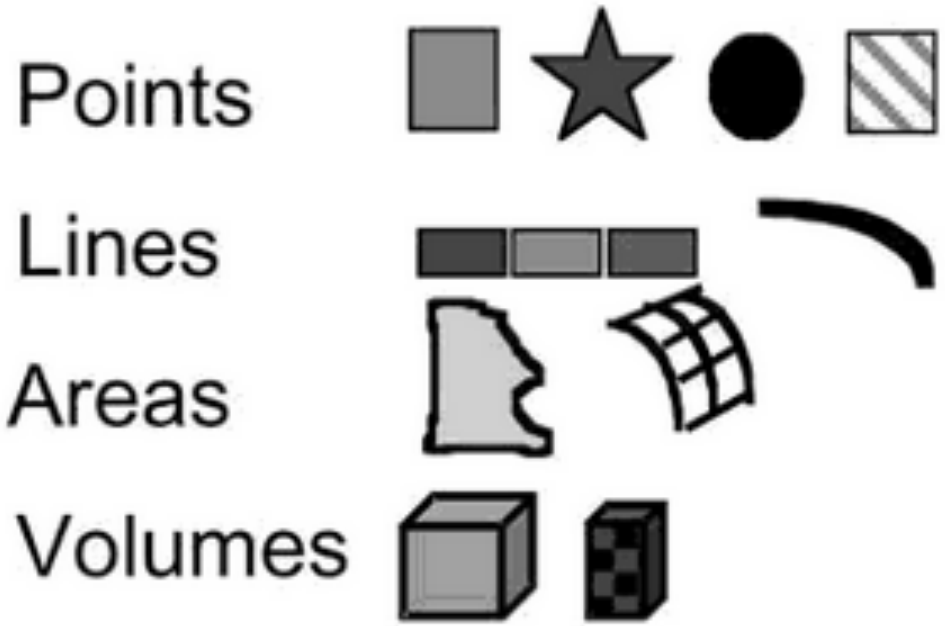
# Visual Encodings

# Types of Marks




Source: Card, Mackinlay, & Shneiderman, 1999. Readings in Information Visualization: Using Vision to Think

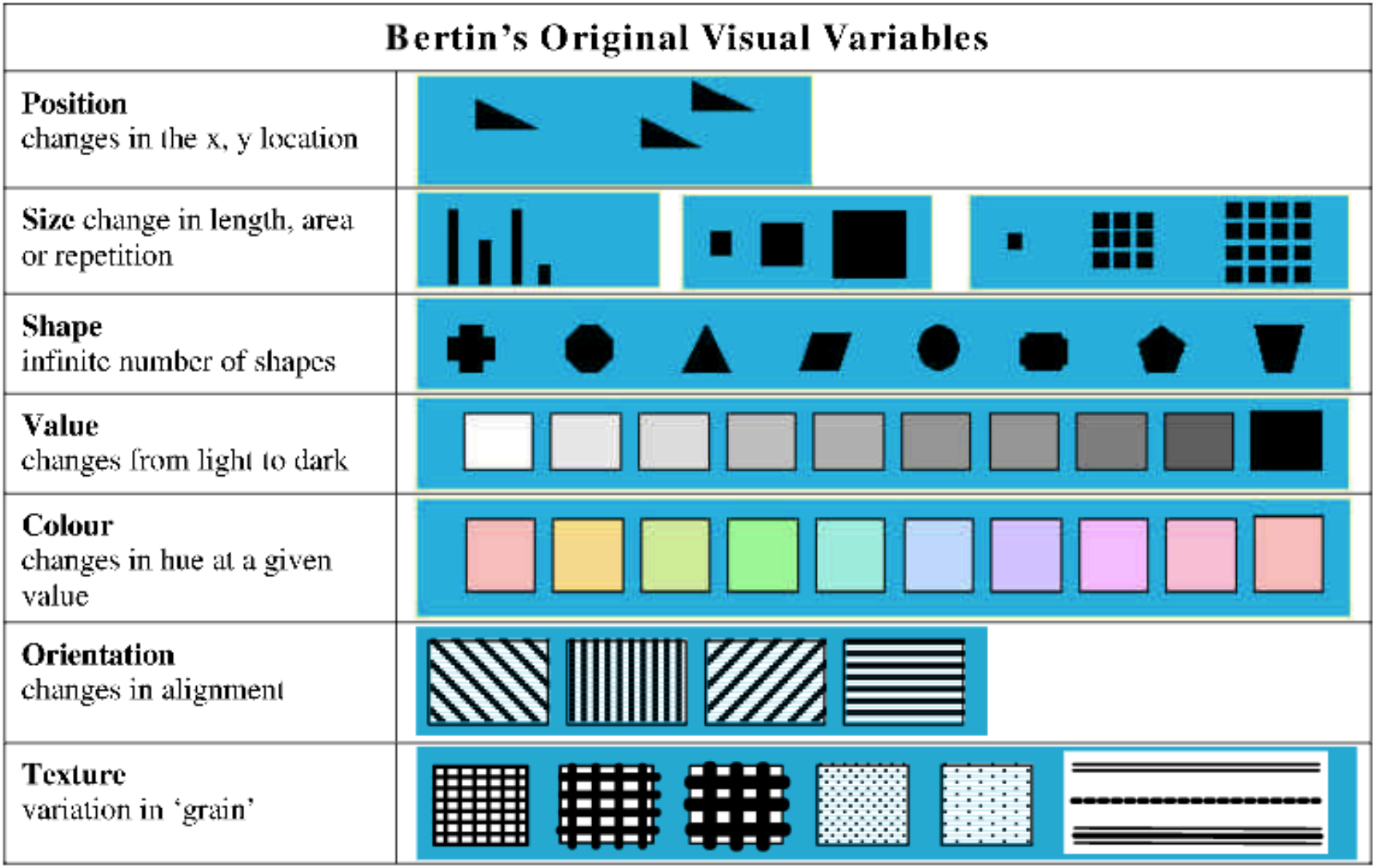



Diagram Source: Carpendale, 2003

# Additional Encodings

- Enclosure and connection

(e.g., treemaps, network graphs)

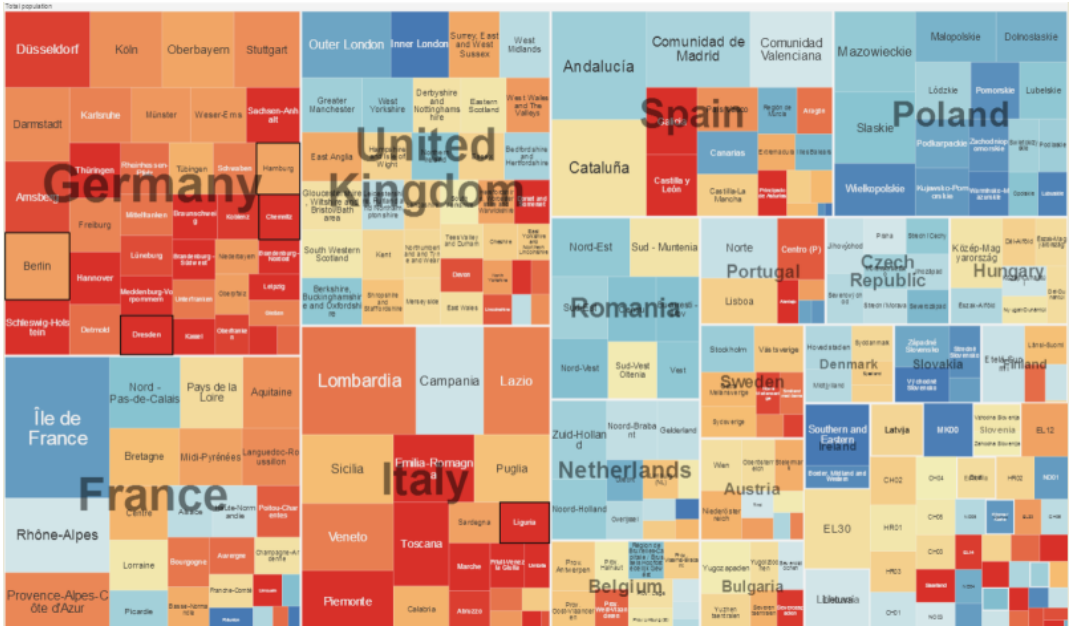



Image Source: http://ncva.itn.liu.se/education-geovisual-analytics/treemap?l=en

# Additional Encodings

- Time

(e.g., animation)

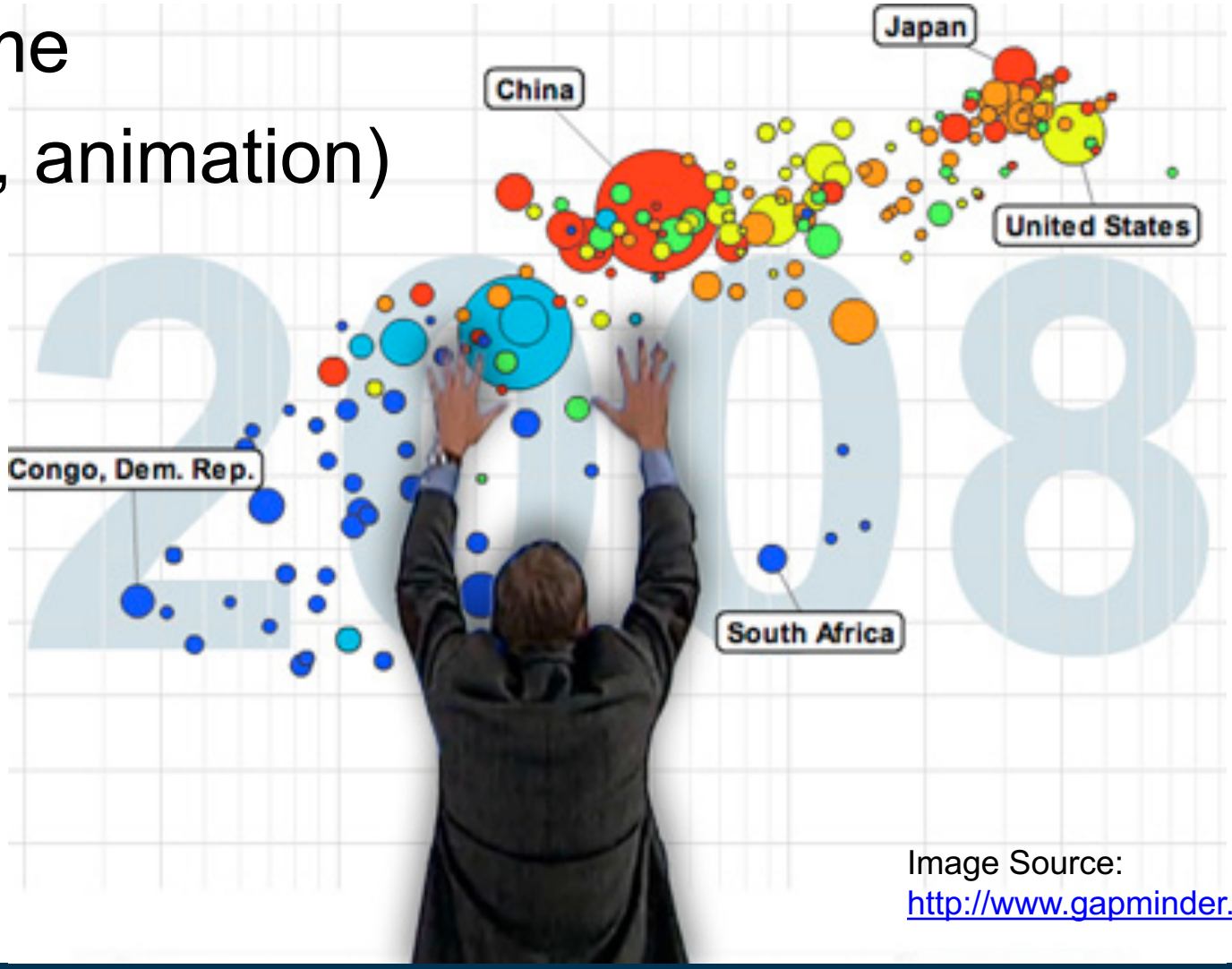



Image Source:
http://www.gapminder.org

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# Dissecting a Visualization

# A Process Model

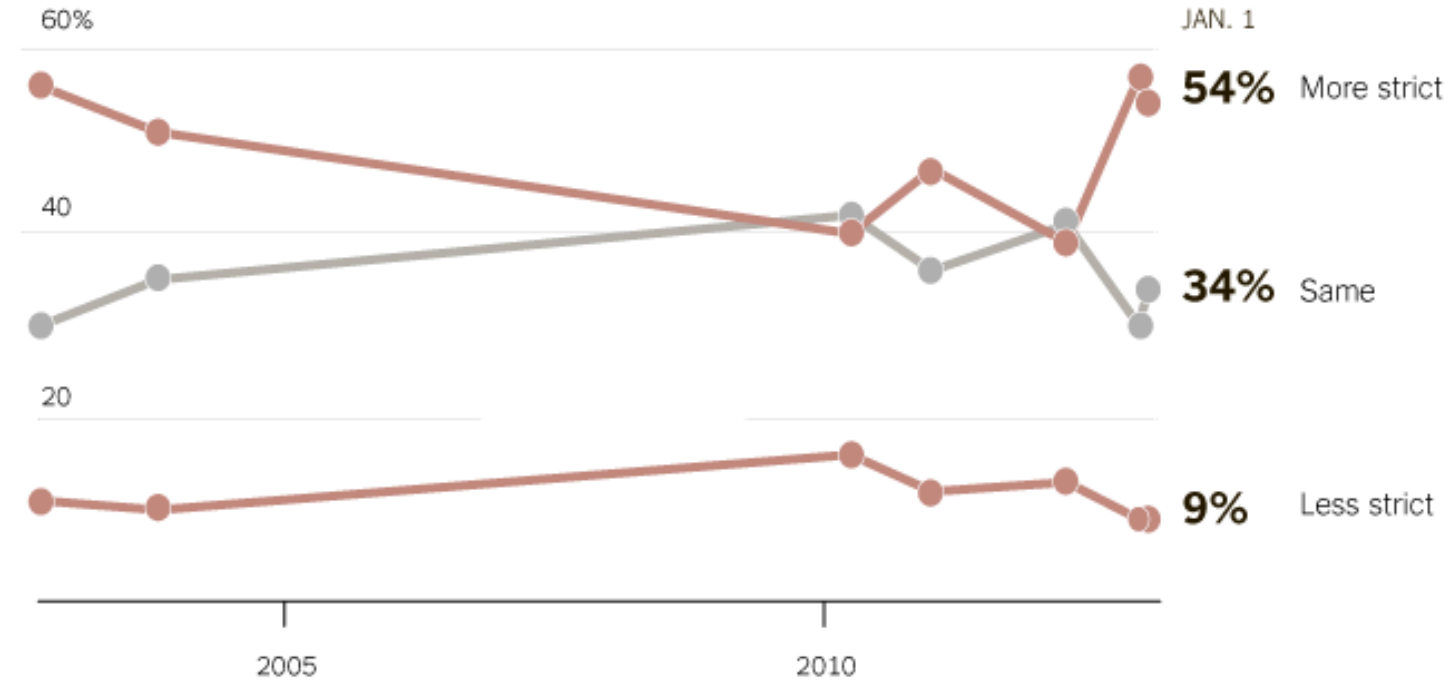
1) Decide which variables to map into spatial positions
2) Combine mappings (transform as needed)
3) Use visual encoding for variables
4) Decide on controls for interaction
5) Apply attention-reactive features

[Card, 1999]

# Americans' Views on Gun Control

The New York Times | CBS NEWS Poll

**Should gun control laws be made more strict, less strict, or kept as they are now?**



| |
|---|
| **Position**<br>changes in the x, y location |
| **Size** change in length, area or repetition |
| **Shape**<br>infinite number of shapes |
| **Value**<br>changes from light to dark |
| **Colour**<br>changes in hue at a given value |
| **Orientation**<br>changes in alignment |
| **Texture**<br>variation in 'grain' |

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