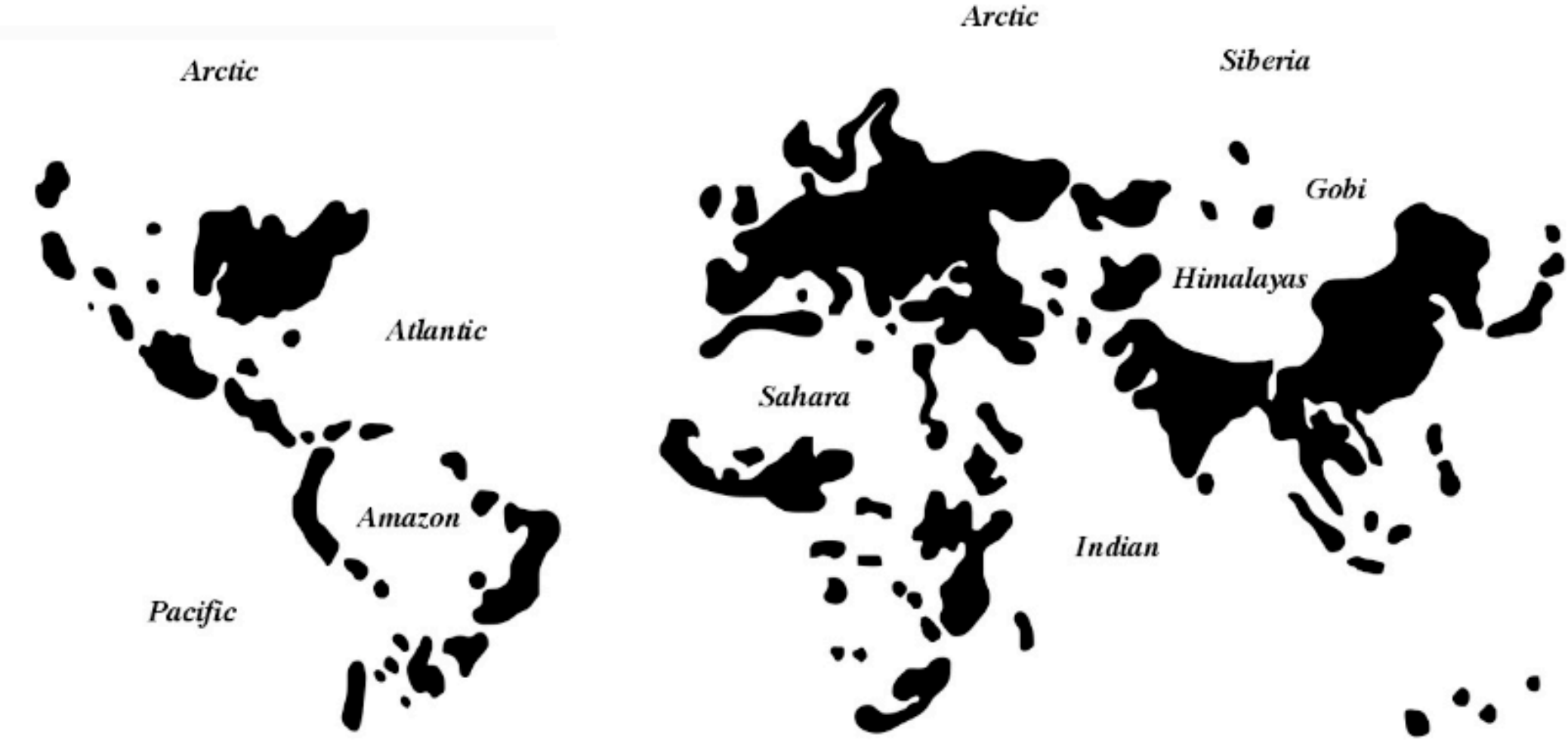


“The Continents and Islands of Mankind”

Originally by William Bunge (UW Ph.D., 1960)

(Areas in black have more than 30 people per square mile.)

Making Maps

1. Questions? (You're not the only one with your question!)
2. Keep in mind: "The map is not the territory"
3. Questions to ask yourself when making maps
4. General reference maps vs. thematic maps
5. Thematic maps: some basic types.
6. Visual variables: your thematic mapping language.

"The map is not the territory"

(Keep this in mind when making maps!)

Side note:

This has been expressed and discussed
by many authors and thinkers:

- Alfred Korzybski
- René Magritte
- Marshall McLuhan
- Lewis Carroll
- Jorge Luis Borges
- Jean Baudrillard

…among others.

Krygier and Wood: Questions to Ask

The Whole Map

Write out exactly what the map is supposed to accomplish: does the map meet its goals?

Are you sure a map is necessary?

Is the map suitable for the intended audience? Will the audience be confused, bored, interested, or informed?

Look at the map in its final medium: does it work? Has the potential of a black-and-white or color design been reached?

Is the map, its authors, its data, and any other relevant information documented and accessible to the map reader?

Look at the map and assess what you see; is it:

confusing or clear
interesting or boring
lopsided or balanced
amorphous or structured
light or dark
neat or sloppy
fragmented or coherent
constrained or lavish
crude or elegant
random or ordered
modern or traditional
hard or soft
crowded or empty
bold or timid
tentative or finished
free or bounded
subtle or blatant
flexible or rigid
high or low contrast
authoritative or unauthoratative
complex or simple
appropriate or inappropriate

Given the goals of the map, are any of these impressions inappropriate?

Krygier and Wood: More Questions to Ask

The Design of the Map

Does the title indicate what, when, and where?

Is the scale of the map appropriate for the data and the map goals? Is the scale indicated?

Does textual explanation or discussion on the map enhance its effectiveness?

Does the legend include symbols that are not self-explanatory?

If the orientation of the map is not obvious, is a directional indicator included?

Are authorship and date of map indicated?

Are inset and locator maps appropriate?

Is the goal of the map promoted by its visual arrangement, engaging path, visual center, balance, symmetry, sight-lines, and the grid?

Has the map been thoroughly edited?

Does the map contain non data ink?

Has detail been added to clarify?

Do the data merit a map?

Do variations in design reflect variations in the data?

Is the context of the map and its data clear?

Are there additional variables of data that would clarify the goals of the map?

Do visual differences on the map reflect data differences?

Do important data stand out as figure, and the less important as ground, on the map? Are there consequences of data not included on the map?

Have visual difference, detail, edges, texture, layering, shape and size, closure, proximity, simplicity, direction, familiarity, and color been used to reflect figure-ground relationships appropriate to the map's goals?

Are the level of generalization and the data classification appropriate, given the map's goals?

Do map symbols work by resemblance, relationship, convention, difference, standardization, or unconvention? Are the choices optimal for the map's goals?

How do the map symbols relate to the concepts they stand for? Is the relationship meaningful?

Have the map symbols been chosen to reflect the guidelines suggested by the visual variables?

If symbolizing data aggregated in areas, is the most appropriate method used? How will the choice affect the interpretation of the map?

What do the words on your map mean? How do they shape the meaning of the map?

Has the chosen typeface (font) and its size, weight, and form effectively shaped the overall impression of the map as well as helping to symbolize variations in the data?

Does the arrangement of type on the map clarify, as much as possible, the data and the goals of the map?

Do color choice and variation reflect data choice and variation on the map?

Is color necessary for the map to be successful? Does color add anything besides decoration?

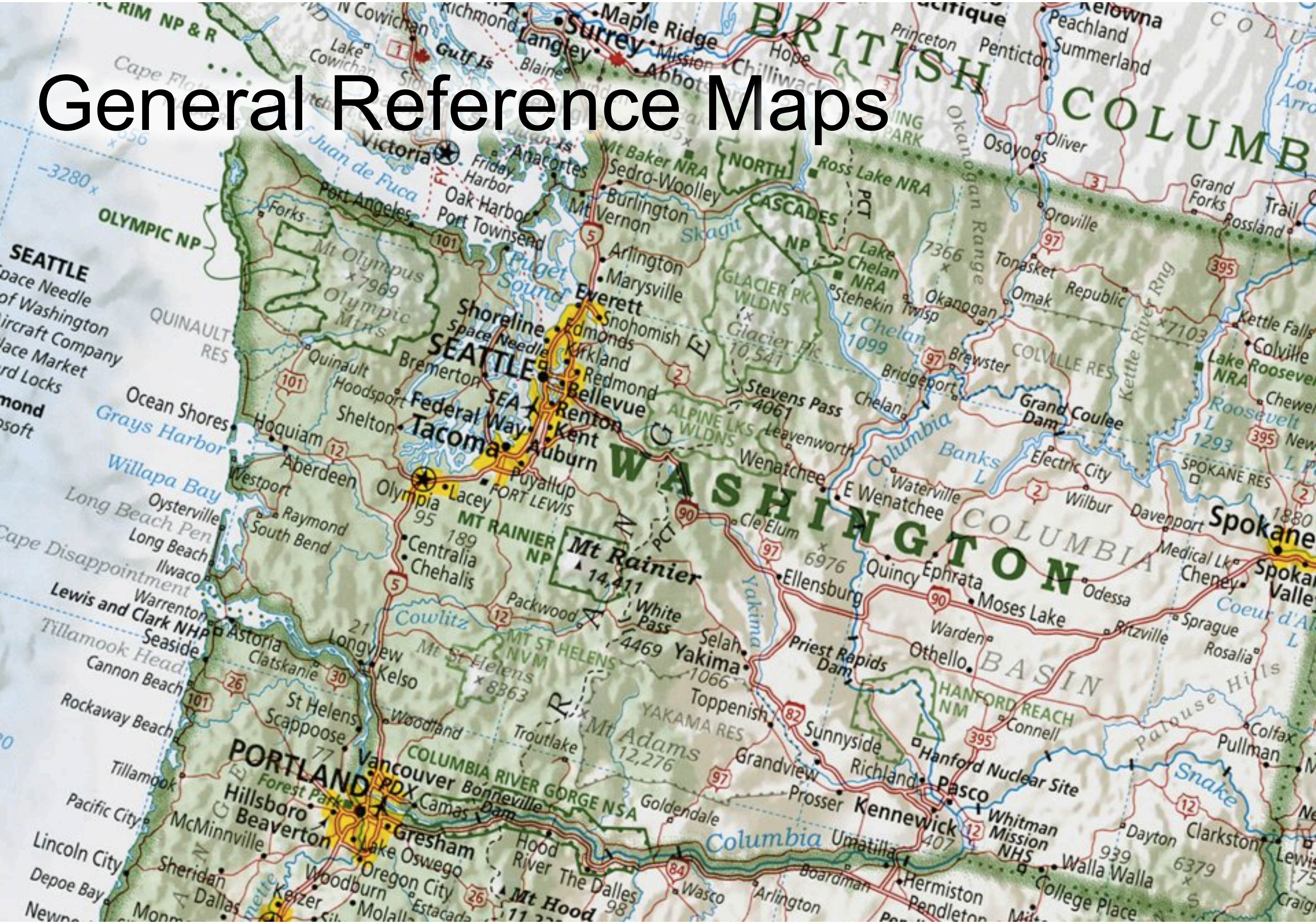
Do color choices grab viewer's attention while being appropriate for your data?

Does the map's design reflect the conditions under which it will be viewed?

Are color interactions and perceptual differences among your audience accounted for?

Have symbolic and cultural color conventions been taken into account and used to enhance the goals of the map?

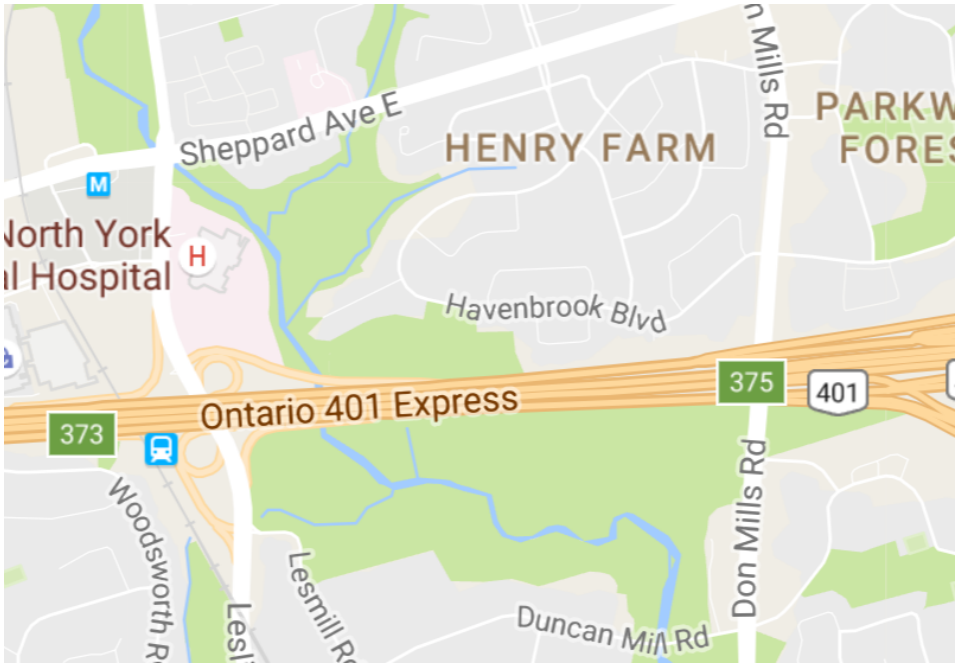
General Reference Maps



http://www.imusgeographics.com/map-of-the-usa Title of article: “Why we needed a new USA map”

From territory to map: Abstraction and *symbolization*

https://www.flickr.com/photos/nayukim/5704132134/



Thematic maps

… are maps that express spatial distribution of (at least) one ‘theme’

- You can have thematic maps population density, income, temperature, soil depth, voting patterns

Different thematic maps rely on different visual strategies to express the theme of interest.

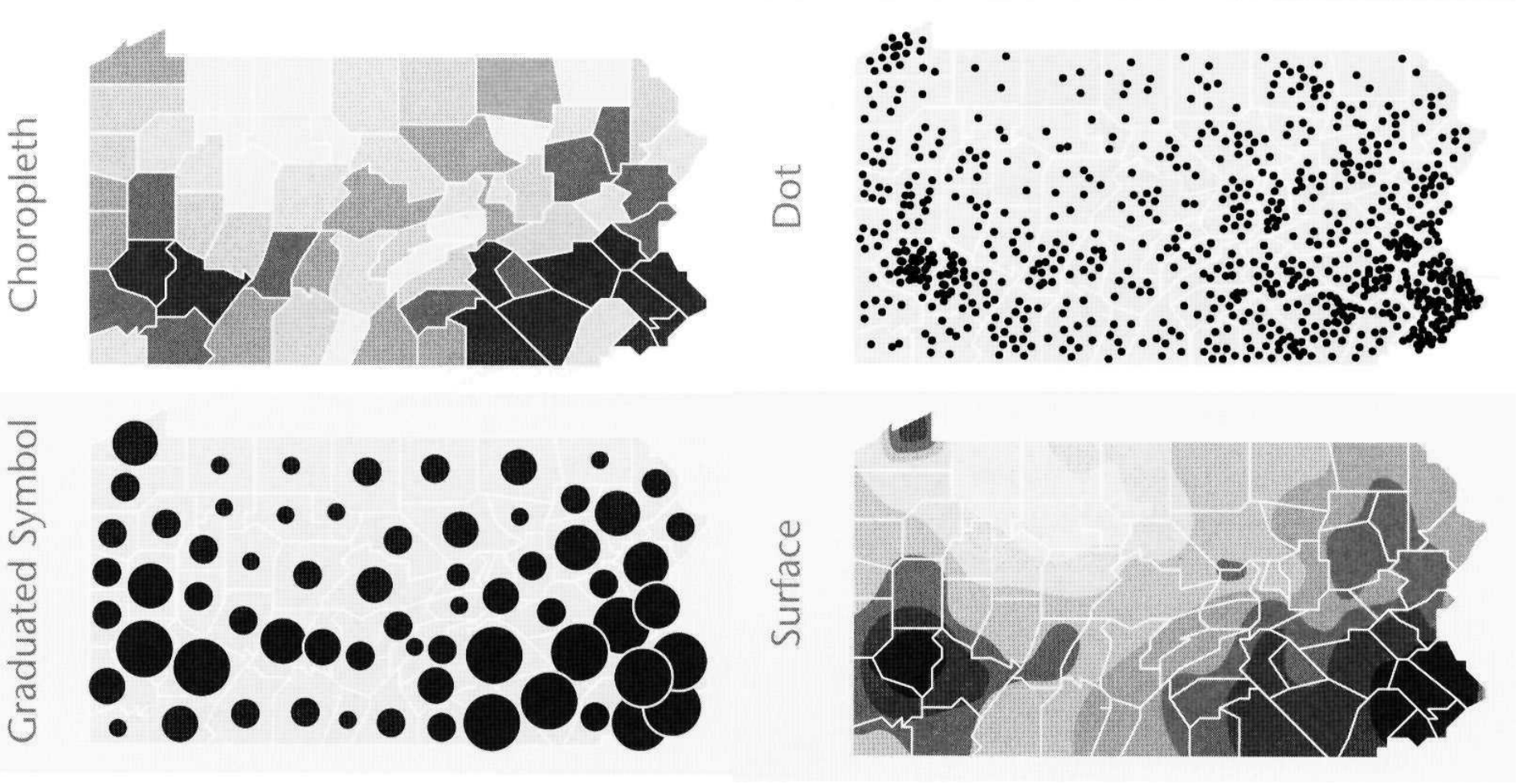
- Such strategies give their names to types of thematic maps. You have ‘dot density’, ‘choropleth’, ‘flow’, ‘cartogram’, and ‘proportional symbol’ maps, among others…

Same phenomenon…

but different thematic mapping strategies.

How does the type of map change your perception of the phenomenon?

Incidence of AIDS in Pennsylvania, 1985



Krygier and Wood: *Making Maps*

Different types of thematic maps are better for different phenomena.
Different maps serve better to make different arguments for different audiences.

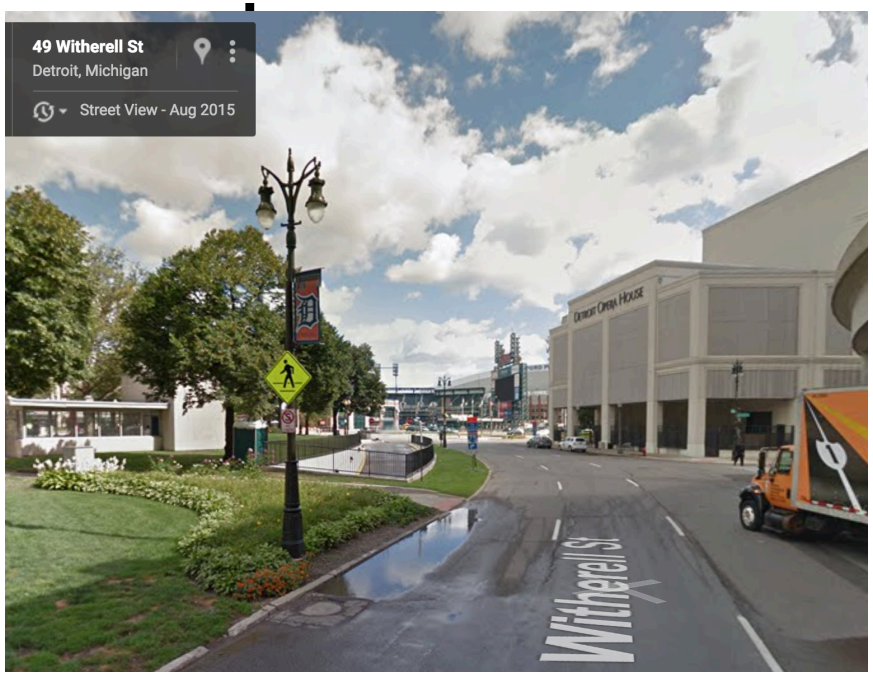
Monmonier: *How to Lie with Maps*

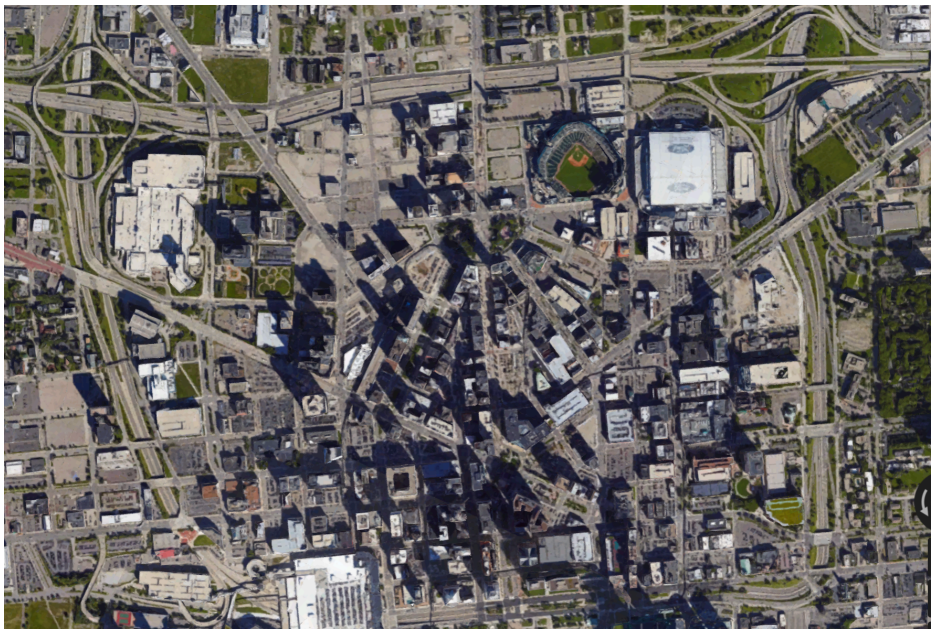
- “Not only is it easy to lie with maps, it’s essential…”

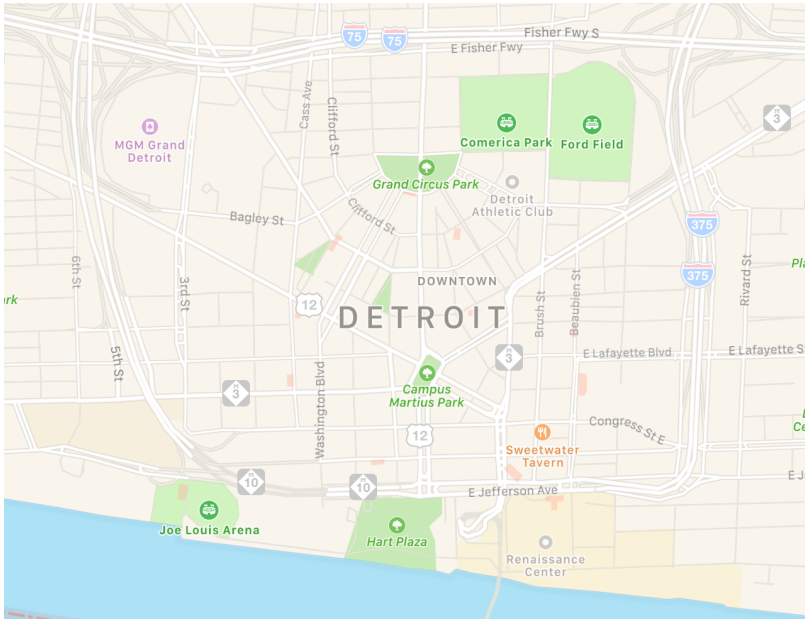
- “*A single map is but one of an indefinitely large number of maps that might be produced for the same situation or from the same data*.”

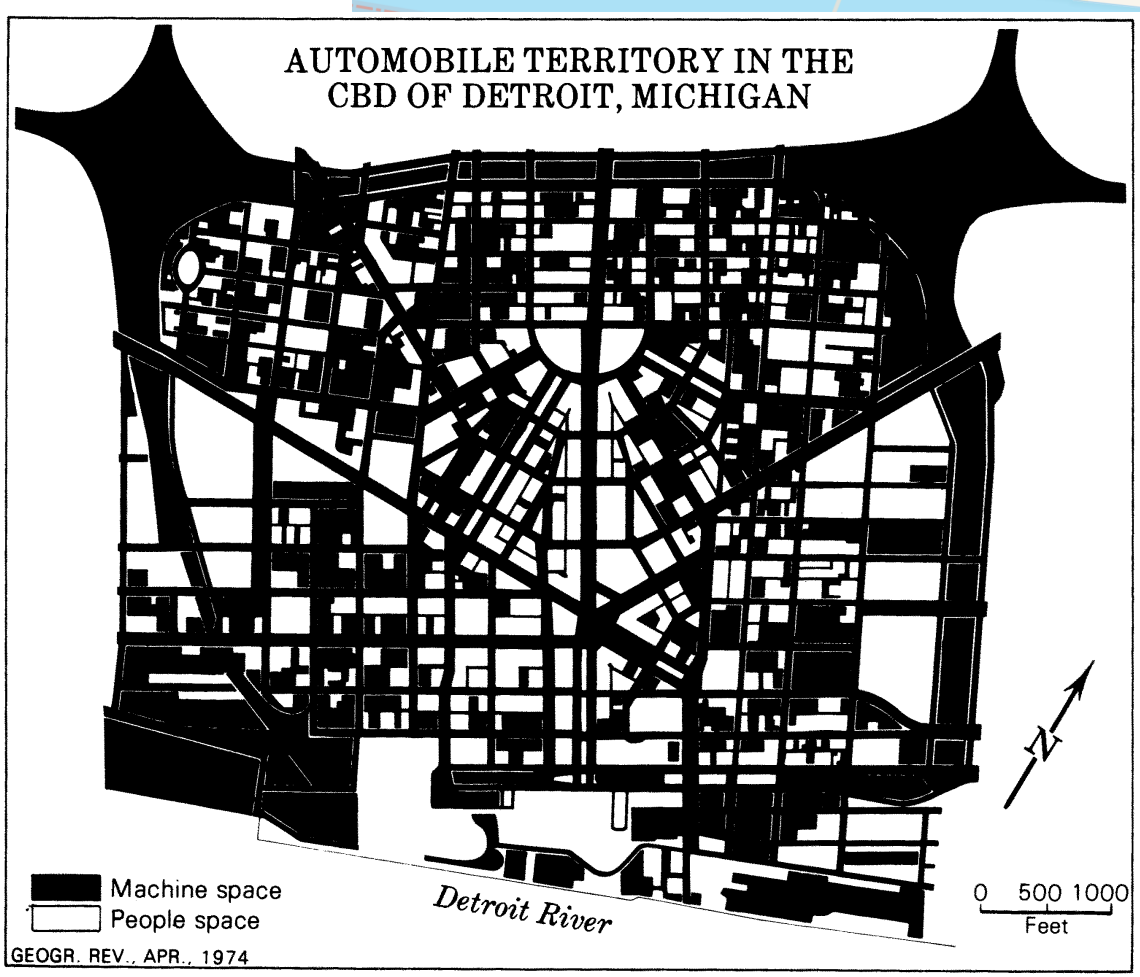
Maps *interpret* territory and lived space through abstraction and *symbolization.*

e.g.: Horvath's "Machine Space" vs. "People Space"







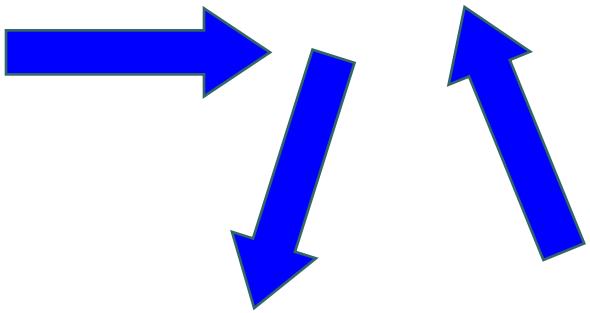


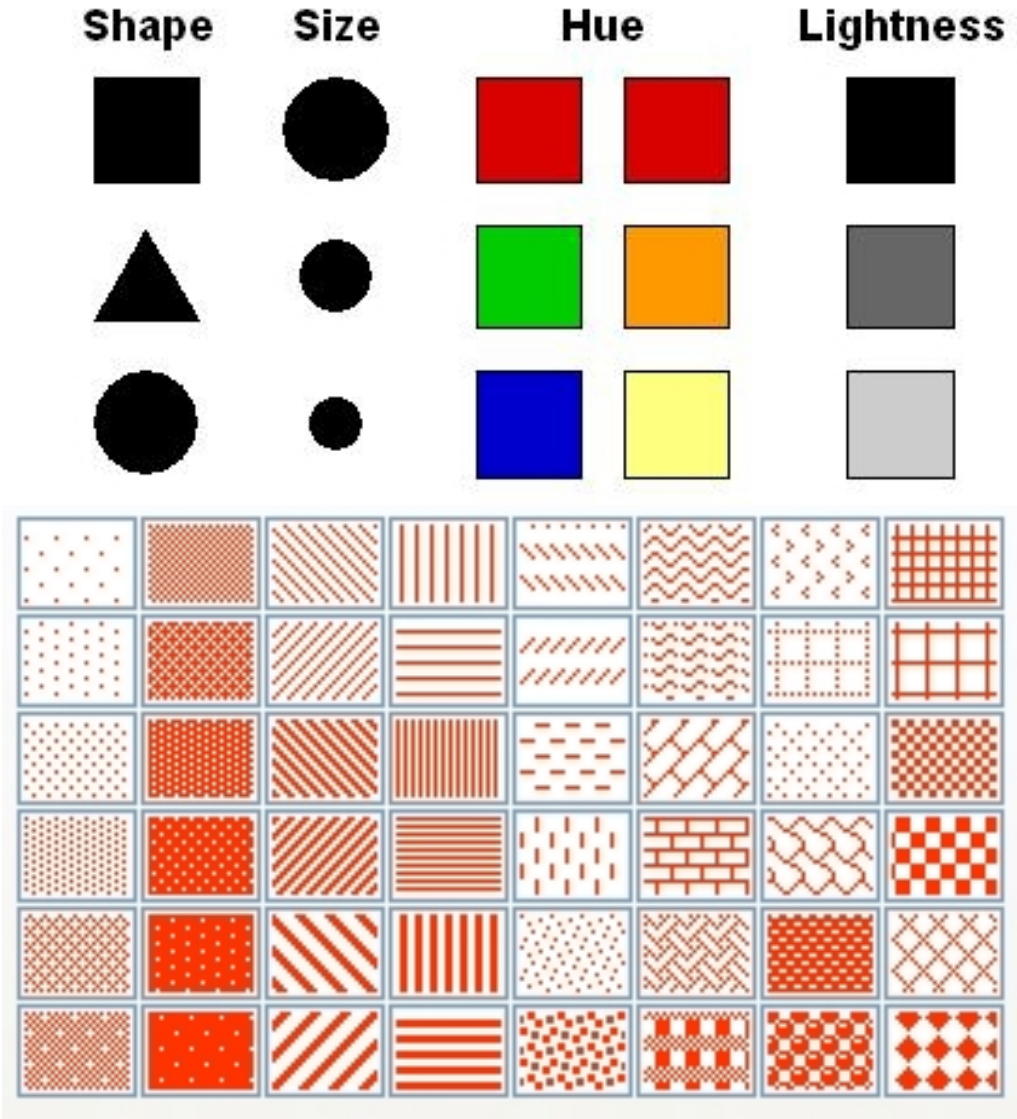
You choose your visual variables carefully to properly express your data for a particular set of readers and reading contexts.

Visual Variables: (or just a selection thereof)

The 'building blocks' of map symbolization

- Shape
- Size
- Color (hue, value, saturation)
- Pattern
- Orientation



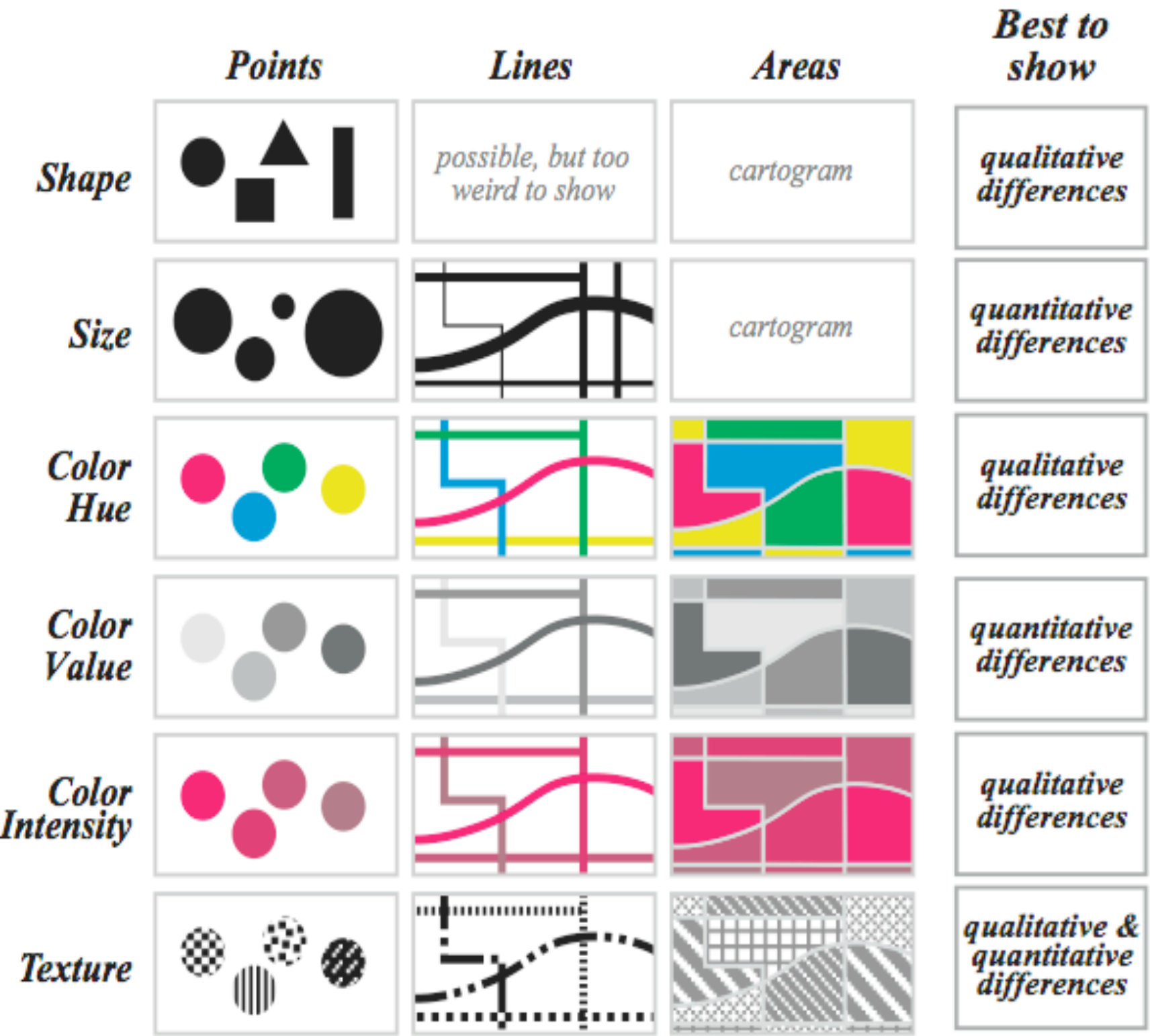


Using visual variables effectively

- Keep it as simple as you can, to start.
- Consider the attribute type you are showing
  - Quantitative or qualitative?
  - Or, even more specifically:
    Nominal/Qualitative, Ordinal, Interval, or Ratio?

Wood and Krygier in your readings put it nicely:

“If your data are qualitative, choose a visual variable that suggests qualitative differences, such as shape or color hue. If your data are quantitative, choose a visual variable that suggests quantitative differences, such as size or color



(from Wood and Krygier)

A. Qualitative
B. Quantitive
C. Both
D. Neither

Afzal et al. 2012 and Axis Maps

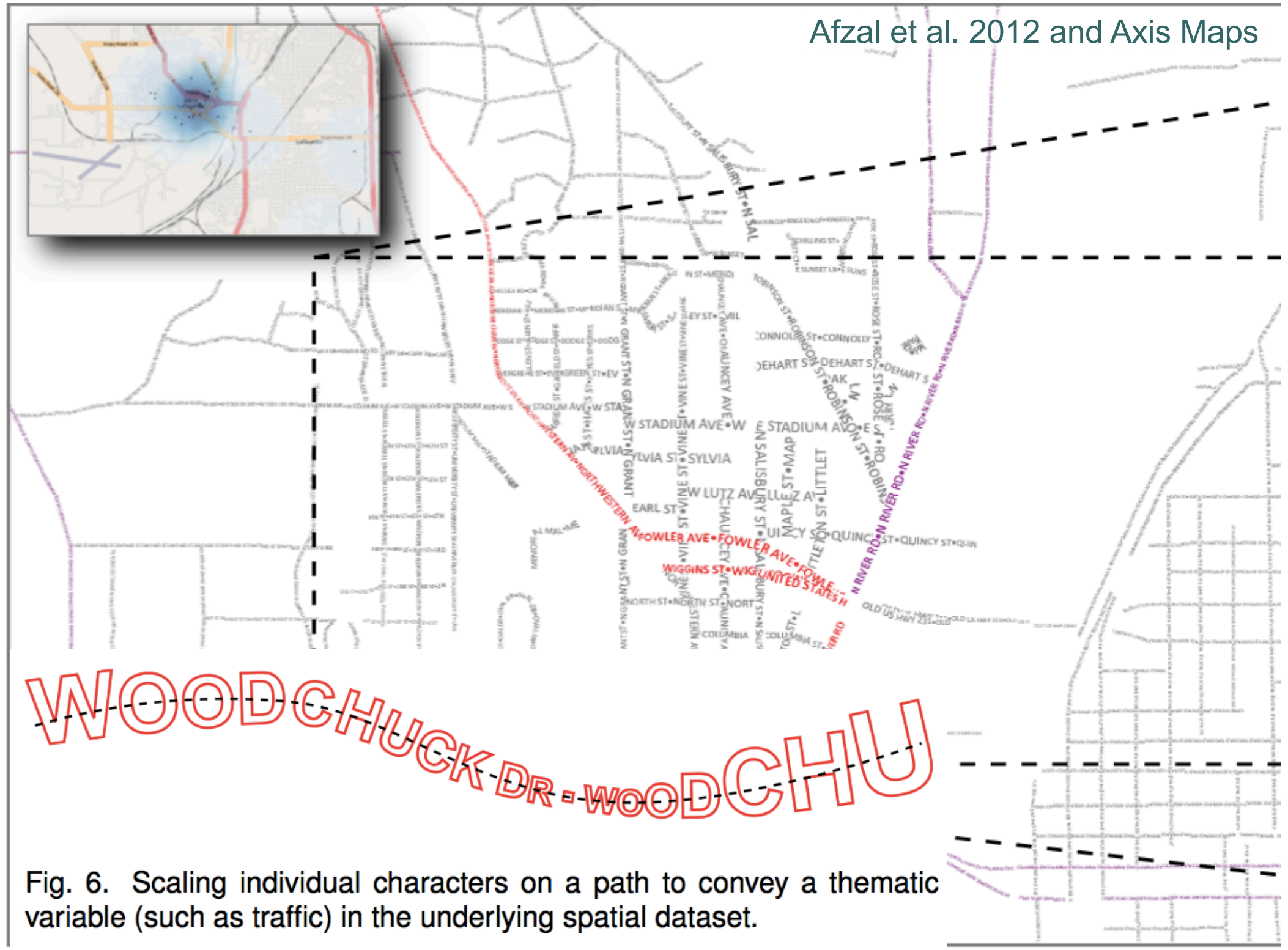


Fig. 6. Scaling individual characters on a path to convey a thematic variable (such as traffic) in the underlying spatial dataset.