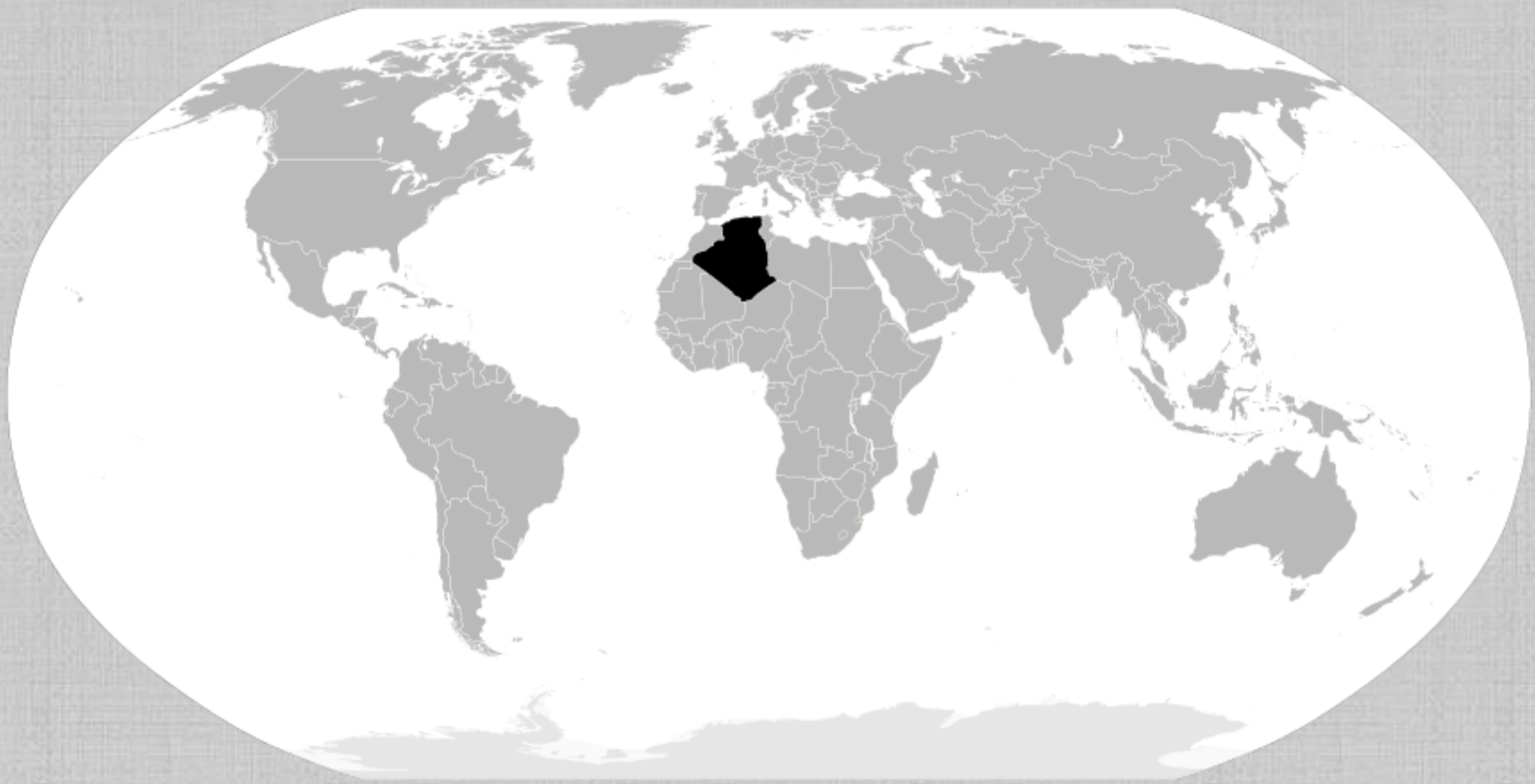
Map Types

Locator
Reference
Thematic

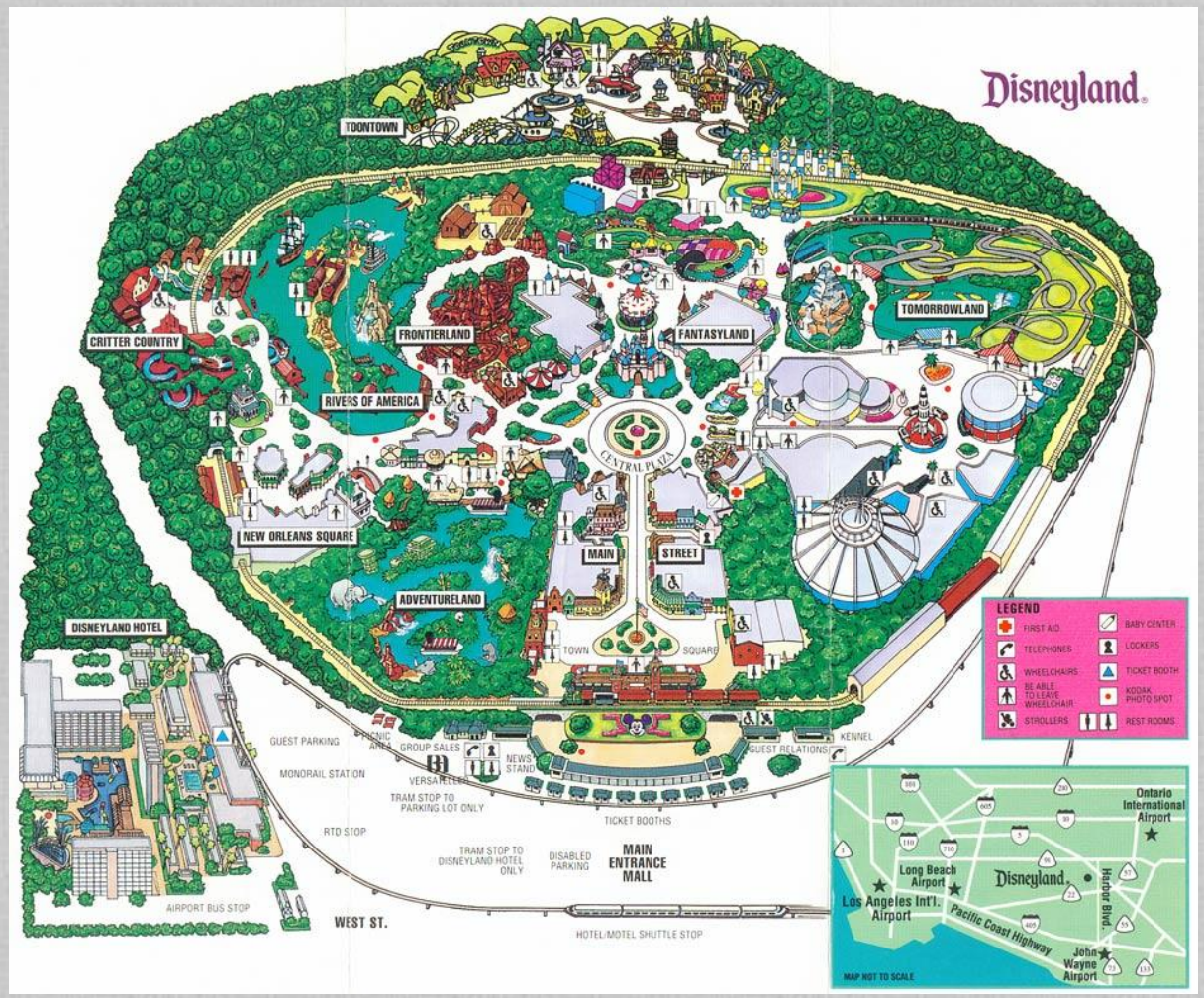
Locator Map

Shows the location of something



Reference Maps

- Special Purpose (not as important)

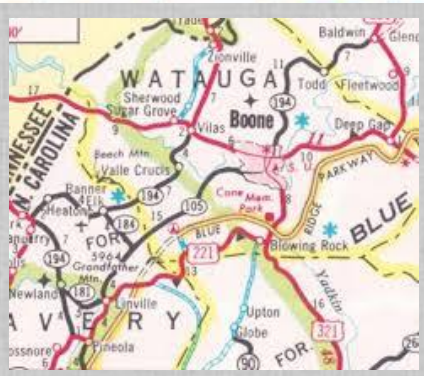


Reference Maps

- Political-shows countries, counties, boundaries, etc.

- Physical Maps-shows mountains, rivers, plains, etc.

- Road Maps-shows interstates, roads, etc.

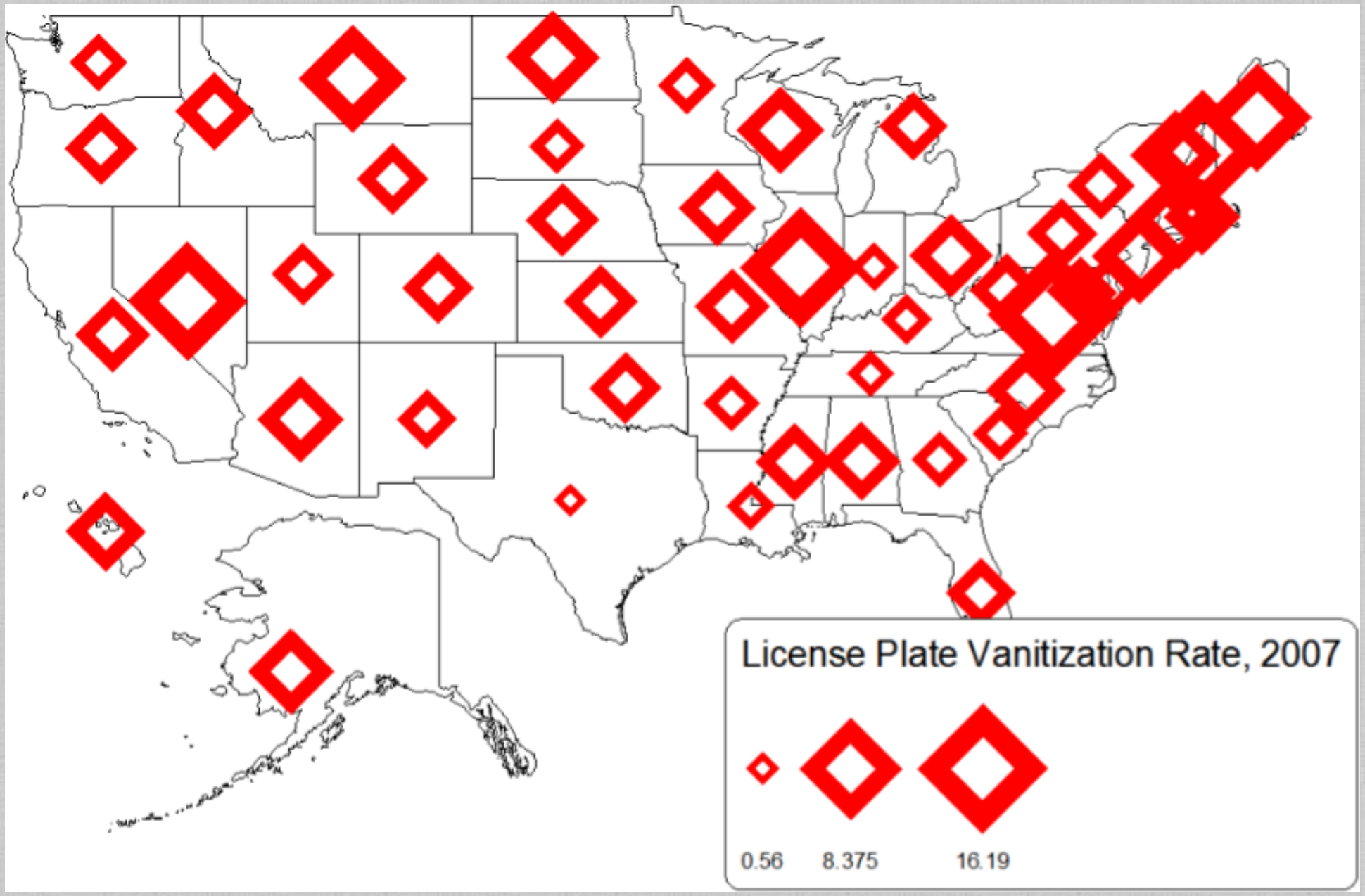


Thematic Maps

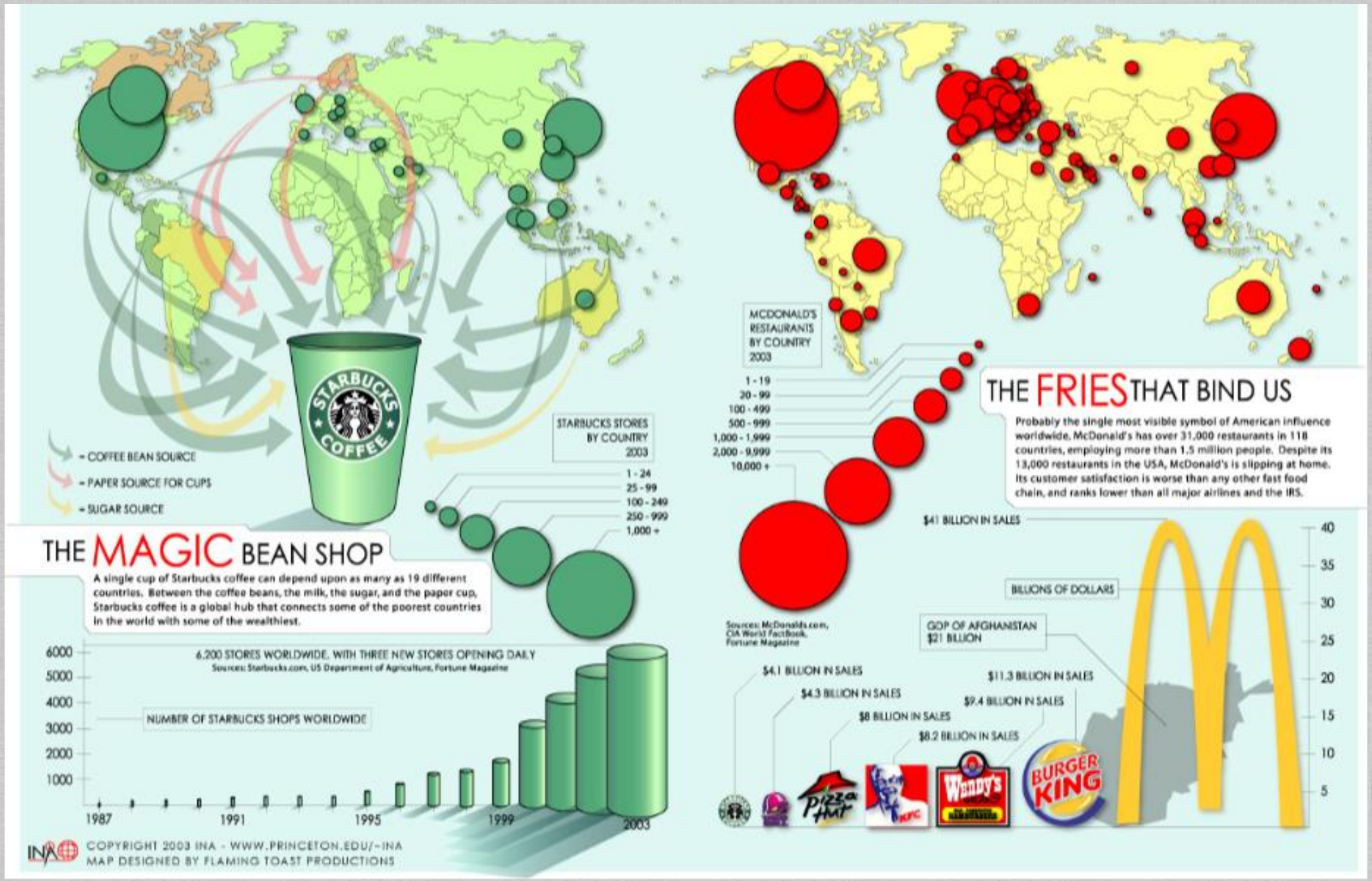
Graduated or Proportional Symbol
Dot Distribution
Choropleth
Isoline
Cartogram

STATE PLATE VANITIZATION RATE

Graduated Symbol or Proportional Symbol



Graduated symbol



Graduated or Proportional Symbol Map

- A thematic map in which the size of the symbol varies in proportion to the frequency or intensity of the mapped variable.
- What could be strengths of this type of map?
- What could be weaknesses of this type of map?

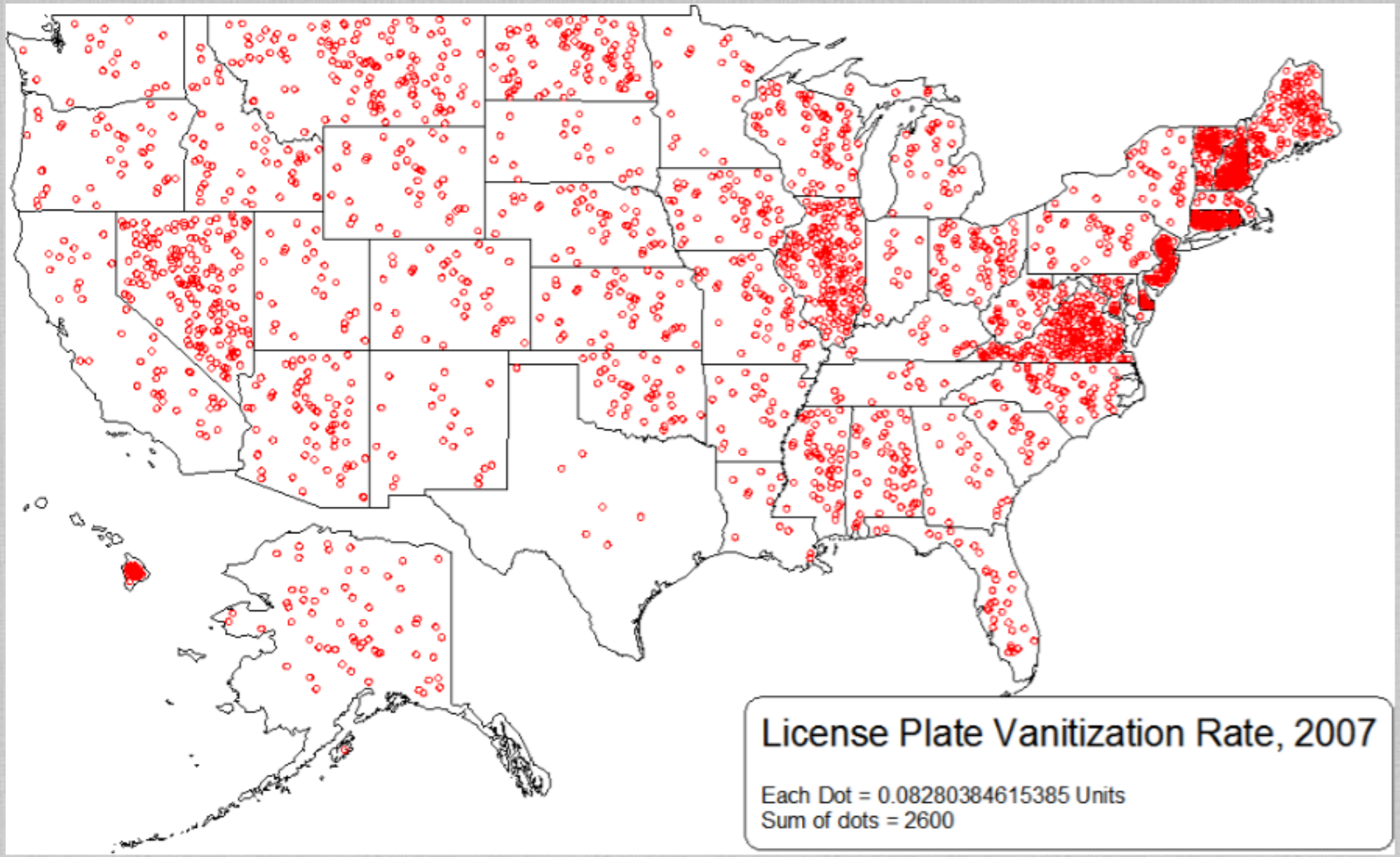
Pros

- Very easy to read and understand
- Flexible because you can use all different types of data

Cons

- Congestion/overlap (can’t see what’s below the symbol)
- Map readers generally don’t estimate the areas of symbols very well

Dot distribution



Dot Distribution – “Political Donations in Greenwich Village, New York, NY”

Dot Map

*A thematic in which a dot is used to represent some frequency of the mapped variable.

*What could be strengths of this type of map?

*What could be weaknesses of this type of map?

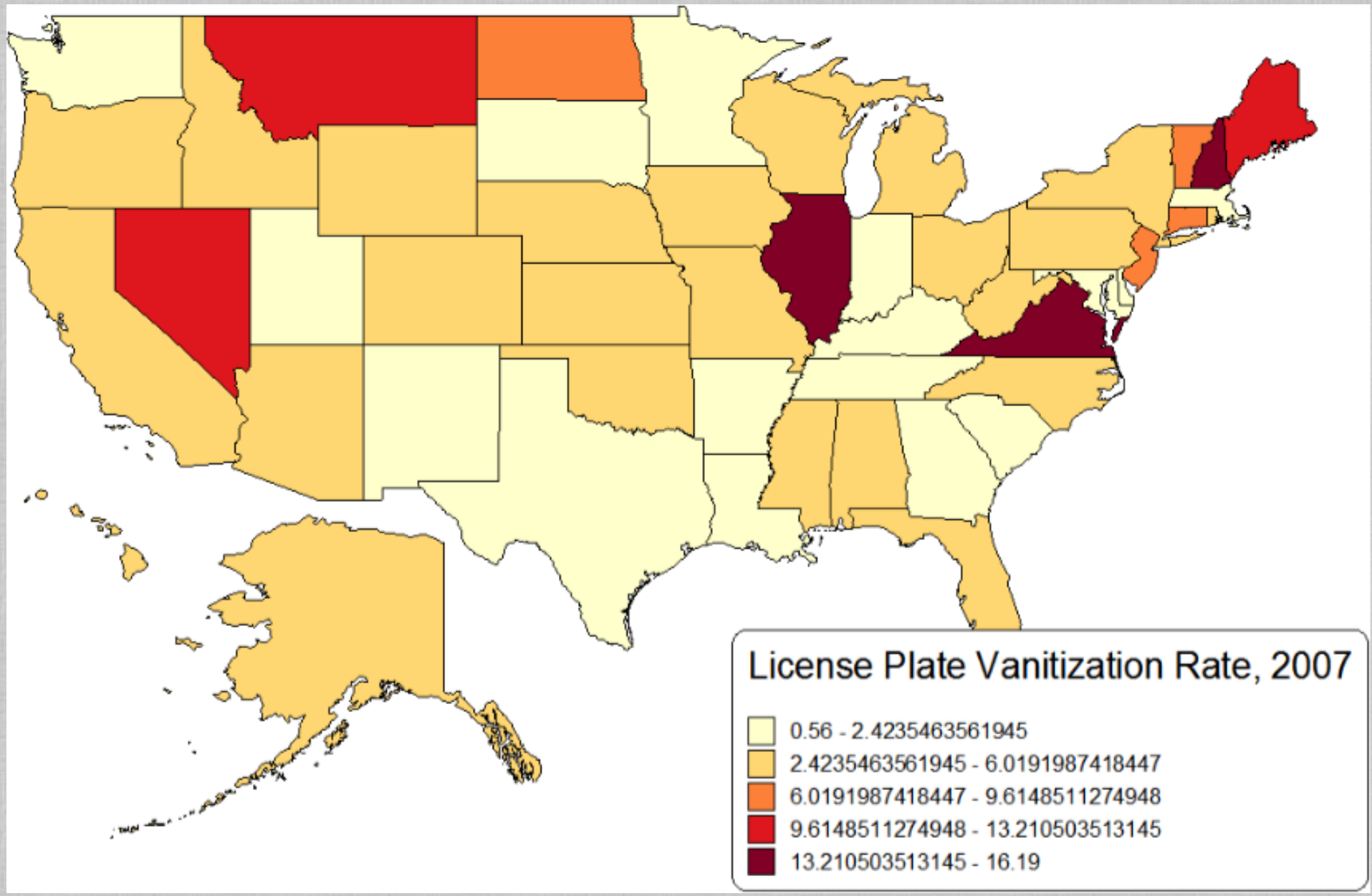
Pros

- Shows actual, precise locations of phenomena
- The “dot” can be a symbol or shape making it easier to see

Cons

- Anything less than the minimum “dot” amount will not be shown on the map
- Can be difficult to read, have to count up the dots

Choropleth


License Plate Vanitization Rate, 2007
0.56 - 2.4235463561945
2.4235463561945 - 6.0191987418447
6.0191987418447 - 9.6148511274948
9.6148511274948 - 13.210503513145
13.210503513145 - 16.19

Choropleth Maps

- A thematic map in which areas are shaded or patterned in proportion to the measurement of the statistical variable being displayed on the map, such as population density or per-capita income.
- What could be strengths of this type of map?
- What could be the weaknesses of this type of map?

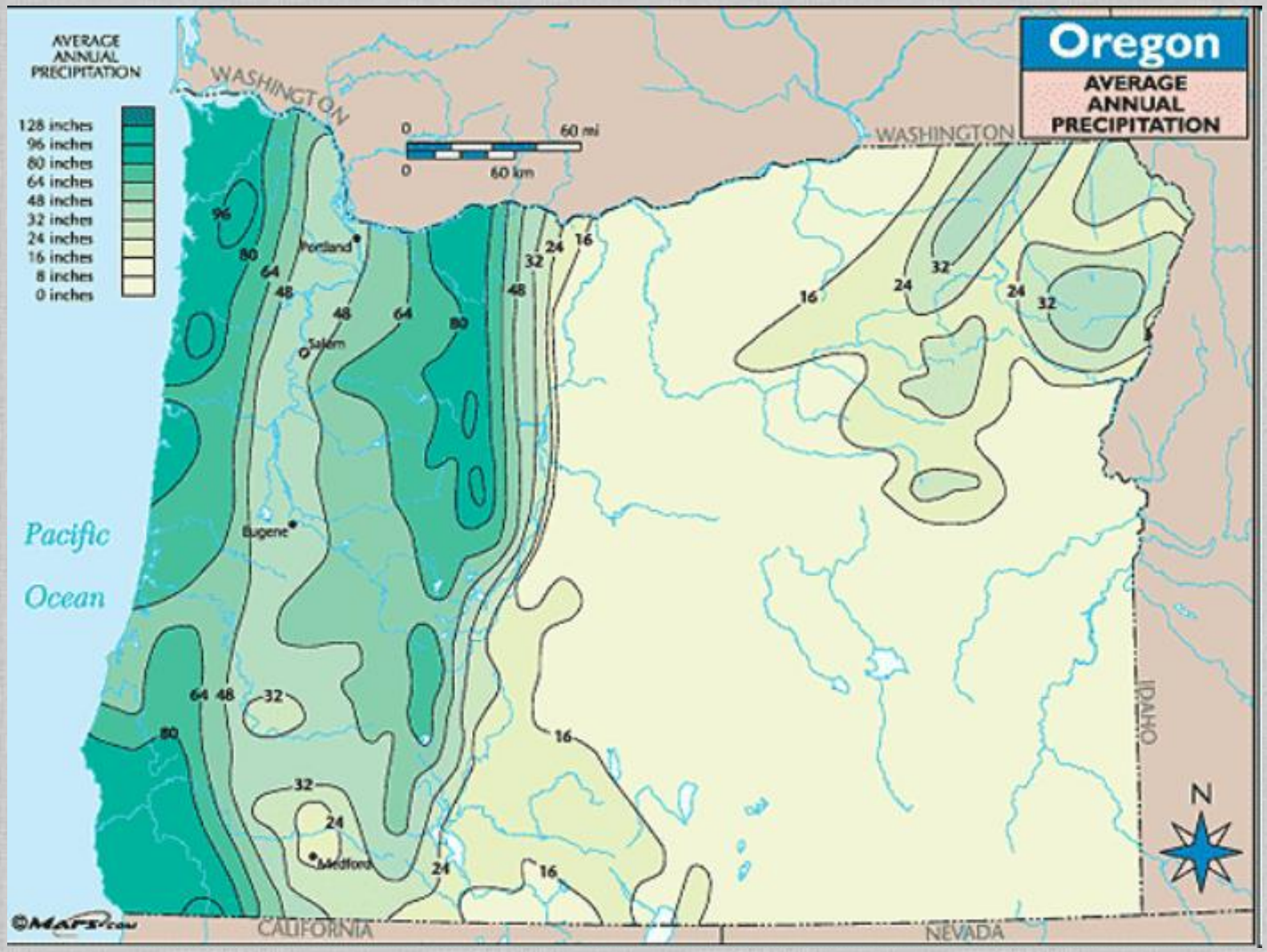
Pros

- Easy to read
- Easy to make

Cons

- Dangerous because of induction, classification, etc.

Isoline


Oregon
AVERAGE ANNUAL PRECIPITATION
AVERAGE ANNUAL PRECIPITATION
128 inches
96 inches
80 inches
64 inches
48 inches
32 inches
24 inches
16 inches
8 inches
0 inches
WASHINGTON
WASHINGTON
0 60 mi
0 60 km
Portland
Salem
Eugene
Medford
Pacific Ocean
IDAHO
CALIFORNIA
NEVADA
N

Isoline

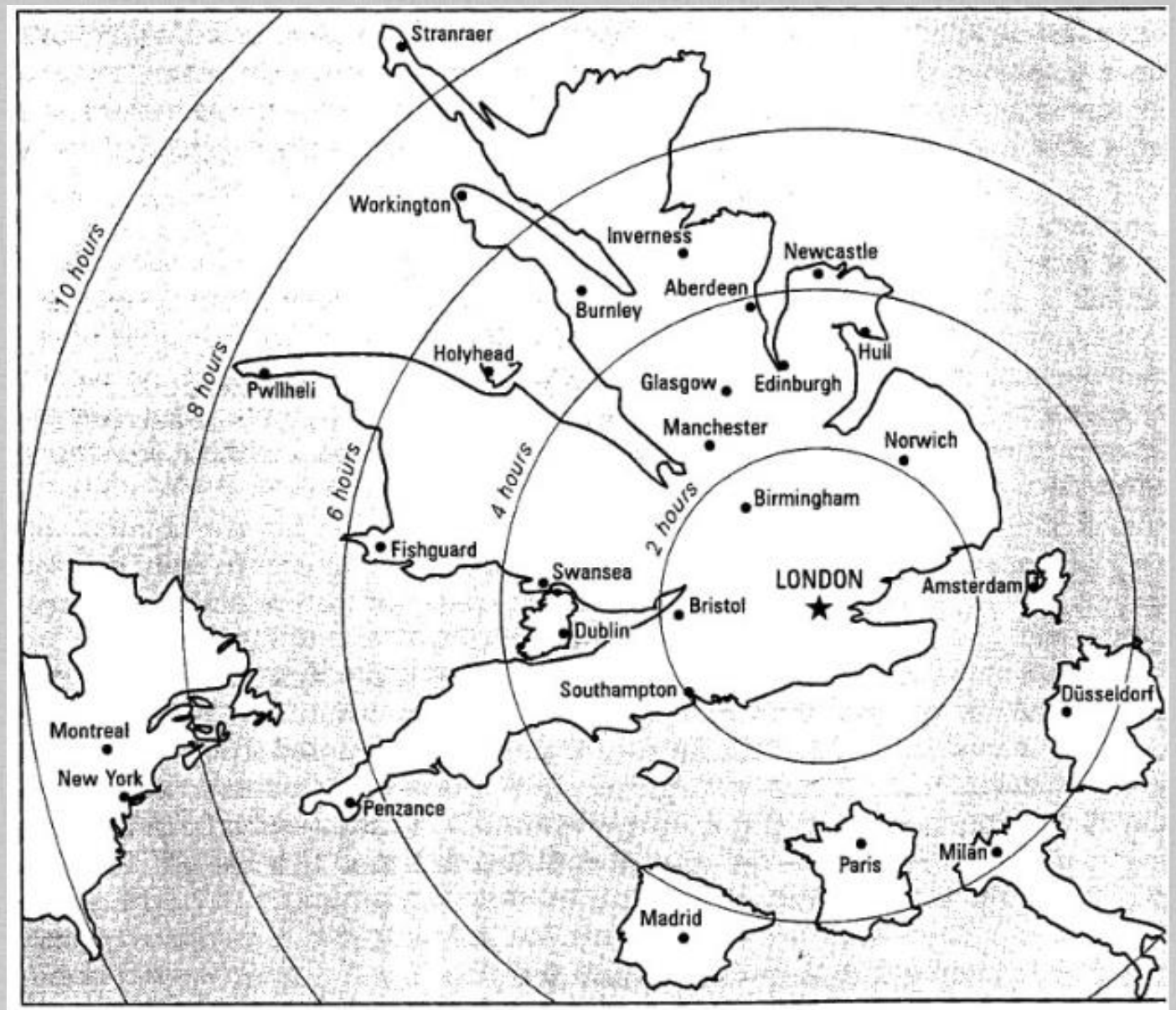


Figure 5.5 The unevenness of time-space convergence
Source: Based on Dicken and Lloyd (1981, Figure 2.7)

Isoline maps

- A Thematic map with lines that connect points of equal value
- What could be strengths of this type of map?
- What could be the weaknesses of this type of map?

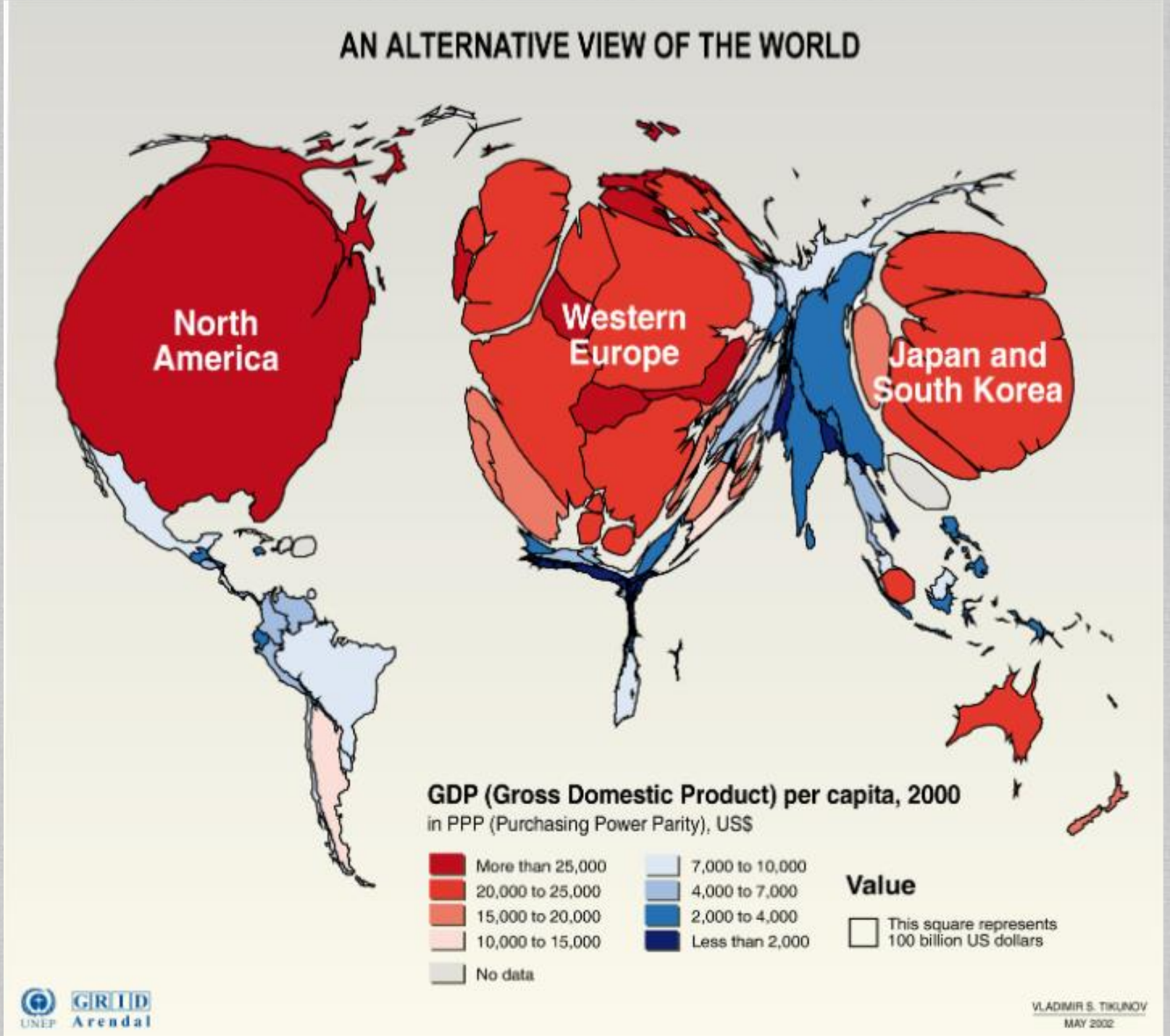
Pros

- Where lines are close together, shows zone of rapidly changing value

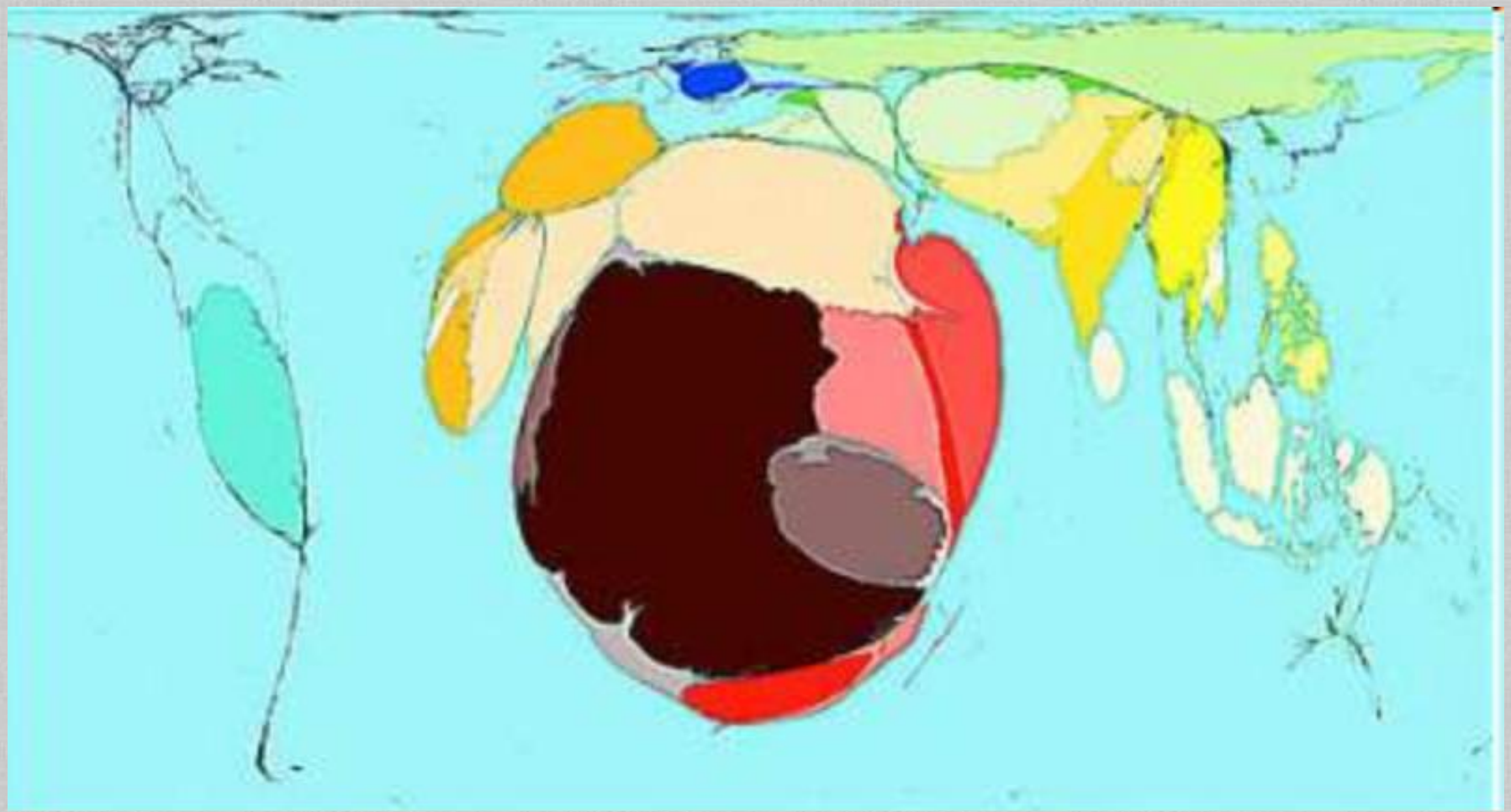
Cons

- Not as common in human geography because of what we show

Cartogram


AN ALTERNATIVE VIEW OF THE WORLD
North America
Western Europe
Japan and South Korea
GDP (Gross Domestic Product) per capita, 2000
in PPP (Purchasing Power Parity), US$
More than 25,000
20,000 to 25,000
15,000 to 20,000
10,000 to 15,000
No data
7,000 to 10,000
4,000 to 7,000
2,000 to 4,000
Less than 2,000
Value
This square represents 100 billion US dollars
UNEP GRID Arendal
VLADIMIR S. TIKUNOV
MAY 2002

Cartogram



Cartogram

- A Thematic map in which some thematic mapping variable is substituted for land area (e.g., GDP)
- What could be strengths of this type of map?
- What could be the weaknesses of this type of map?

Pros

- Visually impactful

Cons

- True size and direction is distortion

Are maps FACT or OPINION?

Mark Monmonier

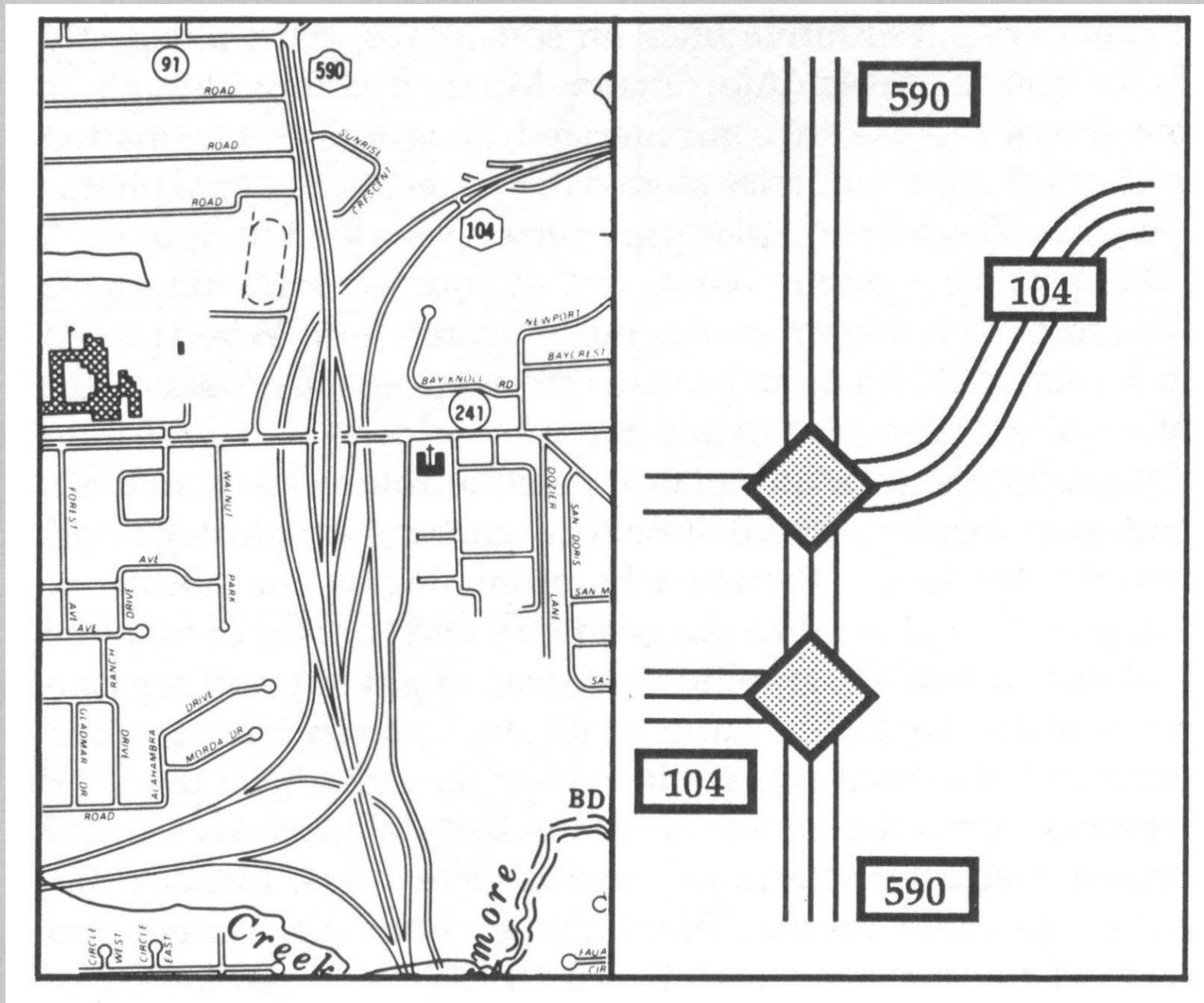
How to Lie with Maps

Second Edition

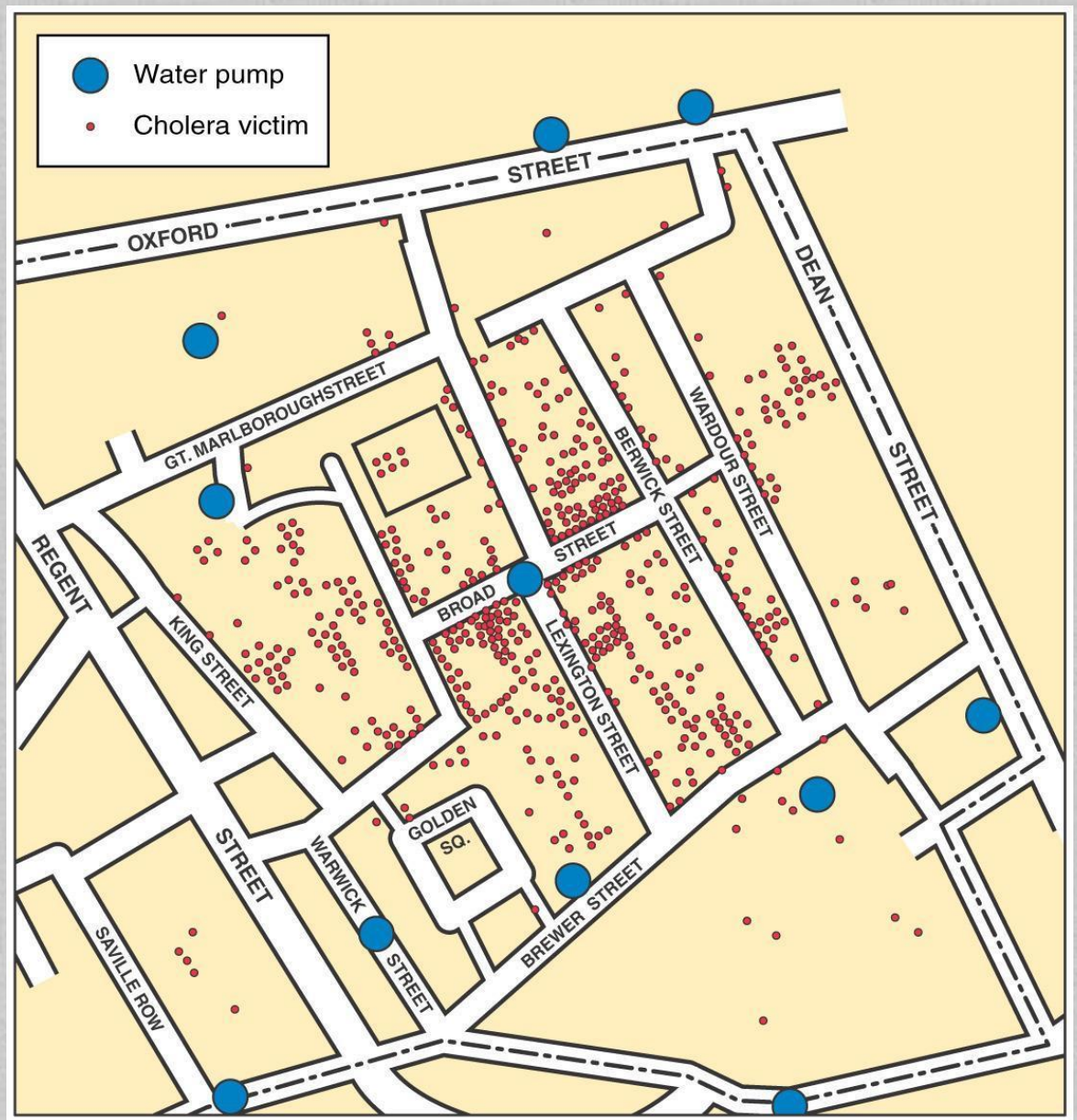
With a new Foreword by H. J. de Blij

Simplification

Simplification



Symbolization



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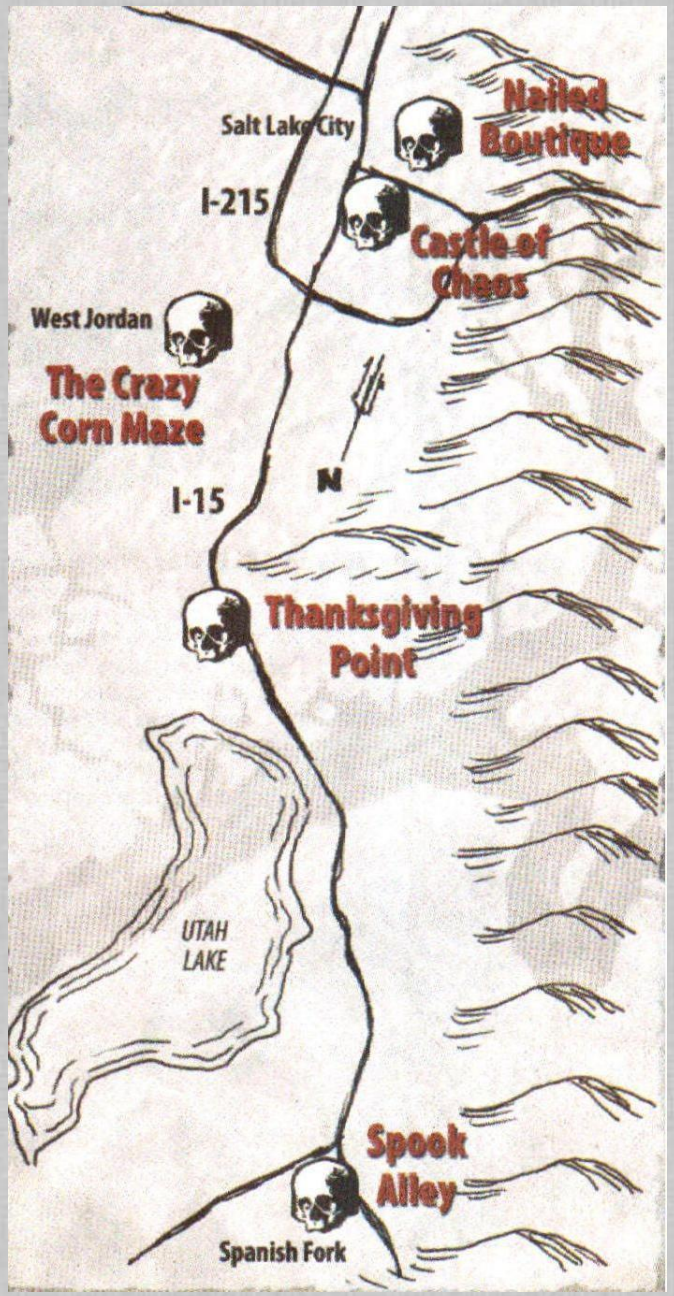
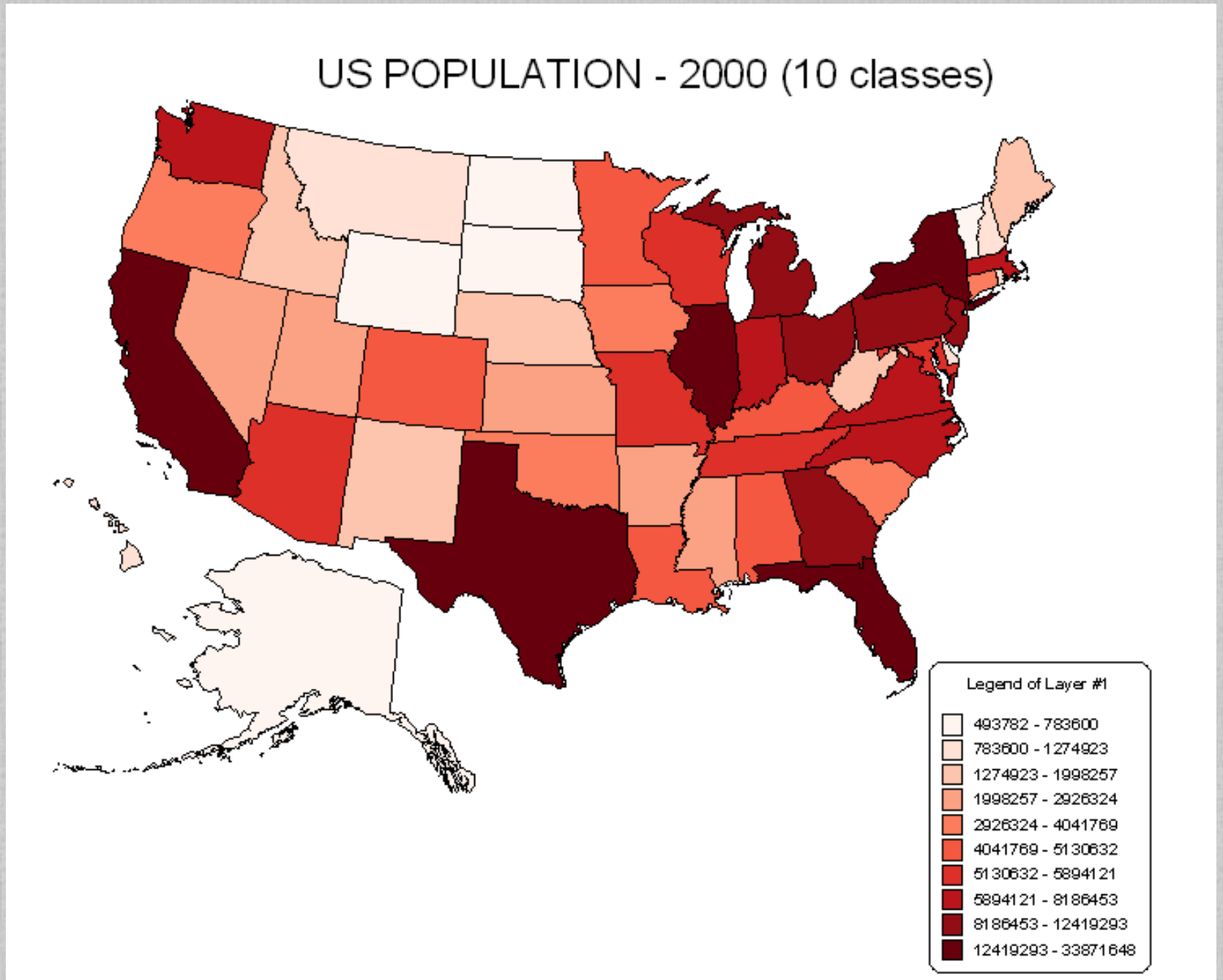
Symbolization



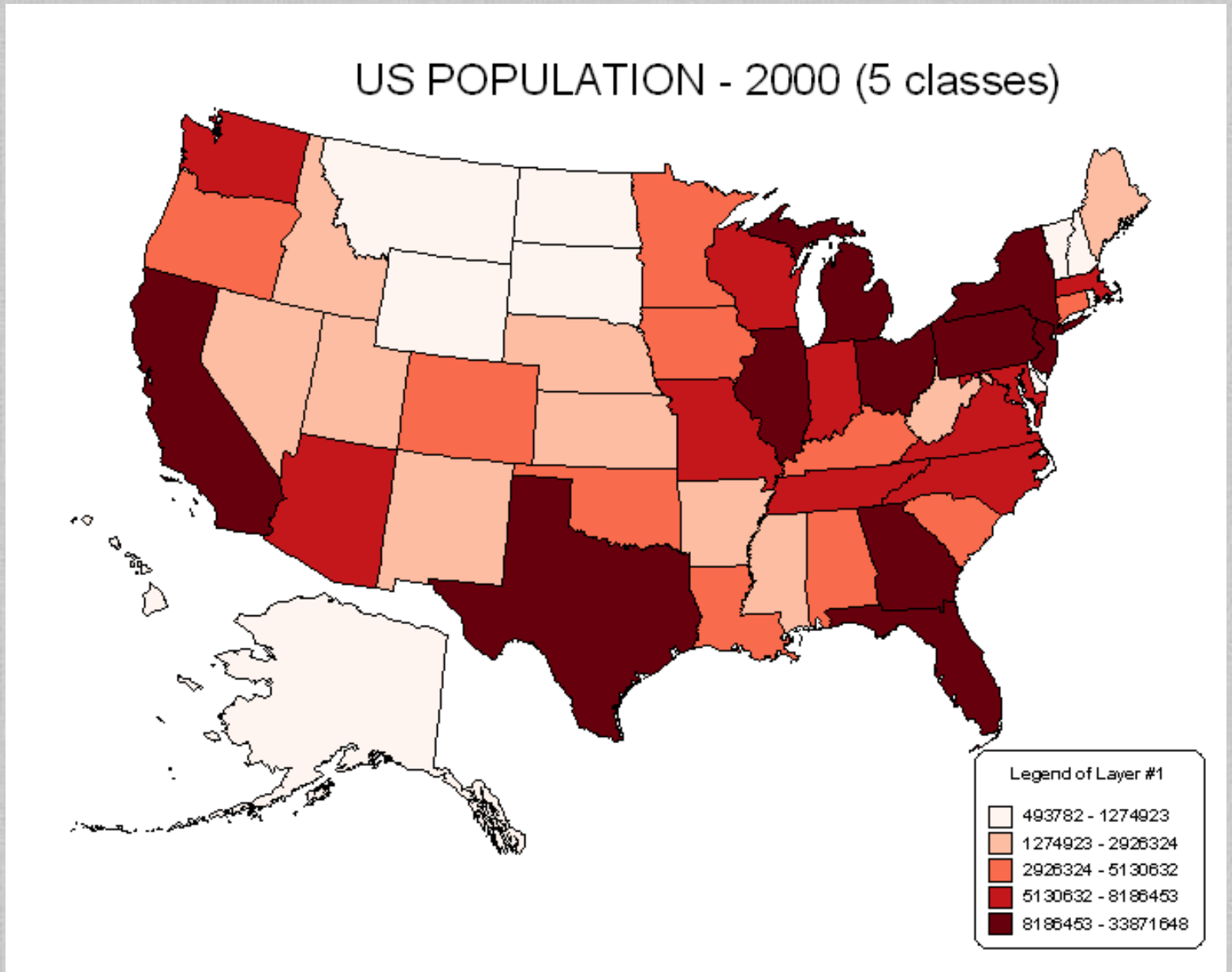
Symbolization

Symbolization

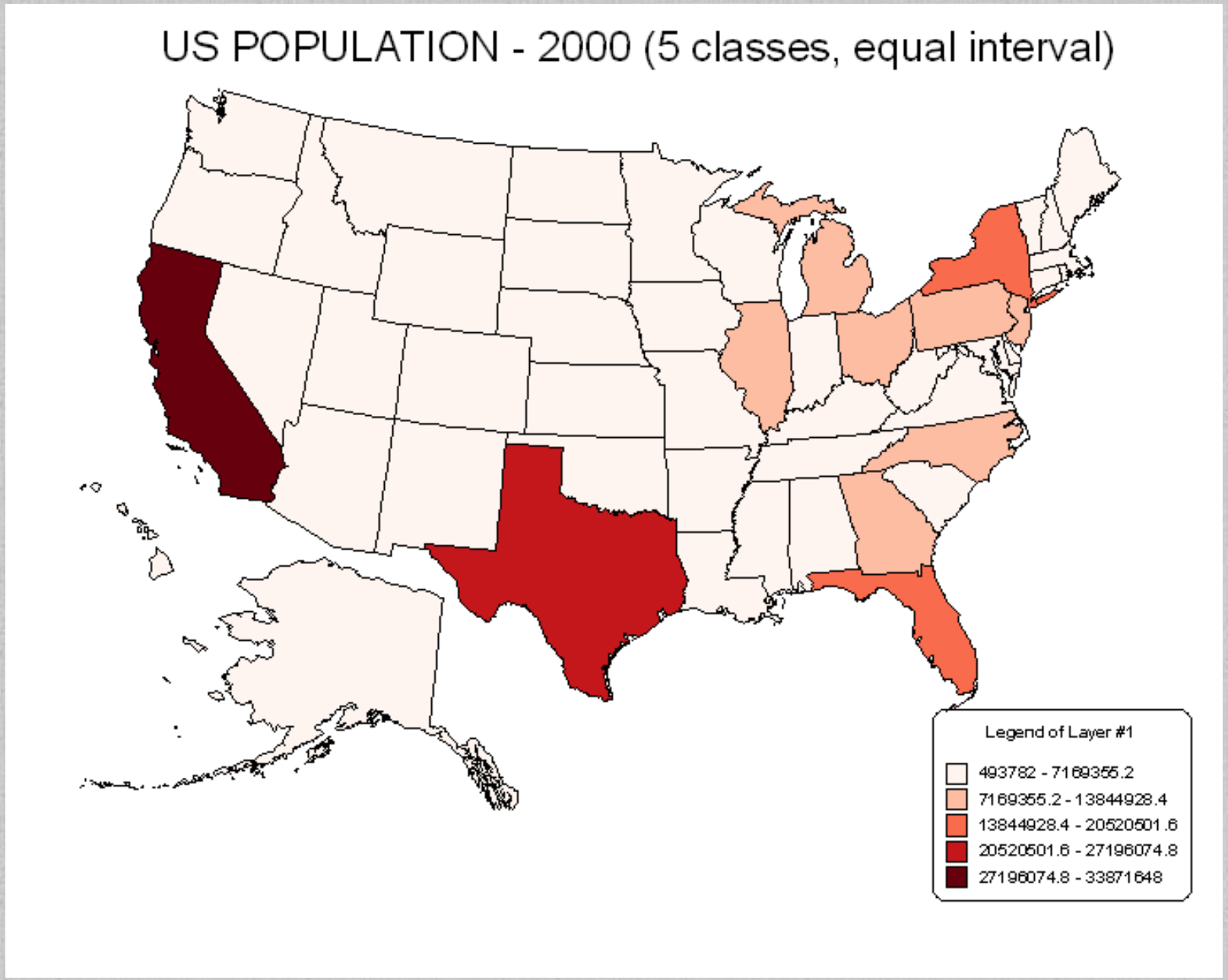
Classification



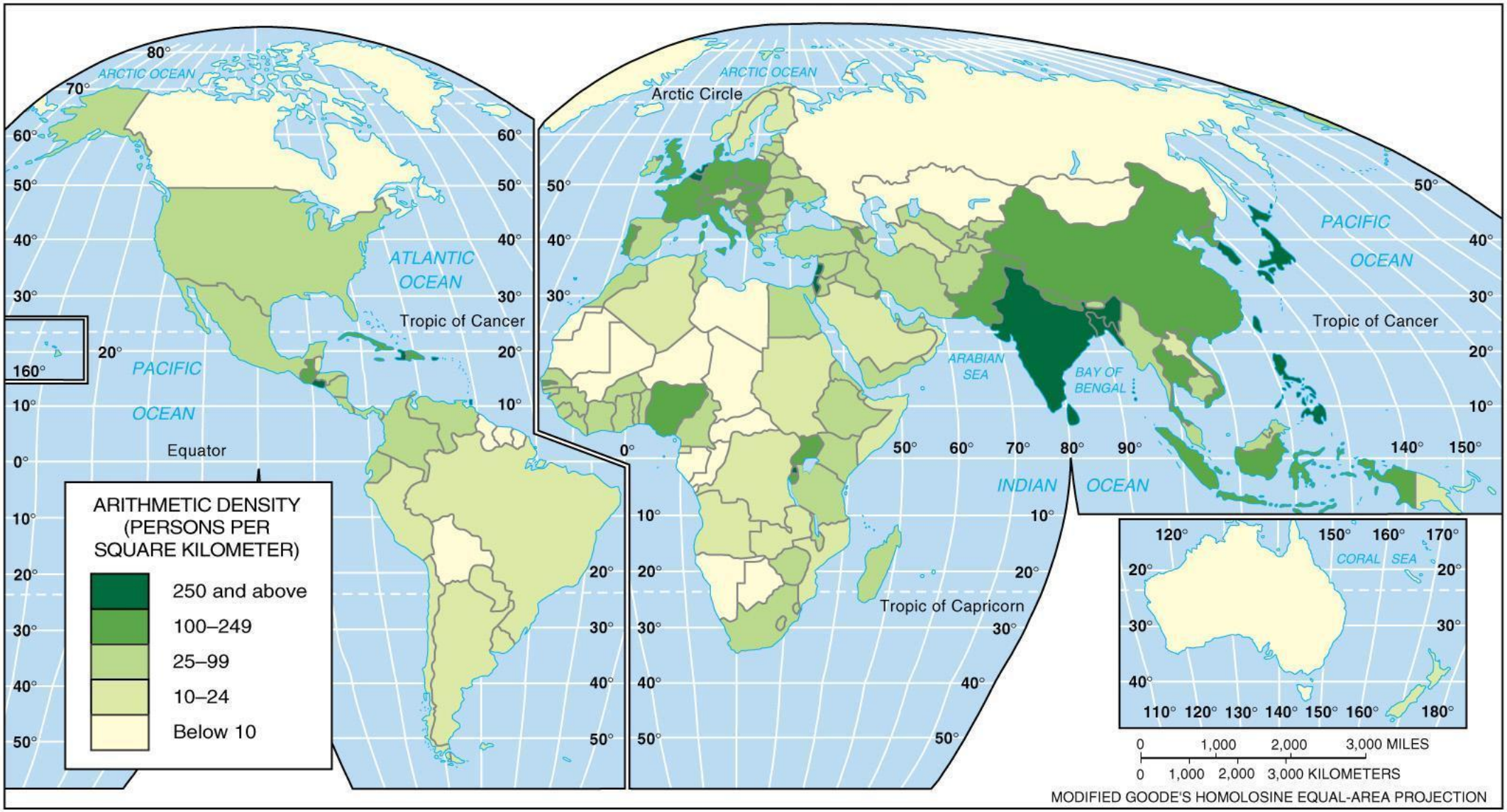
Classification



Classification



Induction-more info is given than from the original data



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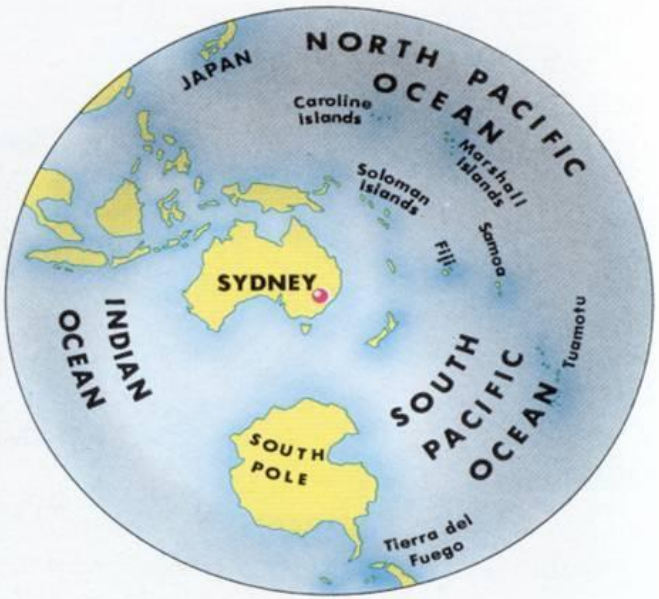
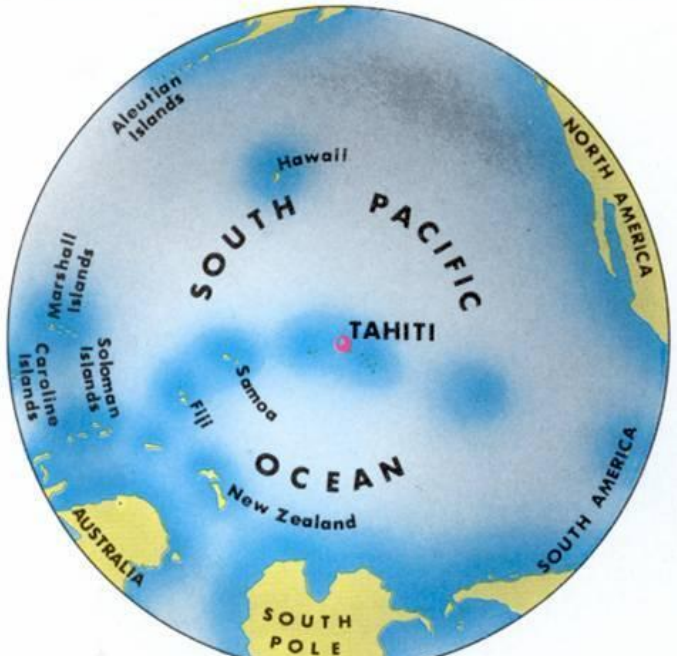
Centering

PACIFIC OCEAN
NORTH AMERICA
NORTH POLE
ASIA
CHINA
USSR
LONDON
INDIA
NORTH ATLANTIC OCEAN
AFRICA
INDIAN OCEAN

NORTH PACIFIC OCEAN
NORTH AMERICA
ATLANTIC OCEAN
Azores
NORTH POLE
ASIA
CHINA
MOSCOW
EUROPE
INDIA
AFRICA
INDIAN OCEAN
Seychelles


JAPAN
NORTH PACIFIC OCEAN
Caroline Islands
Marshall Islands
Soloman Islands
Fiji
Samoa
SYDNEY
INDIAN OCEAN
SOUTH PACIFIC OCEAN
Tuamotu
SOUTH POLE
Tierra del Fuego

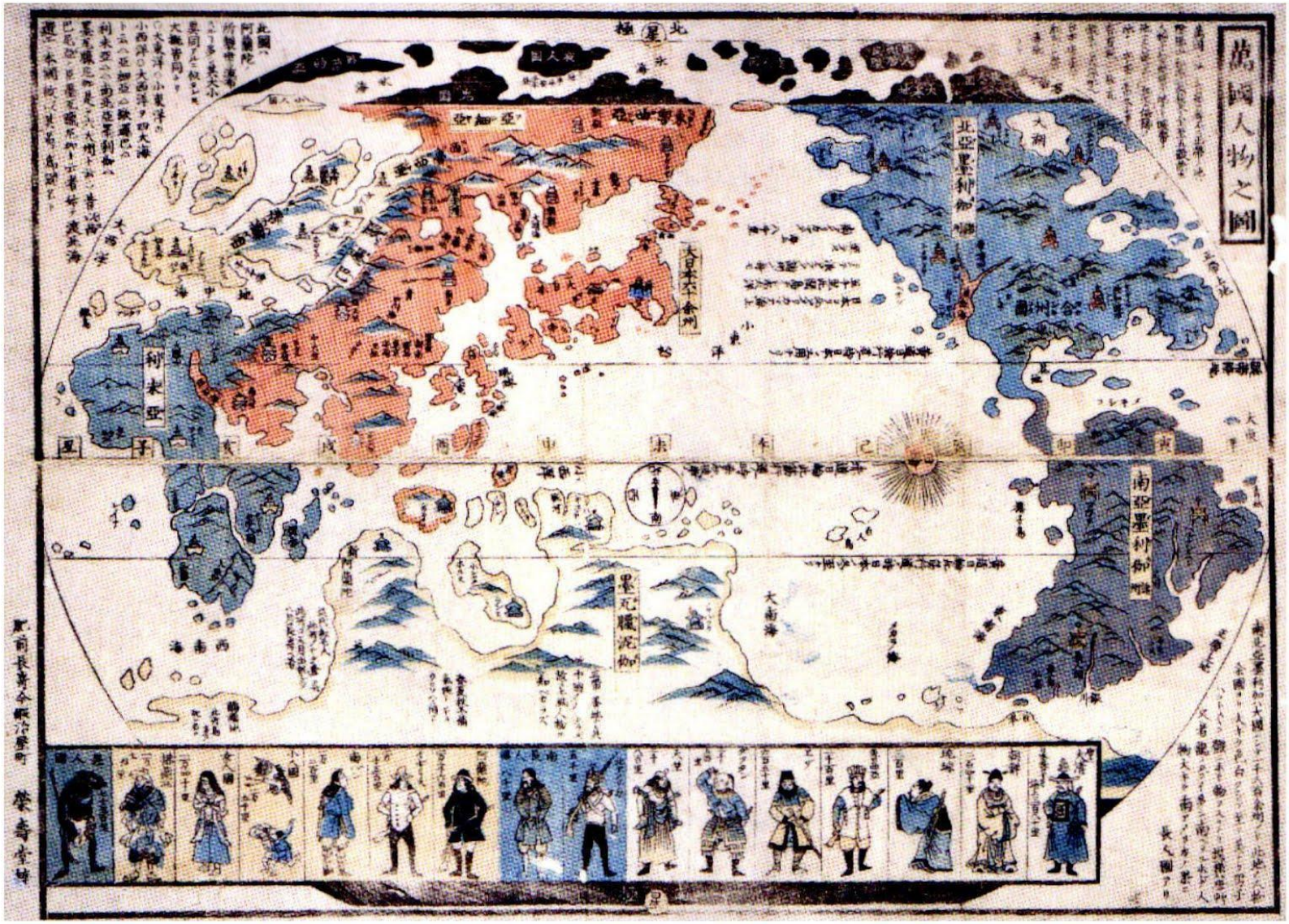

Aleutian Islands
Hawaii
NORTH AMERICA
SOUTH PACIFIC OCEAN
Marshall Islands
Caroline Islands
Soloman Islands
Samoa
Fiji
TAHITI
New Zealand
AUSTRALIA
SOUTH AMERICA
SOUTH POLE

ASIA
EUROPE
NORTH POLE
NORTH ATLANTIC OCEAN
NORTH PACIFIC OCEAN
NORTH AMERICA
SAN FRANCISCO
SOUTH AMERICA
Hawaii
Samoa
Fiji
SOUTH PACIFIC OCEAN
Tuamotu
Galapagos Islands

NORTH AMERICA
NORTH POLE
Hawaii
ARABIA
ASIA
USSR
CHINA
TOKYO
Marshall Islands
Caroline Islands
PACIFIC OCEAN
INDIAN OCEAN
INDONESIA
AUSTRALIA

Centering

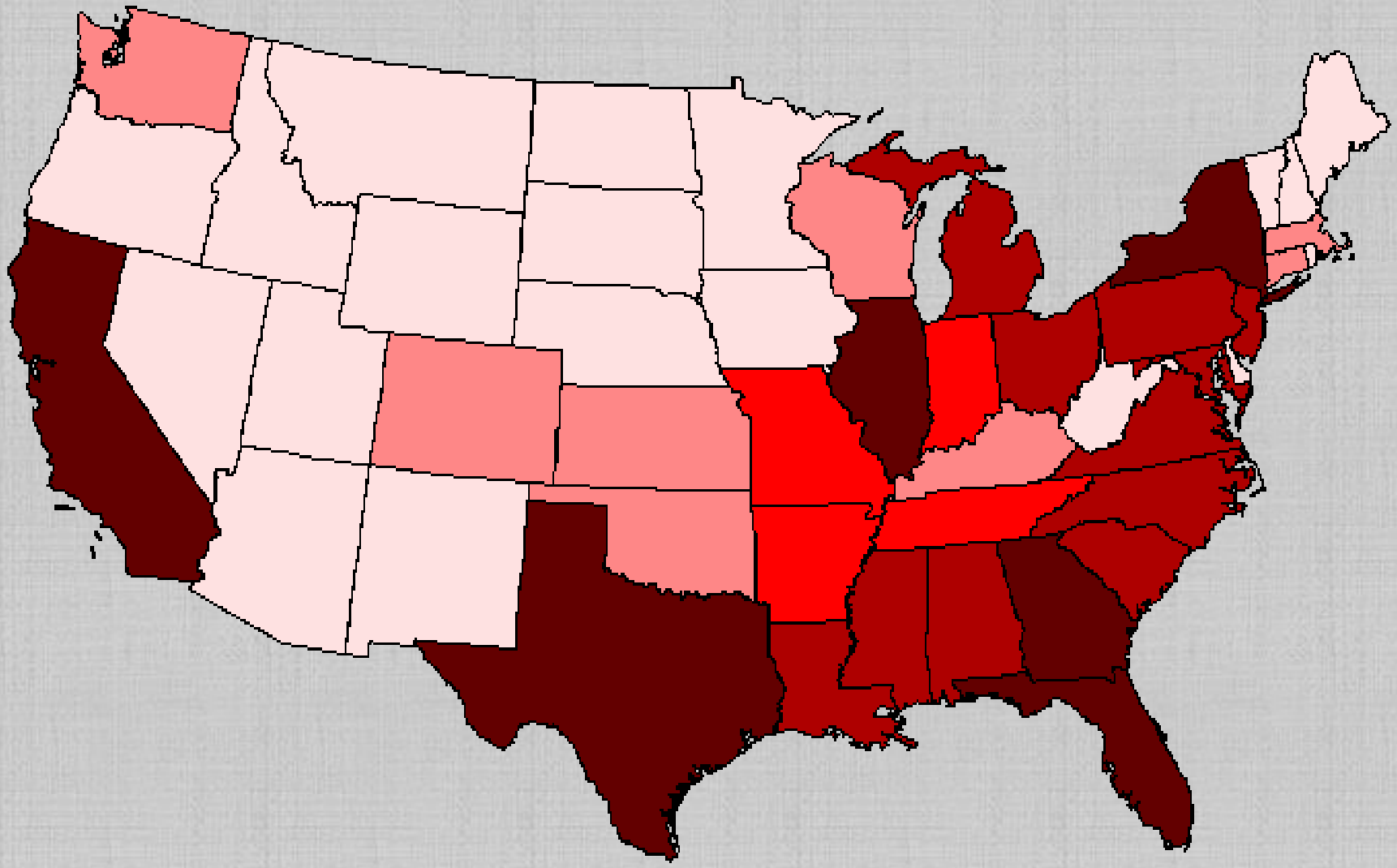
Spain: Science Business Class
Spain ranks 9th in world scientific output. Between 2003 and 2007, the government budget allocated to R&D grew at the second highest rate. Spain: a country of cultural and scientific talent.
GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA E INNOVACIÓN


萬國人物之圖
北星極
北亞墨利伽
南亞墨利伽
墨瓦臘泥伽
大南海
西南海
大日本六十余州
利未亞

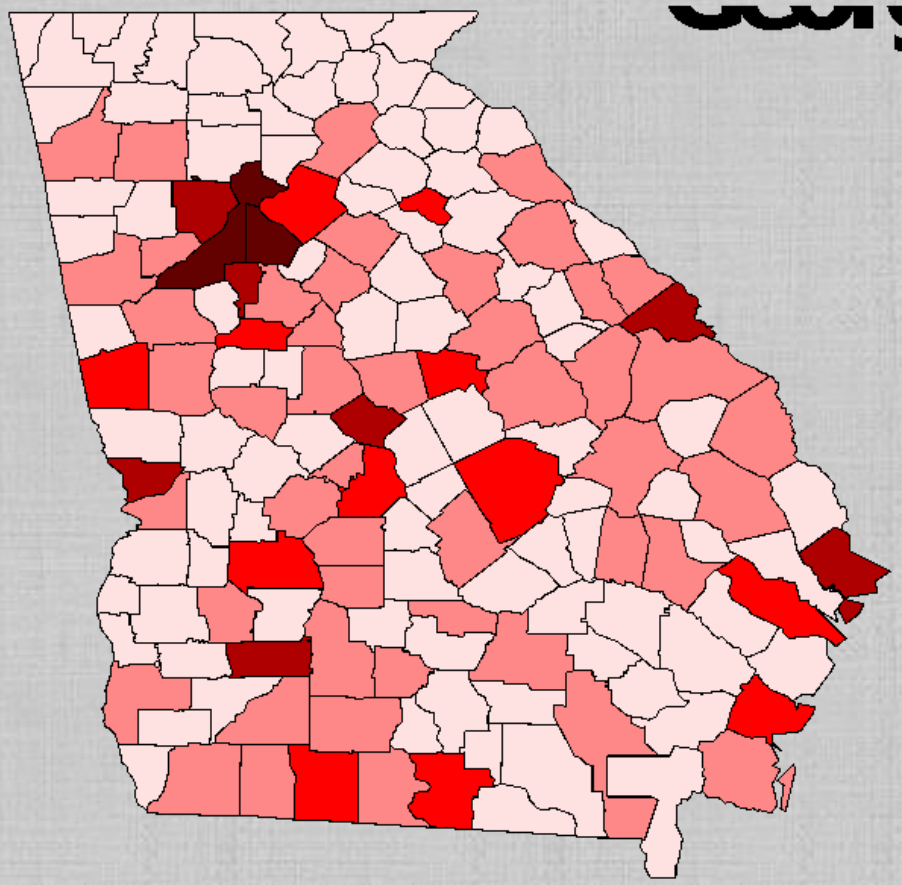
Where the big bird will fly
Busiest airports for large aircraft* by 2025
London Heathrow 2
Amsterdam 20
Frankfurt Main 9
10
Madrid 19
Paris Charles de Gaulle
San Francisco 18
Los Angeles 7
16 New York JFK
Dubai 3
Beijing 8
Seoul 17
4 Tokyo Narita
Shanghai 15
11 Tokyo Haneda
1
12 Taipei
Bangkok 6
Hong Kong
5 Singapore
14 Johannesburg
13 Sydney
ATLANTIC OCEAN
INDIAN OCEAN
PACIFIC OCEAN
*Ranked by number of large-aircraft operations
Source: Airbus

Where the big bird will fly
Busiest airports for large aircraft* by 2025
ARCTIC OCEAN
London Heathrow 2
Amsterdam 20
Frankfurt Main 9
10
Madrid 19
Paris Charles de Gaulle
Beijing 8
Seoul 17
4 Tokyo Narita
Shanghai 15
11 Tokyo Haneda
1
12 Taipei
Bangkok 6
Hong Kong
5 Singapore
3 Dubai
San Francisco 18
Los Angeles 7
16 New York JFK
14 Johannesburg
13 Sydney
ATLANTIC OCEAN
INDIAN OCEAN
PACIFIC OCEAN
Source: Airbus
*Ranked by number of large-aircraft operations

Scale



Scale



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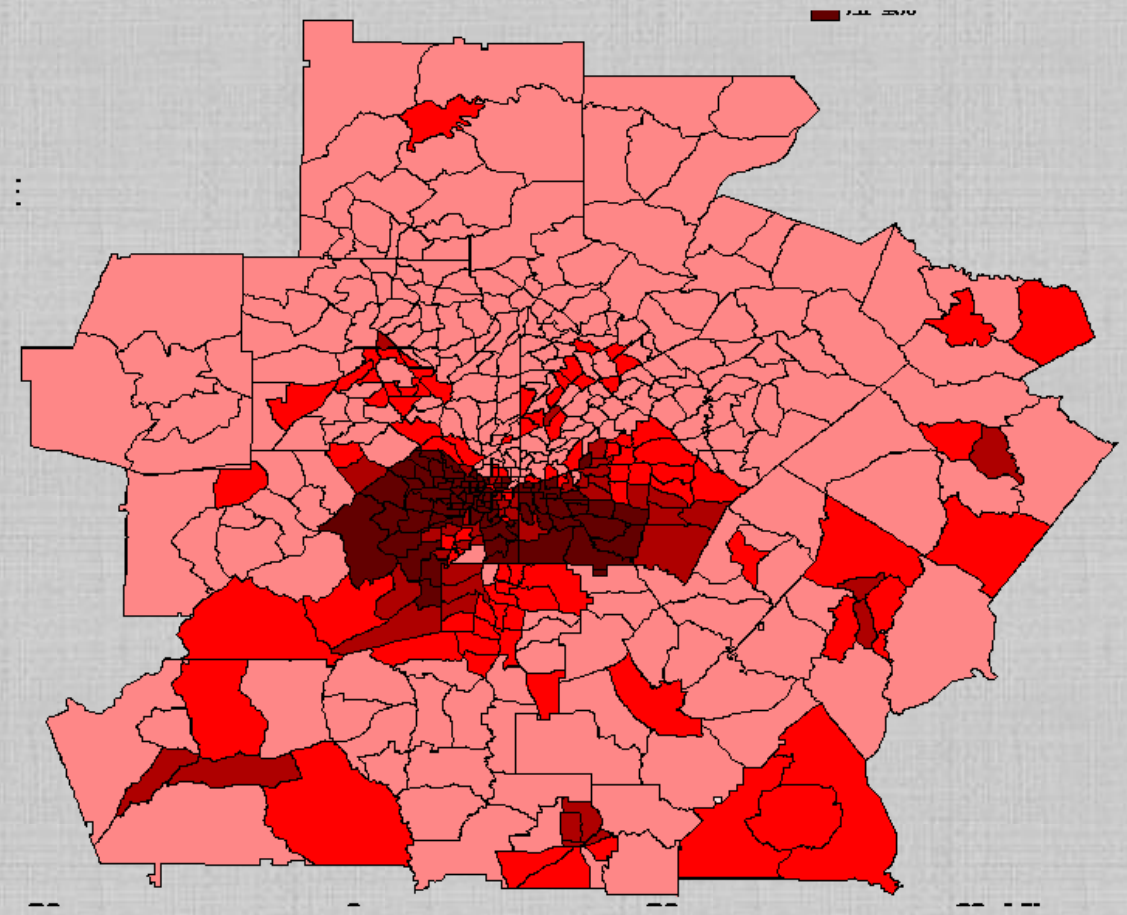
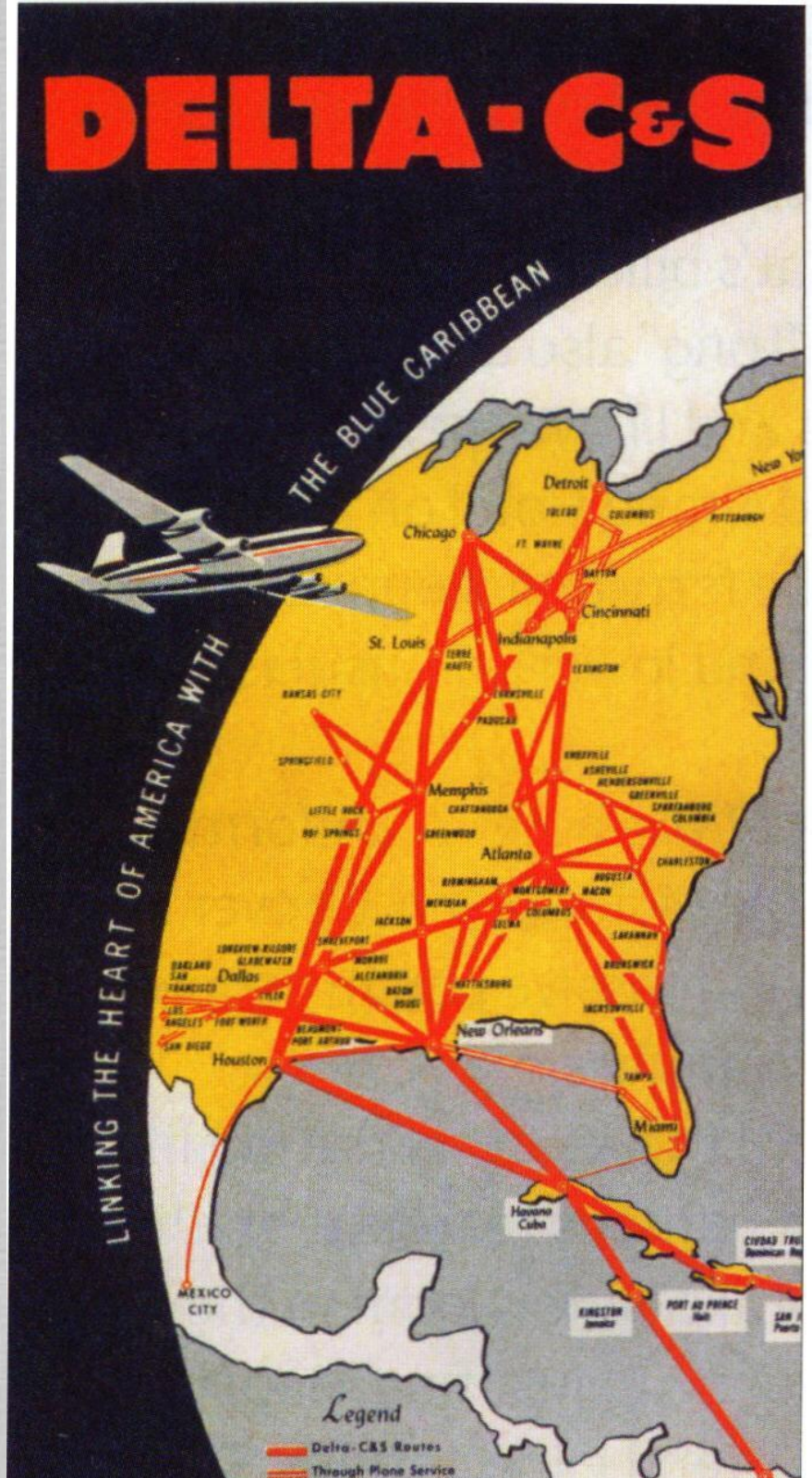
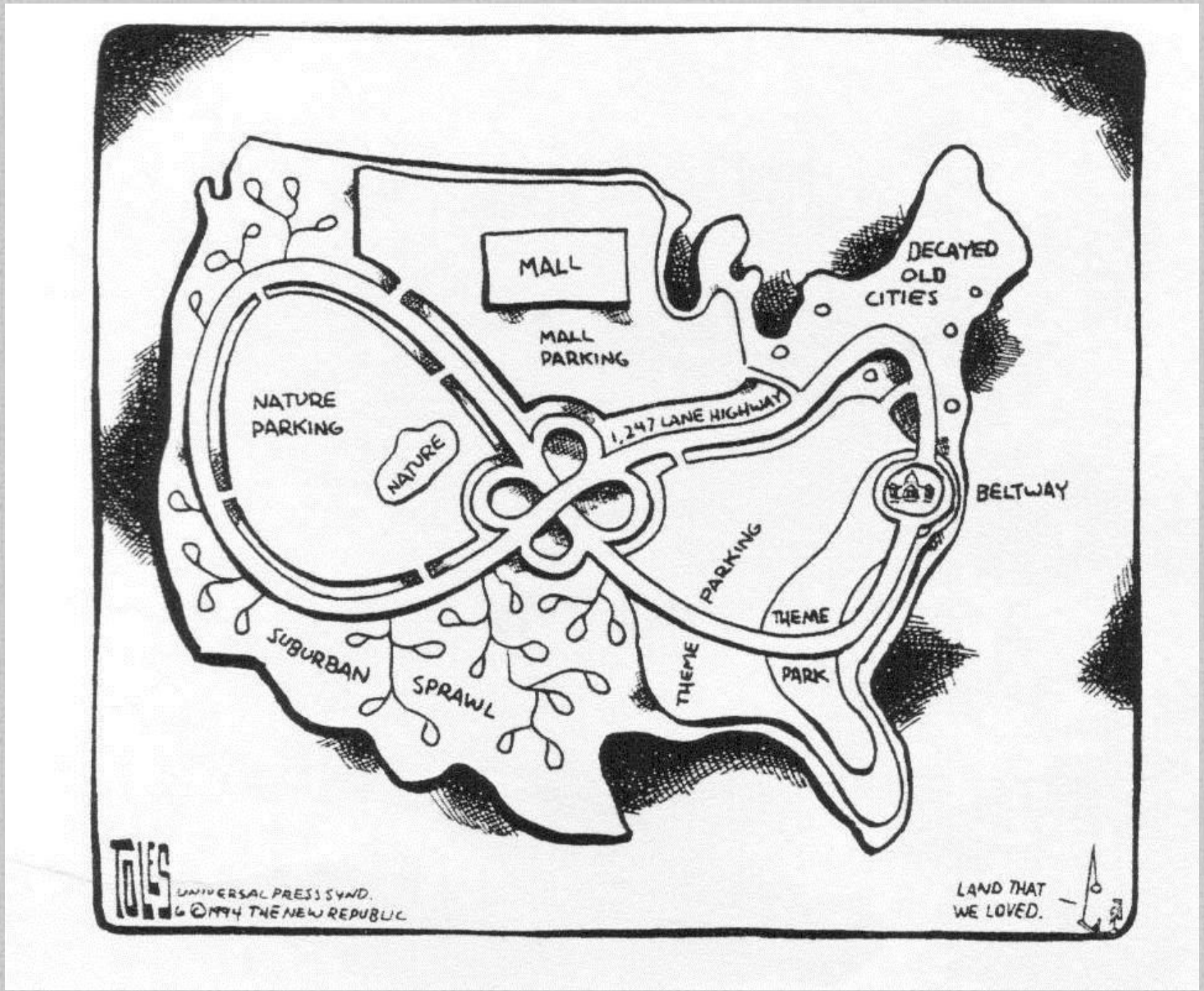



DELTA-C&S
THE BLUE CARIBBEAN
LINKING THE HEART OF AMERICA WITH
Detroit
Chicago
Cincinnati
Indianapolis
St. Louis
Memphis
Atlanta
Dallas
Houston
New Orleans
Havana
Cuba
MEXICO CITY
Legend
Delta-C&S Routes
Through Plane Service

Message/Art


MALL
MALL PARKING
DECAYED OLD CITIES
NATURE PARKING
NATURE
1,247 LANE HIGHWAY
BELTWAY
PARKING
THEME PARK
THEME
SUBURBAN SPRAWL
TOLES
UNIVERSAL PRESS SYND.
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LAND THAT WE LOVED.

CHECHNYA
Camp of Chechen fighters in Pankisi Gorge
Weapons delivery center
Branch of Azerbaijan's office of "Muslim Brotherhood"
Derbent
Terrorist Installations in Azerbaijan
0 75 Kilometers
0 www.nagorno-karabakh.info 75 Miles
Akhmeta
Terrorist training center in Akhmeta
GEORGIA
RUSSIAN FEDERATION (Dagestan)
Weapons delivery from Azerbaijan to Chechnya by sea
CASPIAN SEA
TBILISI
1989, 1990, 1991, 1992, 1993, 1994
Terrorist training center in Kazax
Terrorist pilot training center in Belokany
Belokany
Zakataly
Terrorist training camps in Zakataly, Belokany, and Sheki
Quba
Narcotics from Central Asia and Afghanistan
"Grey Wolves" neo-fascists' camp in Ganca
AZERBAIJAN
"Grey Wolves" neo-fascists' training camp in Guzdek
Azerbaijani terrorists' bombing attacks on Vladikavkaz-Tbilisi-Yerevan natural gas pipeline
Kazax
Terrorist training center in Seifuli
Ganca
Helicopter pilot training center in Zabrat-2
Central office of "Muslim Brotherhood"
Camp of Afghan mercenaries at Ali-Bairamli, Yevlax (Hezb-e-Islami group, under Gulbuddin Hekmatyar)
ARMENIA
Lake Sevan
1993 1994
1992
Getashen
Weapons delivery to Chechnya
BAKU
YEREVAN
NAGORNO KARABAKH REPUBLIC
1992-1994
Stepanakert
Shusha
Camp of Afghan mercenaries at Doliburun (Hezb-e-Islami group, under Gulbuddin Hekmatyar)
"Grey Wolves" neo-fascists' training camp in Shikhovo
Office of "Islamic Jihad"
Terrorist pilot training school at Nasosny
TURKEY
Jermouk
Lachin
Goris
Hadrut
1994
Attacks of Afghan mujahedin mercenaries on Nagorno Karabakh from 1992-1994
"Grey Wolves" neo-fascists' training camp in Naxichevan
Julfa
Meghri
Osama bin Laden, the world's No.1 terrorist, was hired by Azerbaijan to fight against Armenians in Nagorno Karabakh (1992-1994). In 1998, Al-Qayeda terrorists coordinated the American Embassy bombings in Tanzania and Kenya from Baku, Azerbaijan.
Azerbaijani terrorists' bombing attacks on Yerevan-Naxichevan-Meghri railway
IRAN
"Jeishullah" Terrorist Base