Packing

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Word Cloud

Data Visualization MOOC Overview,
as summarized by wordle.net

Area as a Measure

Quantitative

Position

Length

Angle

Slope

Area

Volume

Density

Saturation

Hue

Ordinal

Position

Density

Saturation

Hue

Texture

Connection

Containment

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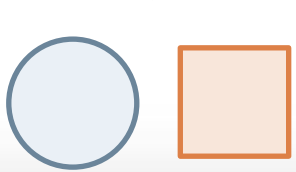
consistent shapes



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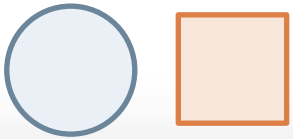
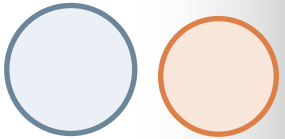
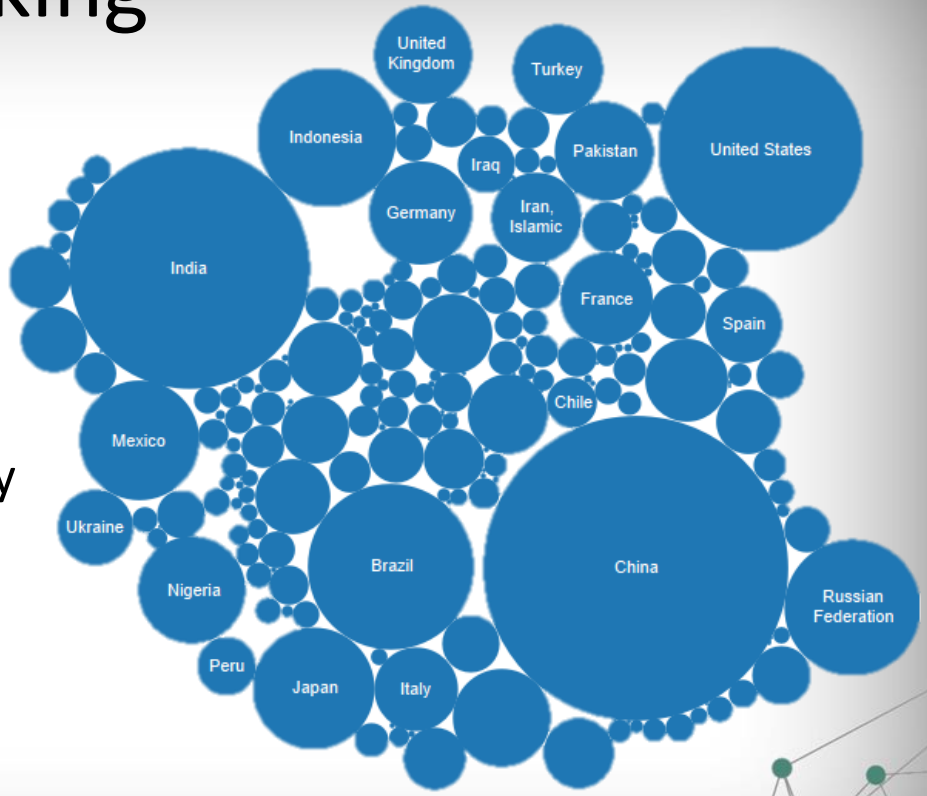


aligned shapes



Packing

- Like graph visualization, uses 2-D canvas to visually separate data items
- Unlike graph visualization, no need to draw explicit edge relationships, though proximity can still matter (e.g. hierarchy, MDS)

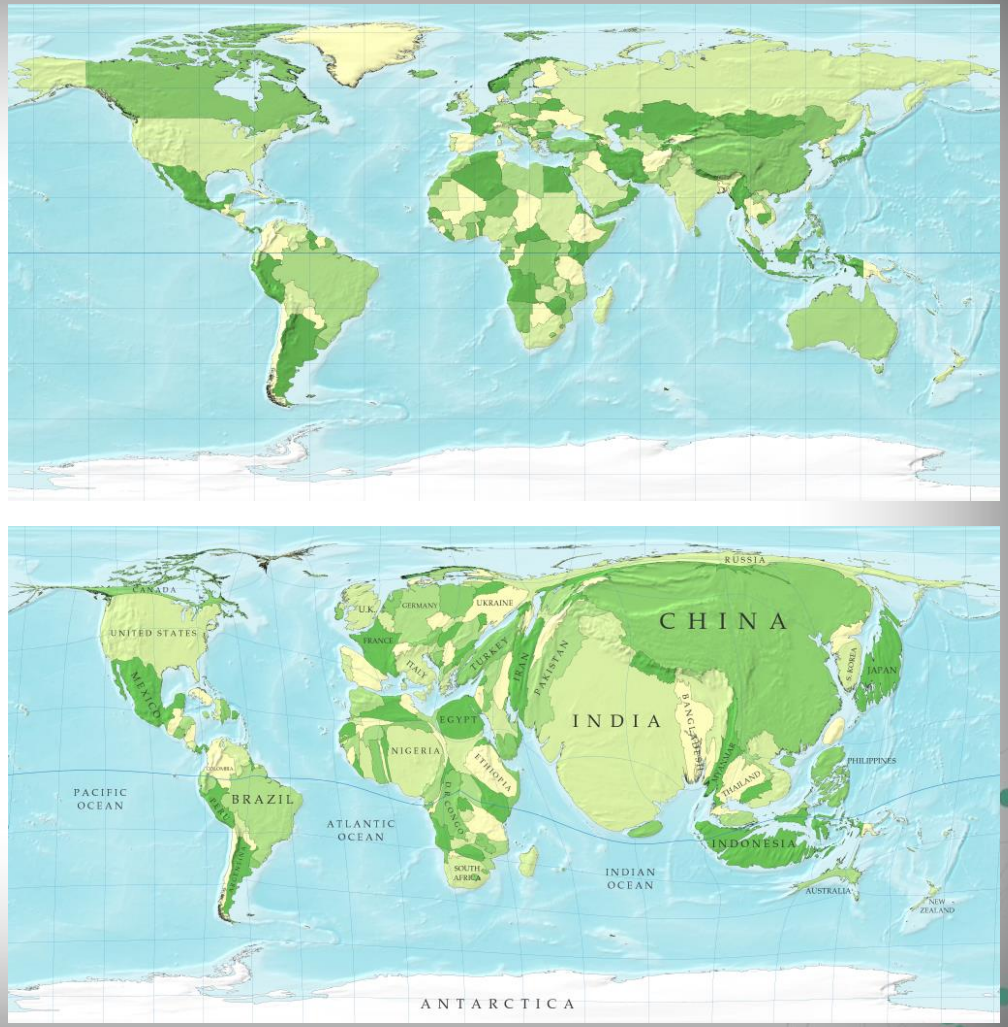


WDI Population (as area via Tableau)

Cartogram

- Area of (vector) region outline shape scaled by data value
- Region outline shape data available from:

http://www.mappinghacks.com/data/



Regions scaled by population.
Courtesy Prof. Mark Newman, U. Mich.
http://www-personal.umich.edu/~mejn/cartograms/

Creating a Cartogram

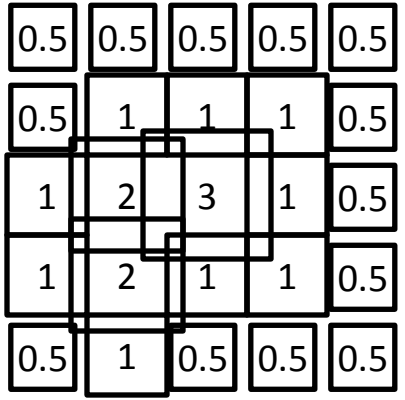
- Fill a grid with density data
  (e.g. local population density)

0.5	0.5	0.5	0.5	0.5
0.5	1	1	1	0.5
1	2	3	1	0.5
1	2	1	1	0.5
0.5	1	0.5	0.5	0.5

Tobler, "Geographic area and map projections". Geog. Rev. 53(1), 1963

Creating a Cartogram

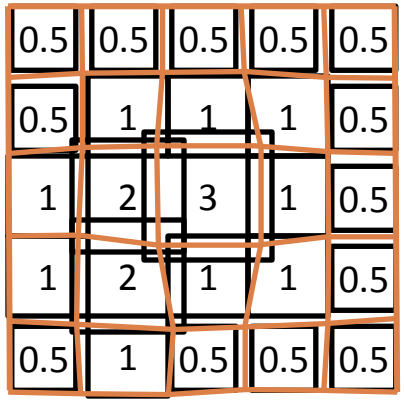
- Fill a grid with density data (e.g. local population density)
- Expand grid cells individually so area represents density



Tobler, "Geographic area and map projections". Geog. Rev. 53(1), 1963

Creating a Cartogram

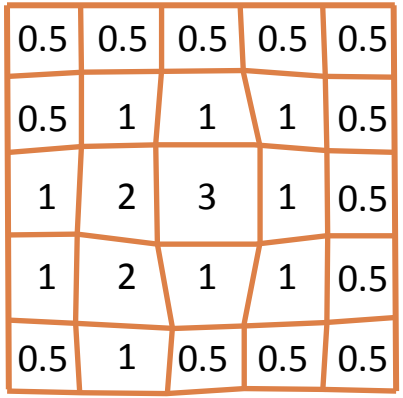
- Fill a grid with density data (e.g. local population density)
- Expand grid cells individually so area represents density
- Create new grid vertices at centroid of cell corners



Tobler, "Geographic area and map projections". Geog. Rev. 53(1), 1963

Creating a Cartogram

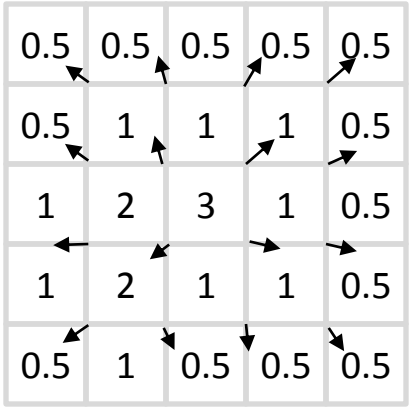
- Fill a grid with density data (e.g. local population density)
- Expand grid cells individually so area represents density
- Create new grid vertices at centroid of cell corners
- Repeat until area equals density



Tobler, "Geographic area and map projections". Geog. Rev. 53(1), 1963

Creating a Cartogram

- Fill a grid with density data (e.g. local population density)
- Expand grid cells individually so area represents density
- Create new grid vertices at centroid of cell corners
- Repeat until area equals density
- Results in a deformation used to reposition shape vertices



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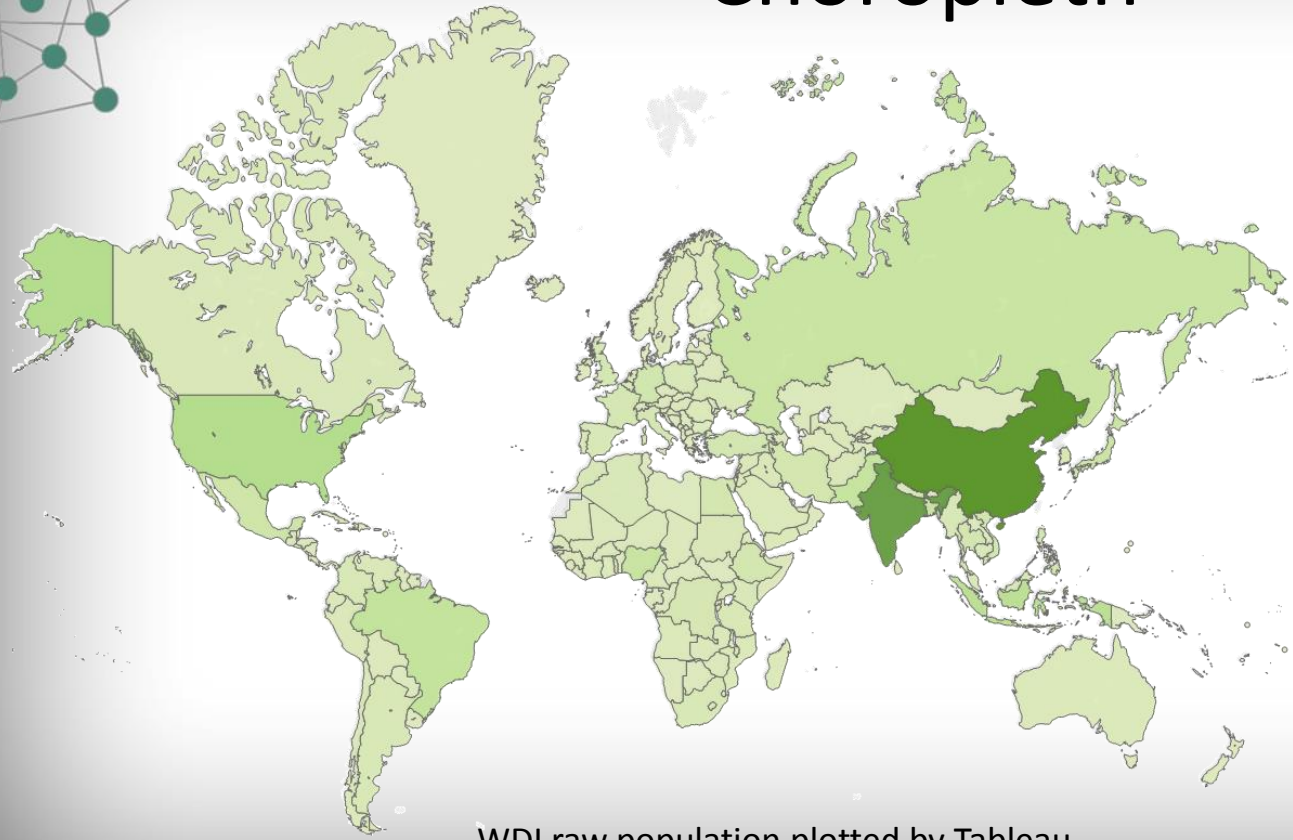
Choropleth



WDI raw population plotted by Tableau

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