Last Time

- High-Dimensional Data
- Parallel Coordinate Plots
- Small Multiples
- Scatterplot Matrices
- Pixel-Based Displays
- Glyphs
- Techniques for Reducing Records & Dimensions
Latitude-Longitude

Snyder, "Flattening the Earth"
Based on slide from Hanrahan
Azimuthal Projections

Projection onto a plane tangent to the Earth
Conic Projections

Projection onto a cone that slices through the globe, intersecting the Earth twice

Two standard parallels (selected by mapmaker)

Equal areas. Deformation of shapes increases away from standard parallels.
Cylindrical Projections

Projection onto a cylinder wrapped around the globe

- Central meridian (selected by mapmaker)
- Great distortion in high latitudes
- Examples of thumb lines (direction true between any two points)
- Equator touches cylinder if cylinder is tangent
- Reasonably true shapes and distances within 15° of Equator
First Choropleth Map

Illiteracy in France

Charles Dupin, 1826
The deep red down the center of this map highlights the president's support in sparsely populated areas.
This map removes mostly uninhabited areas, revealing Mr. Bush's suburban and rural support in the East and South.
Our site's users

Subscribers to Martha Stewart Living

Consumers of furry pornography

The business implications are clear.

Pet peeve #208: Geographic profile maps which are basically just population maps.
First Contour Map

Lines of Equal Magnetic Declination
Edmond Halley, 1701
First Weather Map

Wind Map, Edmond Halley, 1686
Figure 1.8  Airlines’ view of the United States.
Maps can be scaled to units other than distance. In this case, airline fares are used instead of miles or other linear units.
(Map copyright by the author.)

Airlines’ View of the United States
from Atlanta, Georgia

From Atlanta:

Compiled from advertised one-way coach airfares in the Atlanta/Journal Constitution from Atlanta to various American cities, American Airlines, September 24, 1967.

Map copyright Borden D. Dent, 1969
Elvis Concerts

Attendance per State, 1970 - 1977

Note: NV, with an estimated concert attendance of over 600,000, is excluded because of space limitations.

Note: DE, DC, ID, MT, NH, ND, VT, WY, AK = 0 NJ data are unavailable.
Rectangular Cartograms
Killer circles threaten America

- No sides
- Area equal to $\pi r^2$
- Extremely round
- Often fatal
- North Dakota, New Mexico, Colorado remain circle-free

Don’t care | Unsure | Scared of circles
---|---|---
6% | 14% | 80%

How are Americans reacting to the growing geometric menace?
Any Questions?