Thematic Cartography

GEOG 5201 – Spring 2022
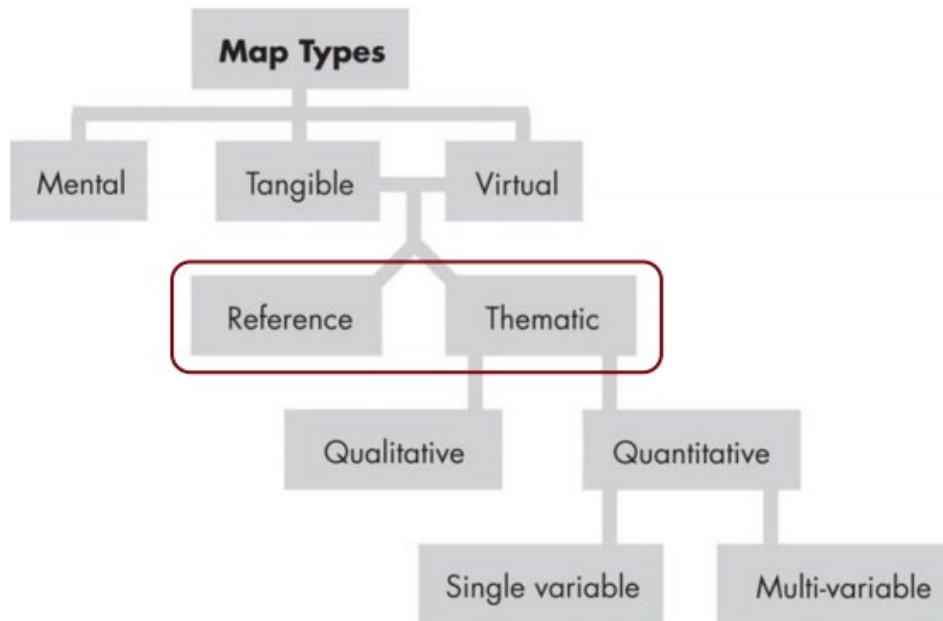
Outline

- Thematic maps
  - Concepts
  - Applications
- The map communication model

What is a Thematic Map?

- What is cartography?
  - "The discipline dealing with the conception, production, dissemination, and study of maps" (The international Cartographic Association (ICA))
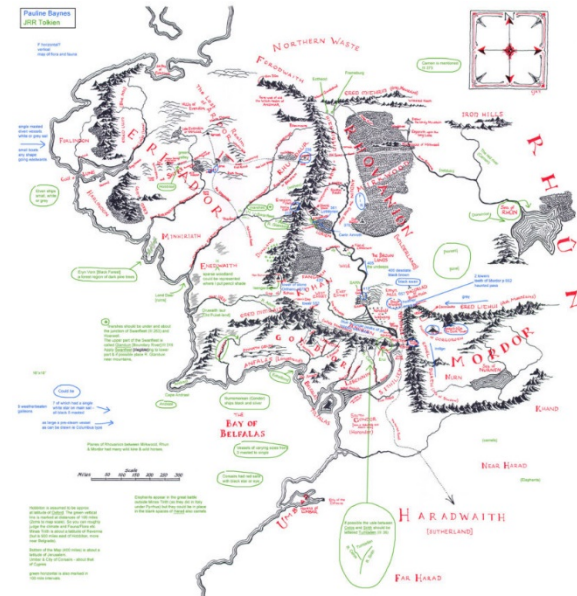
Map Types

Mental | Tangible | Virtual

Reference | Thematic

Qualitative | Quantitative

Single variable | Multi-variable

What is a Thematic Map?
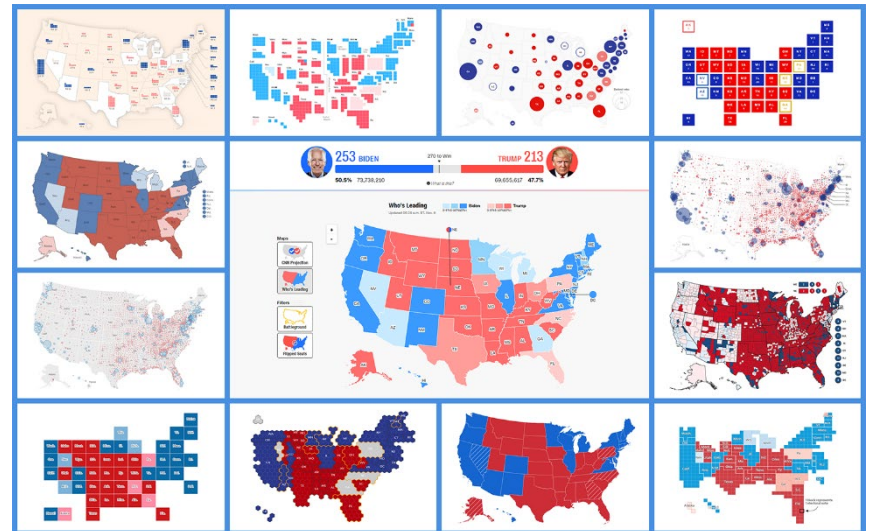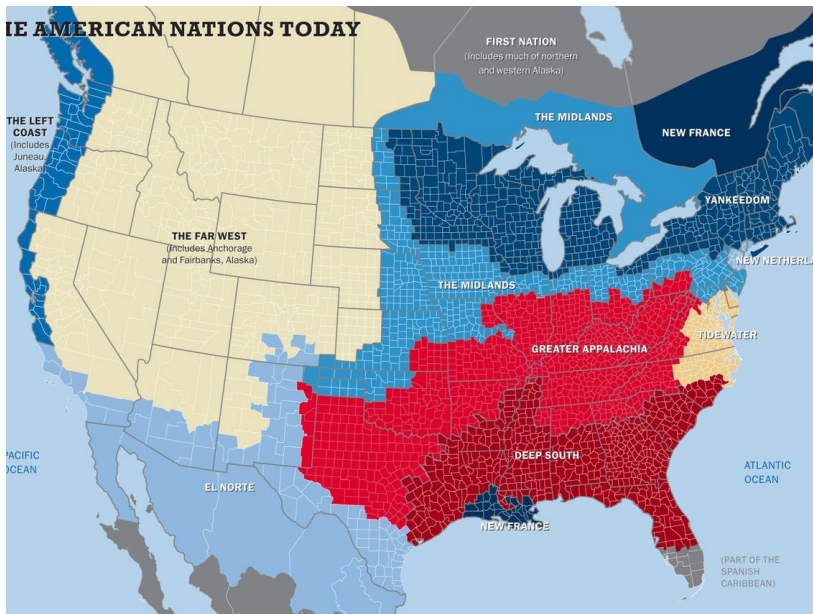
- **General-reference maps**
  - Emphasize *locations* of spatial phenomena
  - Usually used to determine the location of objects (natural or/and man-made) from geographic environment
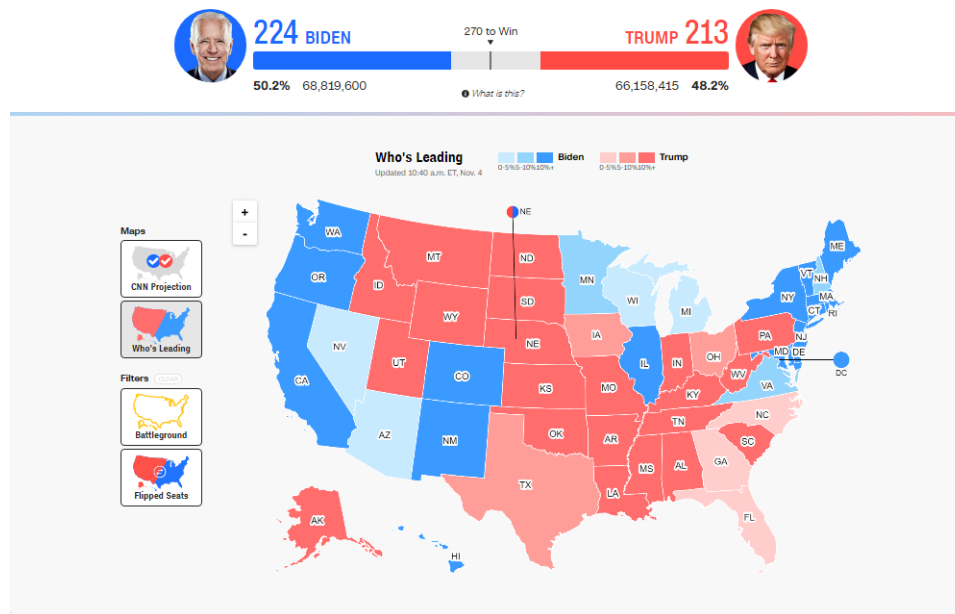
What is a Thematic Map?

- **Thematic maps**
  - Emphasize the *spatial pattern* of one or more geographic attributes (or variables), such as population density, family income, and daily temperature maximum
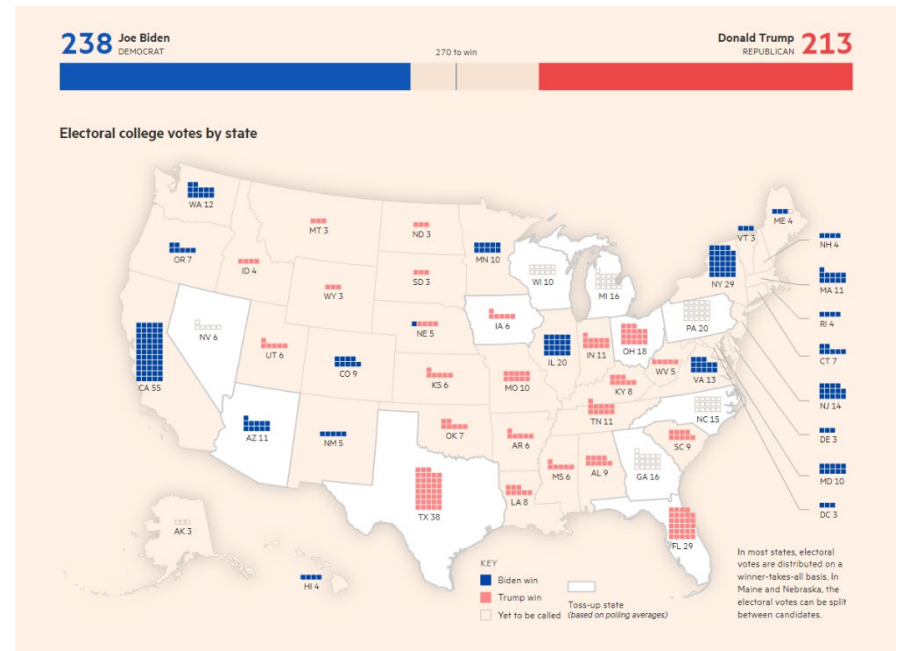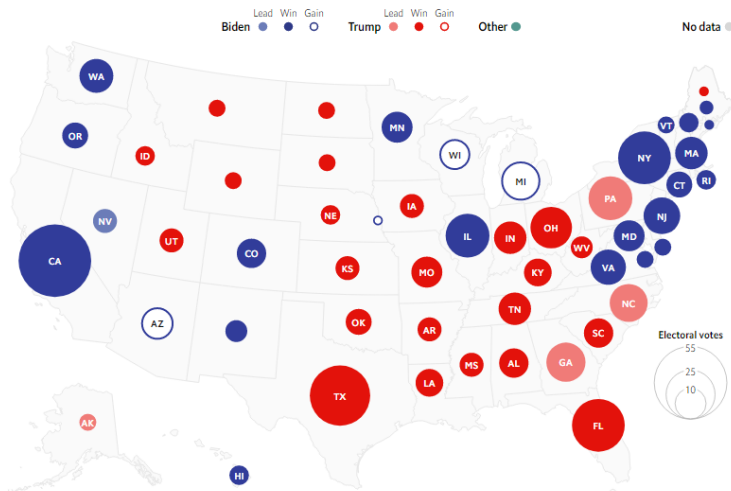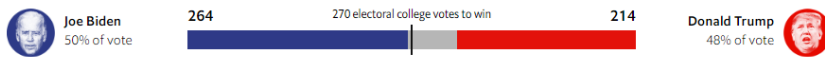
What is a Thematic Map?

- A common thematic map is the choropleth map
  - Enumeration units (or data collection units such as states) are shaded to represent different magnitude of an attribute

What is a Thematic Map?

- There are other thematic maps
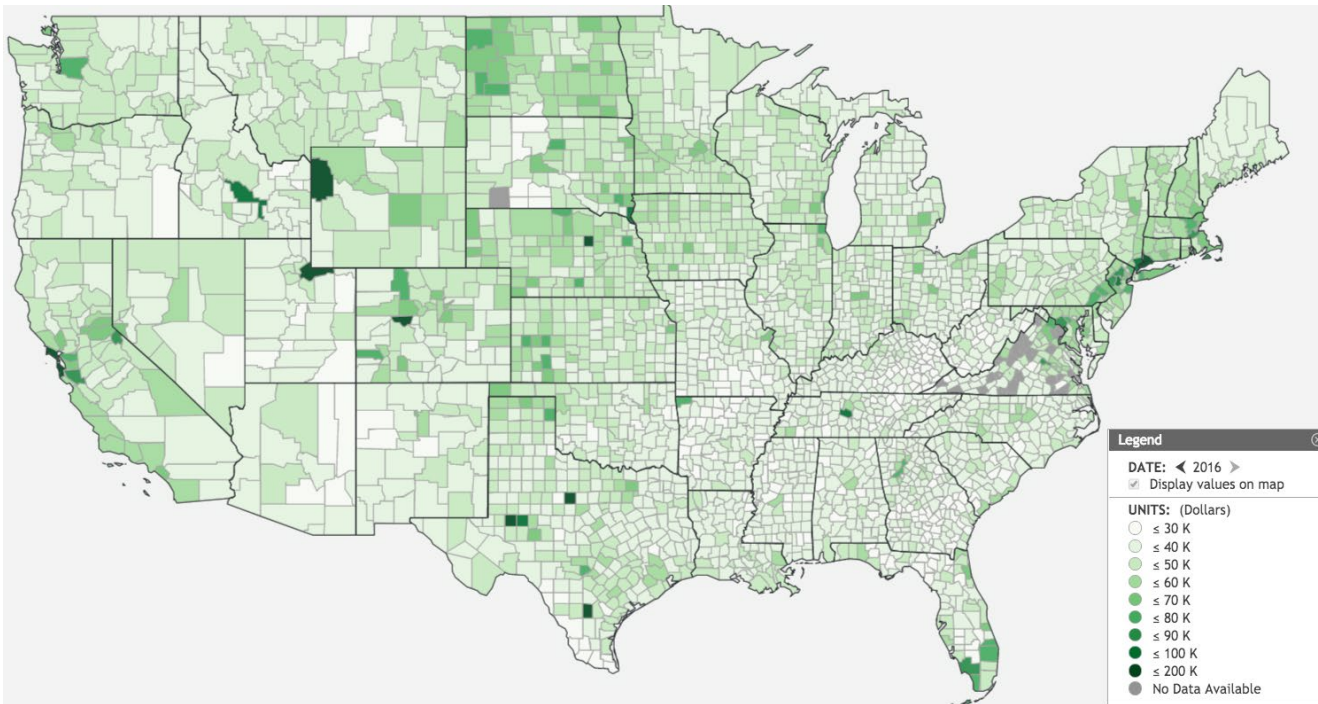 - Examples: proportional symbol, dot density, flow

What is a Thematic Map?

- The general-reference map can also be viewed as a thematic map in which multiple attributes are displayed simultaneously (or, *multivariate thematic map*)
  - If we focus on the spatial pattern (instead of just locations) of particular attributes (e.g., the pattern of airports or rivers)
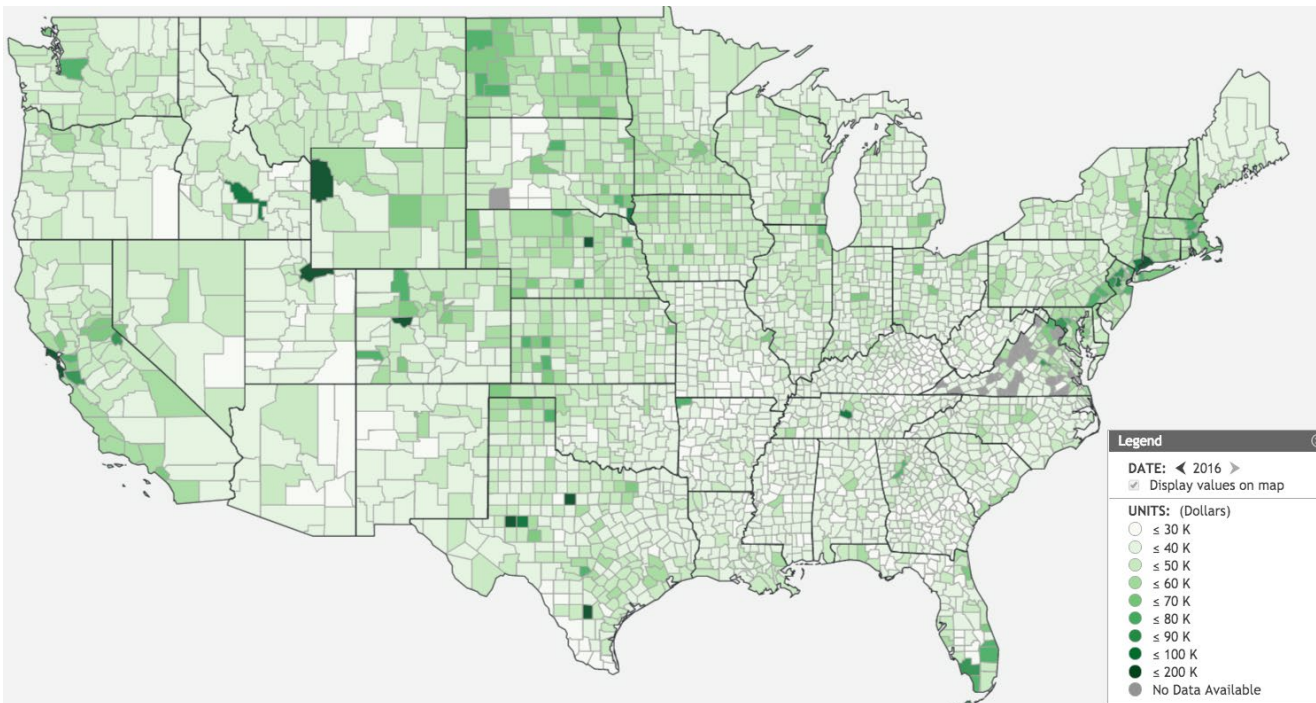
How are Thematic Maps Used?

- **To provide specific information about particular locations**

Per capita income in Ohio counties is between 40k to 70k
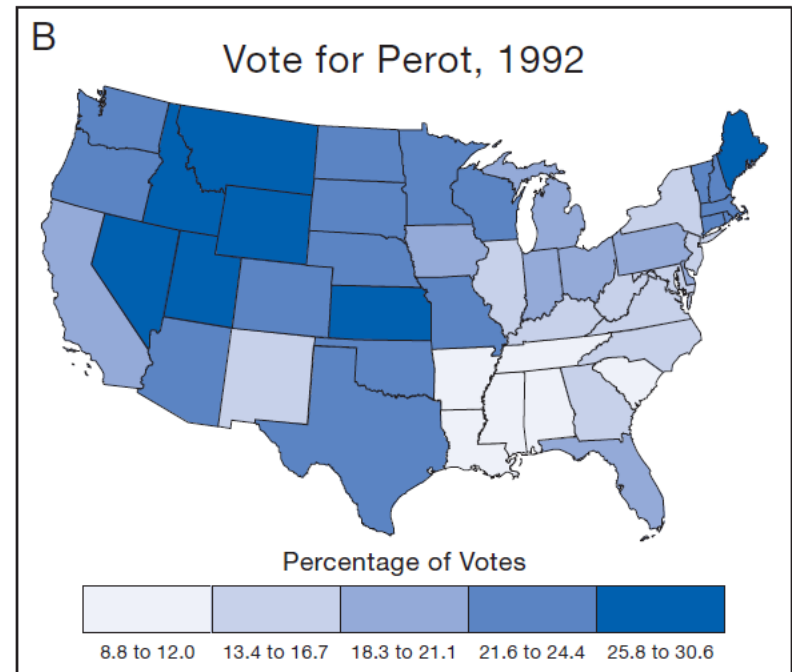
How are Thematic Maps Used?
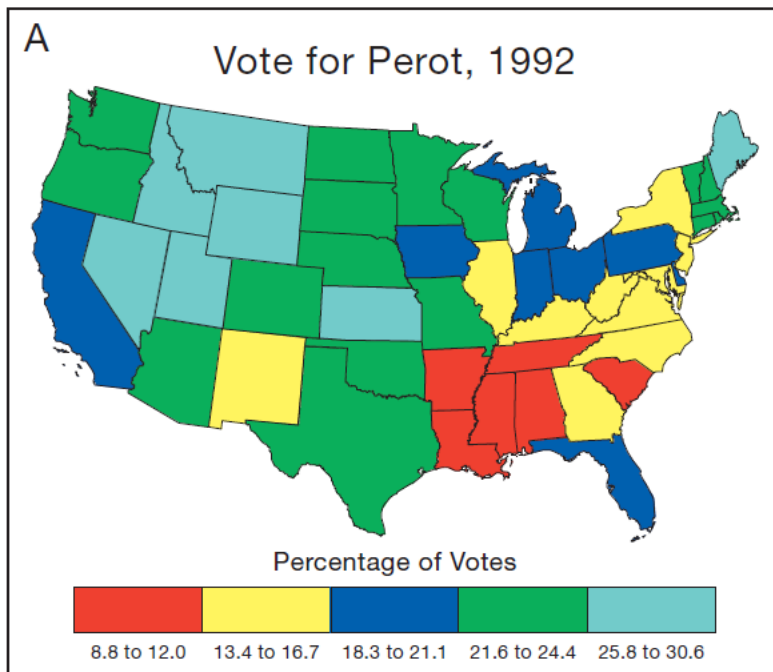
- **To provide general information about spatial patterns**
  - Obtaining general information requires an overall analysis of the map

Per capita income is relatively higher in east and west coasts
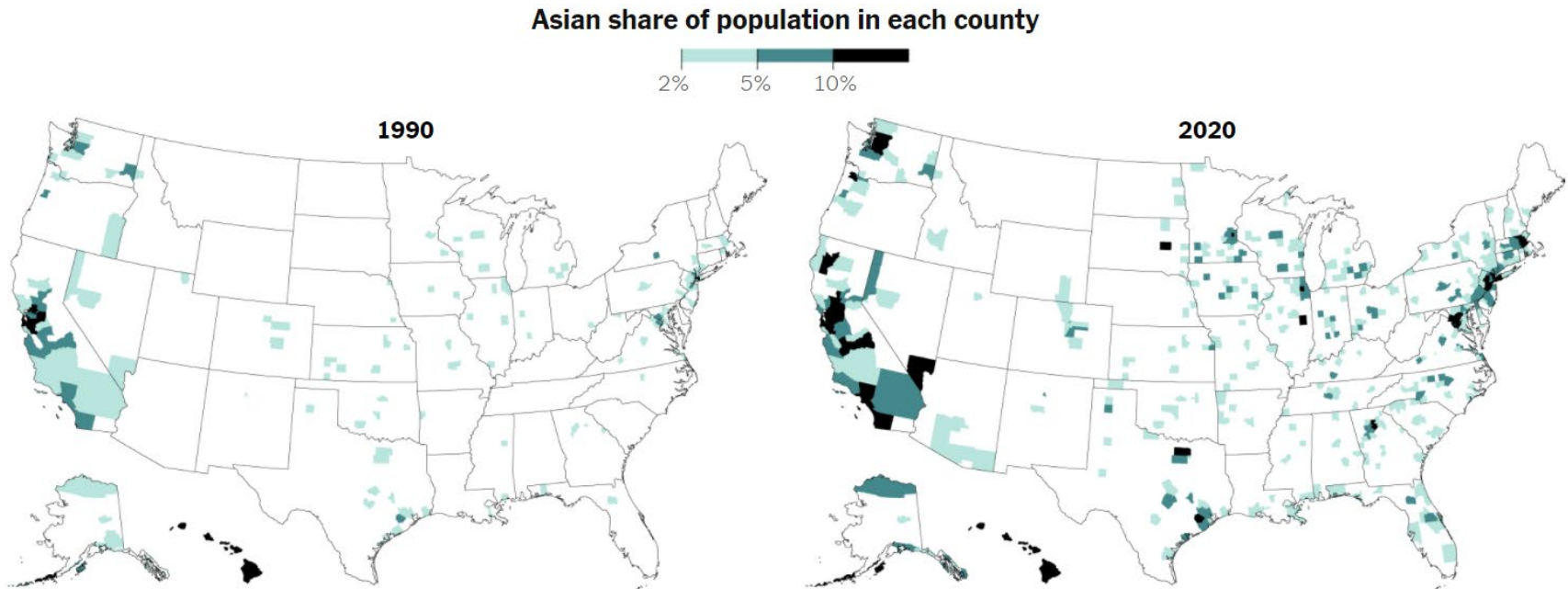
How are Thematic Maps Used?

- Inordinate emphasis on specific information?

Source: Famighett, R. (1993) *The Macmillan World Almanac Book of Facts 1994*. Mahwah, NJ: Funk & Wagnalls.

How are Thematic Maps Used?

- **To compare patterns on two or more maps**
  - Interactive mapping now enables comparing arbitrarily selected distributions

Asian share of population in each county

Question 1-1-1

a. How do thematic maps differ from general-reference maps?

b. If we want to emphasize the spatial distribution of population using a choropleth map, what kind of color schemes might be more appropriate?

   i. Random color schemes
   ii. Continuous color schemes

Conventional Cartographic Paradigm: Map Communication Model

- **Step 1: Consider what the real-world distribution of the phenomenon might look like**
  - "What would the distribution of the phenomenon look like if I were to view it while traveling across the landscape?"
- **Step 2: Determine the purpose of the map and its intended audience**
  - Match the real-world? Map distribution at a particular geographic level?
- **Step 3: Collect data appropriate for the map's use**
  - Ancillary data can also be helpful
- **Step 4: Design and construct the map**
  - Use appropriate map elements
- **Step 5: Determine whether users find the maps useful and informative**
  - Feedback from your audience!