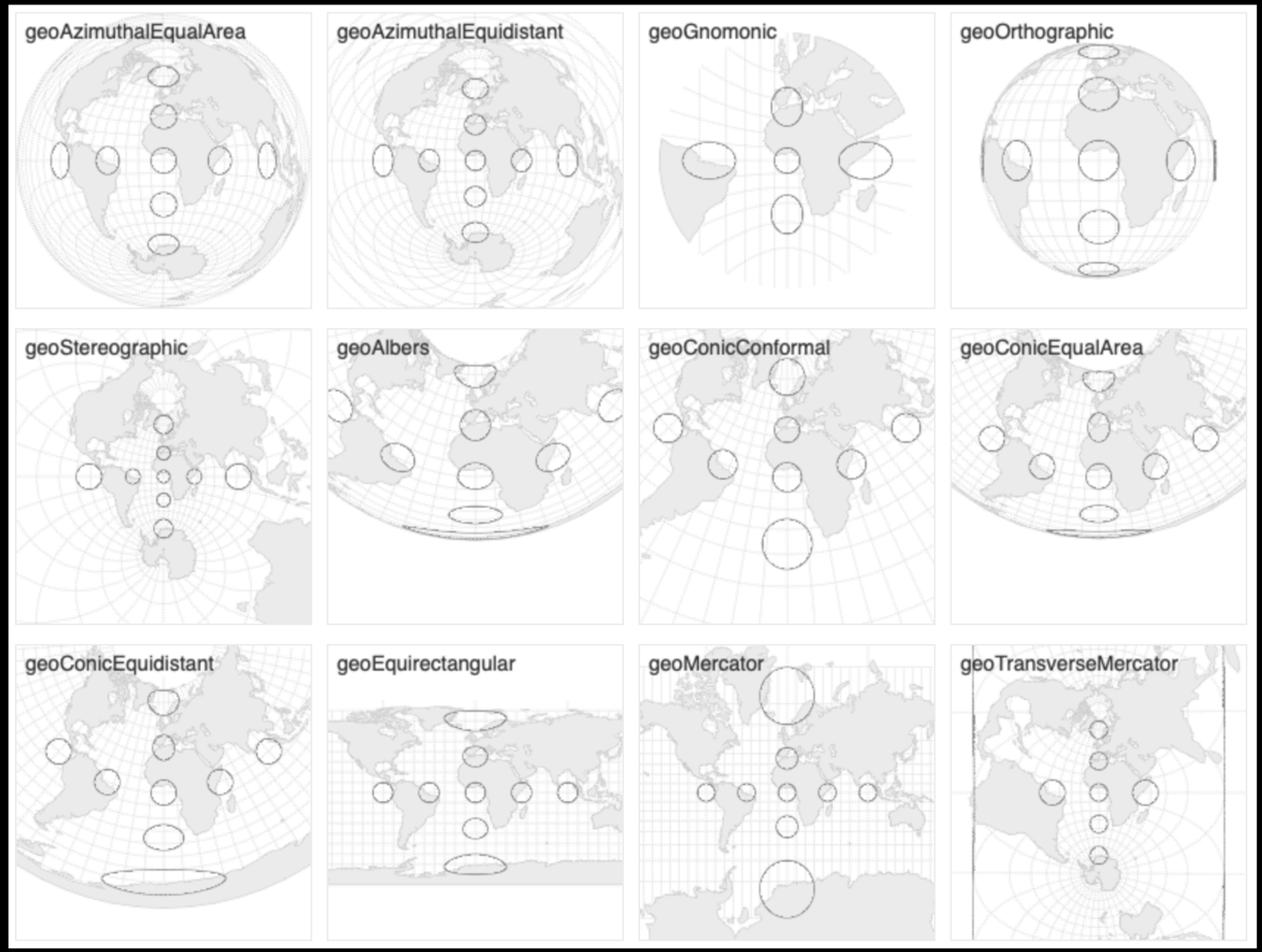
NL kaarten: https://cartomap.github.io/nl/

Map Projections

All map projections are a compromise. Pick the one that fits with your dataviz.

See differences here:

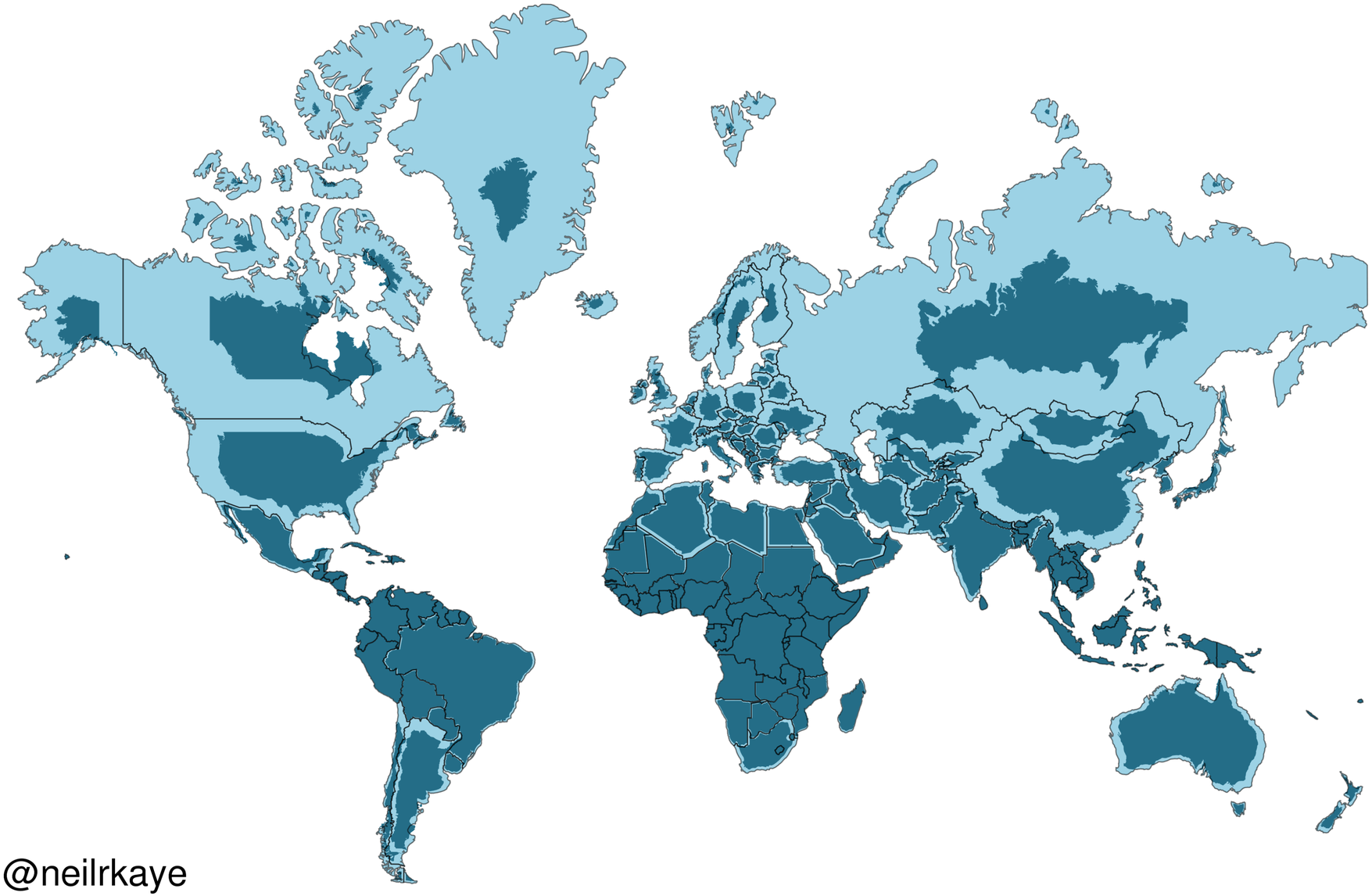
http://metrocosm.com/mercator/



Map Projections

'If the Earth Was Flat, Cats Would Have Pushed Everything off It by Now. | Flat Earth Theory'. Know Your Meme, https://knowyourmeme.com/photos/1323410-flat-earth-theory

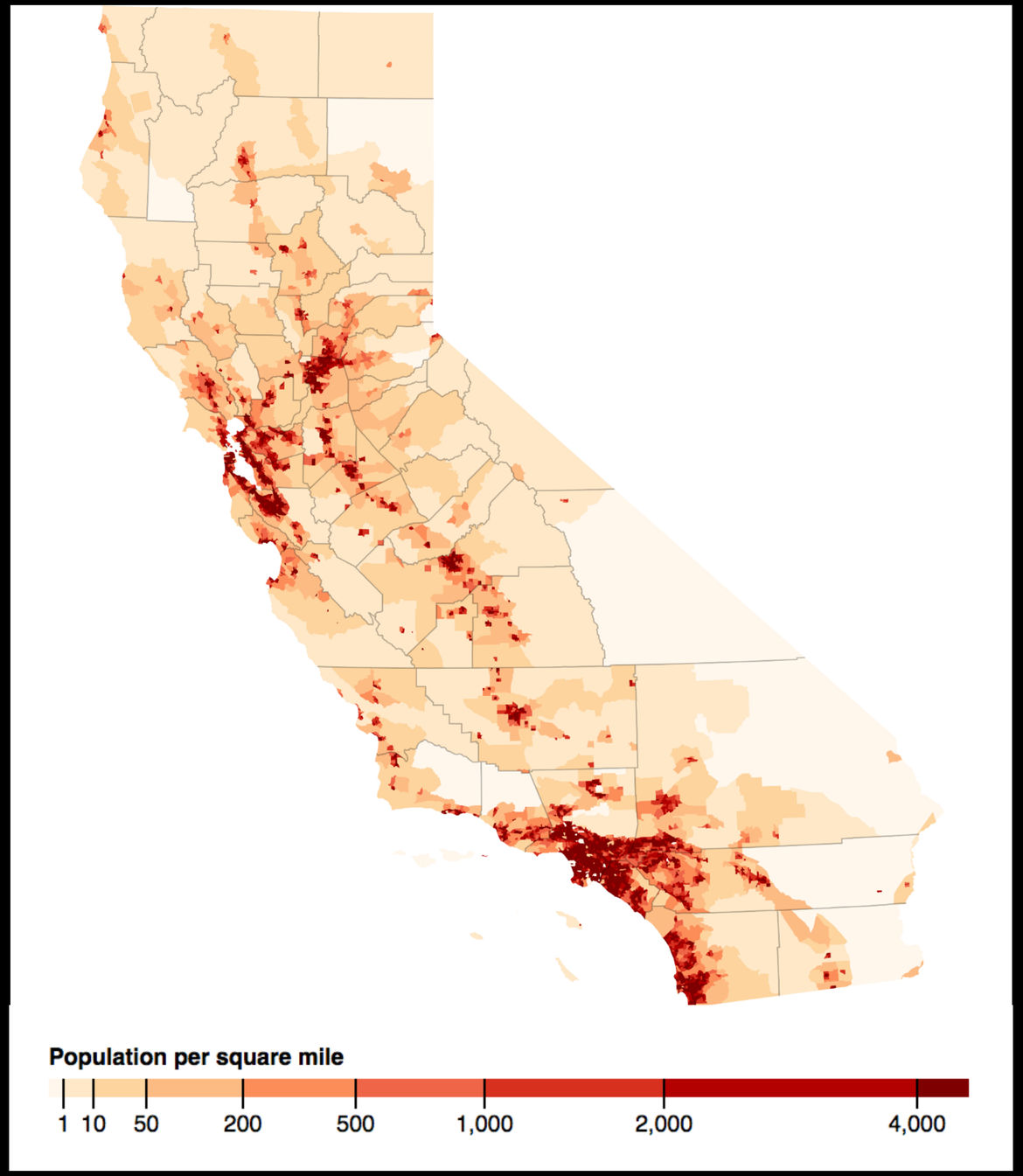
World Mercator projection with true country size added



@neilrkaye

Drawing on the map

Usually these are SVG <path> elements (or <canvas>)



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Summary

	Google Maps	Leaflet / OSM	D3
Price	Paid, $ x free credits/month	Mostly free (depends on your map provider)	Completely free
Restrictions	Short selection from their ToS: no caching/downloading data, no applications targeting kids, no in-car systems, can't use APIs separately, no text-to-speech	Depends on your map provider, but plenty of options with few restrictions + you can host your own	None
Flexibility	Can be styled with your own colours + choose how much info is shown. Can't pick projections or focus on one part of map	Very flexible options for styling. Can't pick your own projection or focus on one part of the map.	Extremely flexible. You can pick your own projection + bring your own map files and show only one province
Use when	When street-level details are important or when you need access to their POI data	When street-level details are important but you don't need Google's POI data	When you want more flexible ways to visualise your data and don't need street-level detail

```
Uncaught SyntaxError
Unexpected end of input
```